**Tasman District Council**
189 Queen Street, Richmond 7020
building.support@tasman.govt.nz
03 543 8400

# BC220131

Alpha ID: 220131
Application Type: Building Consent
Site Address: 18 Kahikatea Way, Richmond
Project Description: Construct new dwelling with internal access garaging
Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised
Project Status: Code Compliance Certificate Issued

Creation Date: 10 December 2022

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Date Submitted: Thursday, 10 February 2022

# Form 2
# Application for project information memorandum and/or building consent

*Section 33 or section 45, Building Act 2004*

## The building

| | |
|---|---|
| Street address of building: | 18 Kahikatea Way<br>Tasman<br>7020 |
| Legal description of land where building is located: | Lot 366 DP 561194 |
| Building name: | Main Building |
| Location of building within site/block number: | 18 Kahikatea Way<br>Tasman<br>7020 |
| Number of levels: | No information provided |
| Level/unit number: | No information provided |
| Area: | Total: 175.56 m2, Change: 175.56 m2 |
| Current, lawfully established, use: | 2.0 Housing: 2.0.2 Detached Dwelling |
| Year first constructed: | 2022 |

## The owner

| | |
|---|---|
| Name of owner: | David & Susan Ford |
| Mailing address: | 17 Petra Way<br>Tasman<br>7173 |
| Street address/registered office: | No information provided |
| Phone number: | Landline: 0272288250 Mobile: N/A |
| Daytime: | Landline: 0272288250 Mobile: N/A |
| After hours: | Landline: 0272288250 Mobile: N/A |
| Facsimile number: | No information provided |
| Email address: | sueanddaveford@gmail.com |
| Website: | No information provided |

The following evidence of ownership is attached to this application:

1. 18KahikateaWay_-_CT.pdf (6.32M)

**Agent**

| | | | | |
|---|---|---|---|---|
| Name of agent: | LSK Builders 2011 Limited | | | |
| Contact person: | Stephen Vercoe | | | |
| Mailing address: | 195 Queen Street<br>Tasman<br>7020 | | | |
| Street address/registered office: | N/A | | | |
| Phone number: | Landline: | 035439502 | Mobile: | N/A |
| Daytime: | Landline: | 035439502 | Mobile: | N/A |
| After hours: | Landline: | 035439502 | Mobile: | N/A |
| Facsimile number: | No information provided | | | |
| Email address: | nelson@gjgardner.co.nz | | | |
| Website: | No information provided | | | |
| Relationship to owner: | Application made on owners behalf | | | |

First point of contact for communications with the council/building consent authority:

| | |
|---|---|
| Full name: | LSK Builders 2011 Limited |
| Mailing address: | 195 Queen Street<br>Tasman<br>Richmond 7020 |
| Phone number(s): | 035439502 |
| Facsimile number(s): | N/A |
| Email address(es): | nelson@gjgardner.co.nz |

**Application**

I request that you issue a building consent for the building work described in this application.

Signature of agent on behalf of and with the authority of the owner:

MIKO SHEPPARD

Date: 10 Feb 2022

*space for council use*

| | |
|---|---|
| Application Type | Building Consent only |
| Reference Key: | 44356626TG |
| Name: | Premier Services Ltd |
| Application Role: | Agent |
| Multiproof approval number: | 107 |

**The project**

Description of the building work:
Construct three bedroom dwelling with attached double garage

| | |
|---|---|
| Will the building work result in a change of use of the building? | No |
| Intended life of the building if less than 50 years: | 50 years |
| List building consents previously issued for this project (if any): | No information provided |
| Estimated value of the building work on which the building levy will be calculated (including goods and services tax): | $559,000 |

**Restricted building work**

Will the building work include any restricted building work? Yes

If Yes, provide the following details of all licensed building practitioners who will be involved in carrying out or supervising the restricted building work:

| | |
|---|---|
| Name | Jeremy Ritchie |
| Licensing class | Design |
| Licensed building practitioner number (or registration number if treated as being licensed under section 291 of Act) | BP110013 |

**Building consent**

The following plans and specifications are attached to this application:
1. 18KahikateaWay_-_PLANS.pdf (1.76M)

The building work will comply with the building code as follows:

| Main Building | |
|---|---|
| B1 - Structure | AS1, AS1 |
| B2 - Durability | AS1, AS1 |
| C1 - C6 - Protection from Fire (current) | AS1, AS1 |
| D1 - Access Routes | AS1 |
| E1 - Surface Water | AS1 |
| E2 - External Moisture | AS1, AS1 |
| E3 - Internal Moisture | AS1, AS1 |
| F2 - Hazardous Building Materials | AS1, AS1 |
| F4 - Safety from Falling | AS1, AS1 |
| F5 - Construction and Demolition Hazards | AS1, AS1 |
| F7 - Warning Systems | AS1, AS1 |

| | |
|---|---|
| G1 - Personal Hygiene | AS1, AS1 |
| G2 - Laundering | AS1, AS1 |
| G3 - Food Preparation | AS1, AS1 |
| G4 - Ventilation | AS1, AS1 |
| G5 - Interior Environment | AS1, AS1 |
| G7 - Natural Light | AS1, AS1 |
| G8 - Artificial Light | AS1, AS1 |
| G9 - Electricity | AS1, AS1 |
| G12 - Water Supplies | AS1 |
| G13 - Foul Water | AS1, AS1 |
| H1 - Energy Efficiency | AS1, AS1 |
| Waiver / Modification Required: | N/A |

**Compliance schedule**

*There are no specified systems in the building.*

**Attachments**

The following documents are attached to this application:

Plans and specifications

1. 18KahikateaWay_-_PLANS.pdf (1.76M)

Record of title

1. 18KahikateaWay_-_CT.pdf (6.32M)

Restricted building work memorandums / Owner-builder declaration

1. 18KahikateaWay_-_AUTH.pdf (521.45K)

Approvals from other authorities

1. 18KahikateaWay_-_BC107_MultiproofApproval.pdf (21.22K)

Building Consent Application: 44356626TG

Date Submitted: Thursday, 10 February 2022

# FORM PLG 1

**National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil to Protect Human Health**

For assistance in answering these questions please refer to (PLG 1A)

*Please note that any inaccuracies may result in the applicant being in breach of the Resource Management Act 1991 and/or exposed to liability if the site is subsequently found to be contaminated, including being liable for remedial works.*

## Is the building work and all associated activities:

Changing the use of the land? **YES**

*(Please note that "changing the use of the land" includes erecting a dwelling on an area of land which previously had no dwelling erected upon it.)*

Disturbing soil? **NO**

*(more than 25m3 per 500m2 of land) or removing soil? (more than 5m3 per 500m2 of land) (e.g.: foundations, on-site effluent treatment and disposal systems, wells or bores)*

Is the land currently being used, has been used in the past, or is likely to have been used for an activity described on the HAIL?

**NO**

*For more information on this process please contact the Duty Planner on (03) 543 8400 or go the Ministry for the Environment website: http://www.mfe.govt.nz/laws/standards/contaminants-in-soil/*

## Signature

The name below as AGENT has the authority for the application to proceed to processing and accept the associated charges.

Signed By:

**Miko Sheppard**

10 Feb 2022

The Agent will be the first point of contact for communications with the Council/Building Consent authority regarding this application / building work and will receive all correspondence including all invoices.

# RECORD OF TITLE
# UNDER LAND TRANSFER ACT 2017
# FREEHOLD

**Search Copy**

R.W. Muir
Registrar-General
of Land

**Identifier** **1006967**

**Land Registration District** **Nelson**

**Date Issued** 27 October 2021

**Prior References**
973851

---

**Estate** Fee Simple

**Area** 327 square metres more or less

**Legal Description** Lot 366 Deposited Plan 561194

**Registered Owners**

Susan Mary Ford and David John Ford

---

**Interests**

Fencing Covenant in Transfer 10803242.2 - 30.5.2017 at 4:44 pm (affects part formerly Section 9 SO 455144)

Land Covenant in Easement Instrument 11056212.14 - 25.7.2018 at 11:16 am

12228818.3 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 27.10.2021 at 10:32 am

Subject to a right (in gross) to drain sewage over part marked W on DP 561194 in favour of Tasman District Council created by Easement Instrument 12228818.6 - 27.10.2021 at 10:32 am

The easements created by Easement Instrument 12228818.6 are subject to Section 243 (a) Resource Management Act 1991

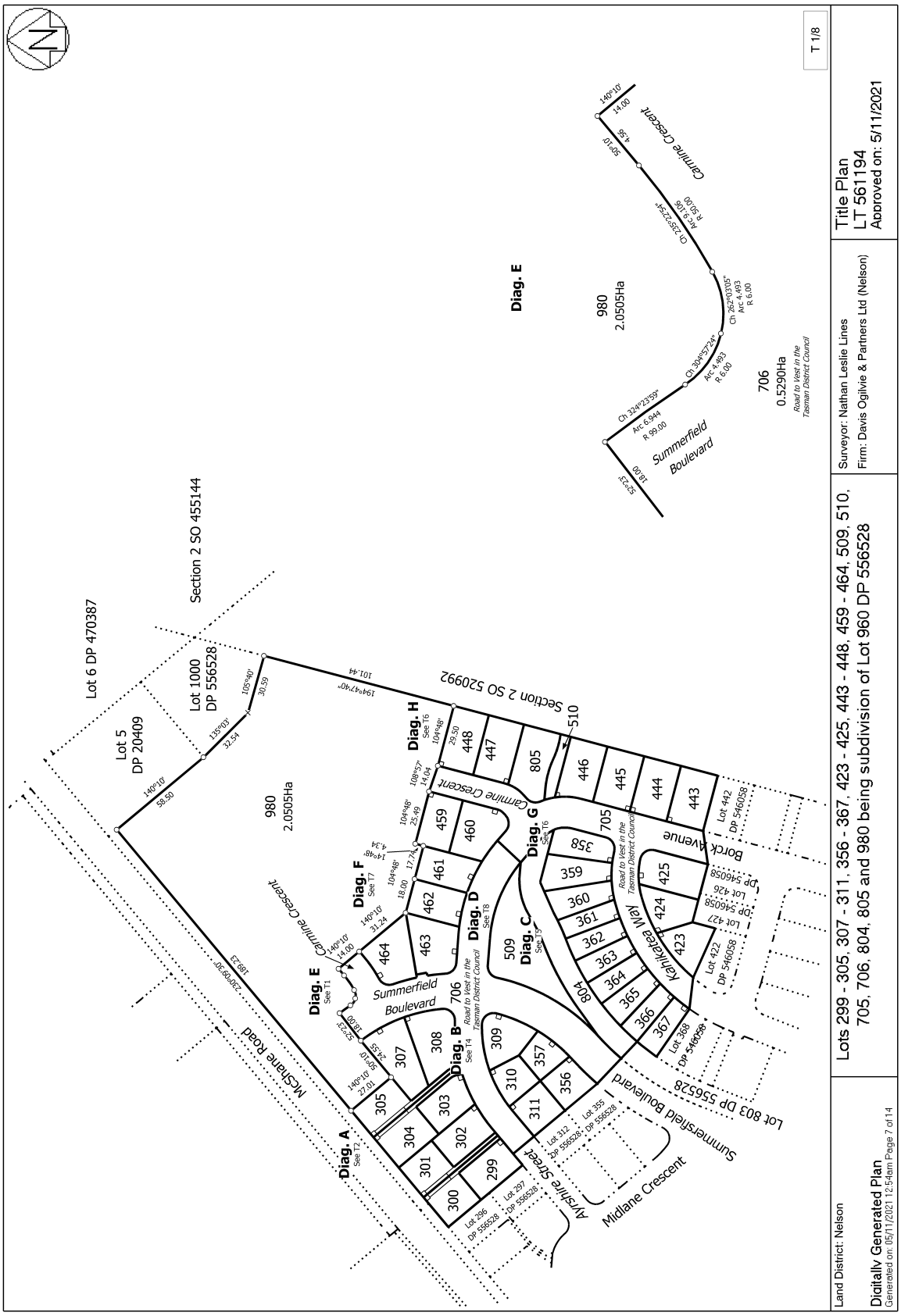
Land Covenant in Covenant Instrument 12228818.7 - 27.10.2021 at 10:32 am

Land Covenant (in gross) in favour of Richmond West Development Company Limited created by Covenant Instrument 12228818.8 - 27.10.2021 at 10:32 am

Fencing Covenant in Transfer 12324191.2 - 8.12.2021 at 4:38 pm

12324191.3 Mortgage to ASB Bank Limited - 8.12.2021 at 4:38 pm

**Identifier** **1006967**



# View Instrument Details

| | |
|---|---|
| **Instrument No.** | 12228818.8 |
| **Status** | Registered |
| **Date & Time Lodged** | 27 Oct 2021 10:32 |
| **Lodged By** | Ramsbottom-Isherwood, Alexandı |
| **Instrument Type** | Land Covenant under s116(1)(a) or (b) Land Transfer Act 2017 |

| Affected Records of Title | Land District |
|---|---|
| 1006940 | Nelson |
| 1006941 | Nelson |
| 1006942 | Nelson |
| 1006943 | Nelson |
| 1006945 | Nelson |
| 1006946 | Nelson |
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| 1006949 | Nelson |
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| 1006982 | Nelson |
| 1006983 | Nelson |

**Annexure Schedule** Contains 3 Pages.

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**Covenantor Certifications**

I certify that I have the authority to act for the Covenantor and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

**Signature**

Signed by Alexandra June Ramsbottom-Isherwood as Covenantor Representative on 24/11/2021 10:38 AM

**Covenantee Certifications**

I certify that I have the authority to act for the Covenantee and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

**Signature**

Signed by Alexandra June Ramsbottom-Isherwood as Covenantee Representative on 24/11/2021 10:38 AM

***** End of Report *****

This approved format may be used for lodgement as an electronic instrument under the Land Transfer Act 2017

**Form 26**

## Covenant Instrument to note land covenant

(Section 116(1)(a) & (b) Land Transfer Act 2017)

**Covenantor**

**RICHMOND WEST DEVELOPMENT COMPANY LIMITED**

**Covenantee**

**RICHMOND WEST DEVELOPMENT COMPANY LIMITED**

**Grant of Covenant**

**The Covenantor**, being the registered owner of the burdened land(s) set out in Schedule A, **grants to the Covenantee** (and, if so stated, in gross) the covenant(s) set out in Schedule A, with the rights and powers or provisions set out in the Annexure Schedule(s).

**Schedule A** *Continue in additional Annexure Schedule, if required*

| Purpose of covenant | Shown (plan reference) | Burdened Land (Record of Title) | Benefited Land (Record of Title) or in gross |
|---|---|---|---|
| Restrictive Land Covenants | Lots 299 to 305 inclusive on DP 561194, Lots 307 to 311 inclusive on DP 561194, Lots 356 to 367 inclusive on DP 561194, Lots 423 to 425 inclusive on DP 561194, Lots 443 to 448 on DP 561194 and Lots 459 to 464 inclusive on DP 561194 | Lots 299 to 302 inclusive on DP 561194 (1006940 to 1006943 inclusive) and Lots 303 to 305 inclusive on DP 561194 (1006945 to 1006947 inclusive) and Lots 307 to 311 inclusive on DP 561194 (1006949 to 1006953 inclusive) and Lots 356 to 362 inclusive on DP 561194 (1006954 to 1006960 inclusive) and Lots 363 to 367 (1006964 to 1006968) and Lots 423 to 425 inclusive on DP 561194 (1006969 to 1006971 inclusive) and Lots 443 to 448 inclusive on DP 561194 (1006972 to 1006977 inclusive) and Lots 459 to 464 inclusive on DP 561194 (1006978 to 1006983 inclusive) | Richmond West Development Company Limited (In Gross) |

This approved format may be used for lodgement as an electronic instrument under the Land Transfer Act 2017

**Covenant rights and powers (including terms, covenants and conditions)**

| |
|---|
| The provisions applying to the specified covenants are those set out in Annexure Schedule 1 |

## Annexure Schedule 1

**"Covenantor"** means the registered owner for the time being of any burdened Land as set out in Schedule A and includes any tenant or occupier or their successors in title.

**"Covenantee"** means Richmond West Development Company Limited and includes any successors or permitted assignees.

**"Required Land for Educational Purposes"** means the area marked required land for educational purposes shown on the attached Davis Ogilvie plan titled "Required Land for Educational Purposes".

**Recitals**

1. The Covenantee is the Vendor under an Agreement dated 25 March 2020 made between it and Her Majesty the Queen "Crown" as Purchaser for the Required Land for Educational Purposes ("Agreement").

2. The Agreement provides that the Covenantor shall be bound by the Land Covenants set out below.

**Covenant**

3. The Covenantor and any related entity will not advocate against, or lodge any submission in opposition to, or participate in any objection or appeal in any way (including but not limited to providing funds, facilitating, promoting or assisting any action taken by any third party) which opposes designations, resource consents, notices of requirement or take any other action, which may have the effect of preventing or interfering with the Covenantee's future plans in relation to the Land to be taken for Educational Purposes.

**Expiry of Covenant**

4. This covenant will remain enforceable to the fullest extent possible until the later of:

    a. The date on which the crown has successfully obtained a designation of Required Land for Educational purposes; and

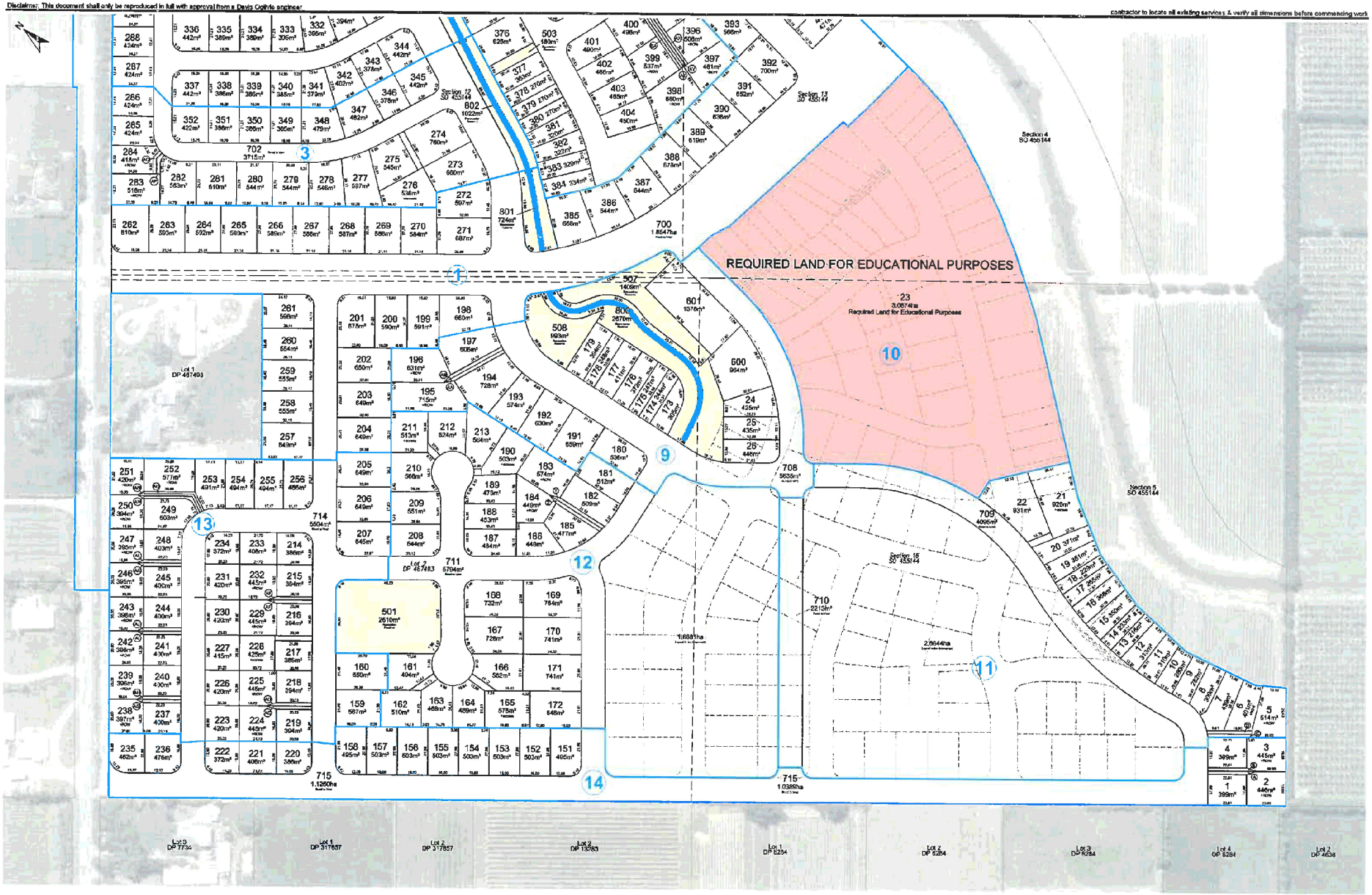
    b. The date on which the Required Land for Educational Purposes becomes fully operational as an Educational or learning facility site.

**Breach of Covenant**

5. In the event that the Covenantor is in breach of any of this covenant, they shall on request from the Covenantee or the Crown and/or the Ministry of Education (any of whom are included in the expression "Enforcer" in this clause) immediately and permanently desist from and remedy any such breach at their cost. The Covenantor shall also pay to the Enforcer the costs, fees and charges incurred in respect of ensuring compliance with this restrictive covenant including any costs, fees and charges incurred in dealing with any claims arising from such breach.

Disclaimer: This document shall only be reproduced in full with approval from a Davis Ogilvie engineer

contractor to locate all existing services & verify all dimensions before commencing work




CAD ref: 37435 - Scheme Plan (200217-educationalj).dwg

E / issue 02/20 / date Minor Amendments / reason RB / approved

DAVIS OGILVIE ENGINEERS / SURVEYORS / PLANNERS

Davis Ogilvie & Partners Limited
Office: 0800 999 333

The Meadows

**Required Land for Educational Purposes**
**The Meadows - Overall Development**

| / design | / drawn | / QA check | / dwg |
|---|---|---|---|
| RB/BL | BL | RB | 310 |
| / scale @ A1 | / date | / file | / issue |
| 1:1000 | 10/16 | 37435 | E |

# View Instrument Details

| | |
|---|---|
| **Instrument No.** | 12228818.3 |
| **Status** | Registered |
| **Date & Time Lodged** | 27 Oct 2021 10:32 |
| **Lodged By** | Ramsbottom-Isherwood, Alexandı |
| **Instrument Type** | Consent Notice under s221(4)(a) Resource Management Act 1991 |

| Affected Records of Title | Land District |
|---|---|
| 1006940 | Nelson |
| 1006941 | Nelson |
| 1006942 | Nelson |
| 1006943 | Nelson |
| 1006945 | Nelson |
| 1006946 | Nelson |
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| 1006949 | Nelson |
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| 1006980 | Nelson |
| 1006981 | Nelson |
| 1006982 | Nelson |
| 1006983 | Nelson |

**Annexure Schedule** Contains 3 Pages.

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**Signature**

Signed by Alexandra June Ramsbottom-Isherwood as Territorial Authority Representative on 27/10/2021 09:39 AM

***** End of Report *****

**TASMAN DISTRICT COUNCIL**

**CONSENT NOTICE UNDER SECTION 221 RESOURCE MANAGEMENT ACT 1991**

**RICHMOND WEST DEVELOPMENT COMPANY LIMITED** sought from the **TASMAN DISTRICT COUNCIL** subdivision consent to subdivide the land contained in Records of Title 636068 and 899349 into 482 residential allotments, 2 commercial allotments and road, recreation and stormwater reserves to vest.

The **TASMAN DISTRICT COUNCIL** hereby gives notice pursuant to Section 221 of the Resource Management Act 1991 that consent was granted to the registered owner under SH180019 and subsequent variations subject to the following conditions being complied with on a continuing basis.

**CONSENT NOTICES**

**The following conditions shall apply to lots 299 to 305, 307 to 311, 356 to 367, 423 to 425, 443 to 448 and 459 to 464 inclusive on DP 561194 ("Lots"):**

1. Future development of the Lots must be undertaken in accordance with Resource Consent SH180022V3 and subsequent variations. Non-compliance with this resource consent will require an additional resource consent.

2. The construction of any future buildings on the Lots must not exceed four storeys and 12m in height. This condition is to ensure compliance with the qualifying development criteria of the Richmond West (The Meadows) Special Housing Area. This does not override the height of the buildings approved in resource consent SH180022V3 and subsequent variations unless a further resource consent is obtained.

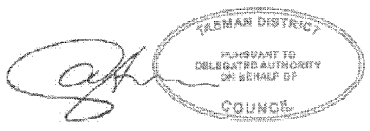
3. The Lots will be serviced by a low-pressure sewer system where the pump station will be owned by Council and an easement will allow access to the site. Owners will install a power board unit on the side of the dwelling and will allow unrestricted access to the board for Council or Council contractors. Power for the pump station is to be supplied and paid for by the home owner.

4. The Consent Holder shall comply with the Noise Assessment Report dated 4 October 2019 prepared by Acoustic Engineering Services (ref: AC18211-02-R3) submitted with SH180022V1. In particular the following shall be complied with (but not limited to):

    4.1. Prior to, or at the time an application is made for building consent for residential dwellings/units, the plans shall show where the ventilation unit is in the dwelling/unit ensuring that such dwelling/unit houses are capable of internal ventilation at night, such that ventilation may take place without opening windows.

5. The Lots shall accommodate no more than one residential dwelling/household unit per Lot and shall not be further subdivided.

6. Foundations for Lots 301-305, 307-311, 356-361, 366, 367, 423, 444-448 and 459-463 shall penetrate all topsoil, organic, weak or otherwise unsuitable ground (if present), to bear in competent 'good ground' with a geotechnical ultimate bearing capacity of at least 300 kPa in accordance with NZS 3604:2011 Timber framed buildings.



7. During construction, all footing excavations and stripped areas below proposed concrete slab foundations should be inspected and approved by a suitably qualified person to confirm that the ground conditions are consistent with those described in the Davis Ogilvie Earthworks Completion Report, Ref 37435 dated 6-9-21. For Lots 362 to 365 this inspection shall be made by a suitably qualified geo-professional.

8. All structural fills shall be placed in accordance with NZS 4431:1989 with adequate stripping, benching, and drainage.

9. Storm water from roofs, paved, hardstanding and impermeable areas, drainage from retaining walls, surface drains, and overflows from standing bodies of water, such as ponds, shall be collected and discharged in a controlled manner to the Tasman District Council storm water system.

10. All excavations, including for foundations and service trenches for cables and drains, shall be designed and constructed in a manner that does not induce saturation of the adjacent ground, and in particular the certified fill.

11. Any earthworks involving cuts or fills greater than 0.8 m in height shall be subject to specific investigation and design by a chartered professional engineer experienced in geotechnical engineering or by an experienced engineering geologist.

12. All retaining walls must be in compliance with the Building Act 2004 and the Tasman Resource Management Plan and in addition, should be designed and inspected during construction by a Chartered Professional Engineer practicing in structural or geotechnical engineering when:

    a. the wall is 1.2 m in height or greater;
    b. the wall is retaining ground supporting surcharge loads such as buildings;
    c. the wall retains slopes of over 5H:1V; or
    d. the wall is founded on sloping ground of over 5H: 1V.

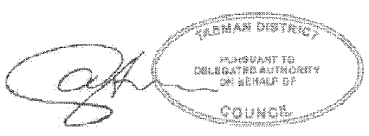
13. Foundations for Lots 299, 300, 424, 425, 443 and 464 shall penetrate all topsoil, organic, weak or otherwise unsuitable ground (if present), to bear in competent ground with a geotechnical ultimate bearing capacity of at least 300 kPa. Foundations shall be specific engineer designed stiffened raft-style foundations, designed, inspected, and certified by a chartered professional engineer practicing in foundation design.

14. Foundations for Lots 362 to 365 shall penetrate all topsoil, organic, weak or otherwise unsuitable ground (if present), to bear in competent ground with a geotechnical ultimate bearing capacity of at least 200 kPa. Foundations shall be specific engineer designed stiffened raft-style foundations, designed, inspected, and certified by a chartered professional engineer practicing in foundation design.

15. For Lots 300, 301, 304, 305, 359 to 367 and 443 to 448, any construction beyond a BRL shall be subject to specific investigation and design by a suitably qualified geoprofessional.

**The following conditions shall apply to lots 358 – 367 and 443 - 448 inclusive on DP 561194:**

16. Fencing and planting along a reserve boundary or adjoining Borck Creek must be maintained at a maximum height of 1.2m above ground level (including the height of any retaining walls) to maintain passive surveillance over these adjoining reserve/recreation spaces. Any fencing or planting on a side boundary (that does not front a reserve) and is immediately perpendicular to Borck Creek or any other reserve must taper from no more than 1.2m to a height not exceeding 1.8m, reaching that height no closer than 5 metres from the Borck Creek frontage or other reserve frontage.



**The following conditions shall apply to lots 300 – 301, 304 - 305 inclusive on DP 561194:**

17. A 2m high acoustic fence, along the McShane Road frontage, shall be maintained with a surface mass of at least 10kg/$m^2$ and also be continuous with no gaps or cracks, at all times.

18. Lots 300 – 301 and 304 - 305 inclusive shall not have any direct pedestrian or vehicular access to McShane Road.

Dated at Richmond this 27th day of October 2021

TASMAN DISTRICT
PURSUANT TO
DELEGATED AUTHORITY
ON BEHALF OF
COUNCIL

Authorised Officer, Tasman District Council
Alice Glover, Consent Planner – Subdivision Approvals

TASMAN DISTRICT
PURSUANT TO
DELEGATED AUTHORITY
ON BEHALF OF
COUNCIL

# AGREEMENT AND AUTHORITY TO PROCEED WITH WORK

For Proposal No: 614

## A) Parties

The Builder is:LSK Builders 2011 Ltd (the 'Builder')

The property is located at: Lot 366, KAHIKATEA WAY, RICHMOND
(the 'Property')

The Owner/s is/are: Susan Mary Ford & David John Ford (the 'Owner')

## B) Covenants

1 In preparation for the construction of a house on the Property, and in anticipation of a residential building contract being entered into between the Builder and the Owner that will govern the arrangements for the construction of the house, the Owner hereby authorises and directs the Builder to obtain such reports as are necessary, including a soil report, contour plan, geotechnical review, subdivision report (or any other reports necessarily required) from a consultant engineer (the 'Reports') and/or commission the preparation of relevant plans, drawings, specifications and consents. All costs incurred by the Builder (including any overheads and a markup of 15%) in obtaining the Reports and/or designs, drawings, specifications or consents shall be met by the Owner. The Owner consents to any such costs incurred by the Builder being deducted from any funds, including any deposit, paid by the Owner to the Builder for the construction of a house on the Property.

2 The Owner warrants that any work performed by the Owner at the Property, including any demolition work, earthworks and/or foundation work has been carried out in accordance with approved plans, drawings, designs and specifications and in accordance with the Building Act 2004 and the Building Code. The Owner hereby authorises the Builder and its employees, servants and agents to have full access to the Property to undertake any preparatory work and/or building work.

3 If the Builder incurs costs (including any overheads and markup) in undertaking any work described in paragraphs 1 to 2 above which exceed any deposit paid by the Owner to the Builder in respect of the construction of the house on the Property (or under any building contract), the Owner agrees to pay the Builder for any such costs incurred by the Builder within 14 days of receiving a written invoice for such costs from the Builder. The Owner agrees to indemnify the Builder for any costs or expenses incurred by the Builder, including legal costs on a solicitor-client basis, to recover any sums due to the Builder under this Agreement.

4 The Owner acknowledges and agrees that the selection of the Property is entirely at the risk of the Owner including, without limitation, as to the suitability of the Site for the Works. Without limiting the foregoing, the Builder shall not be liable for any information supplied by any third party concerning the Property, and the review of any such information and the assessment of the implications of the information for the Works shall be the sole responsibility of the Owner. The Owner warrants that all details have been disclosed to the Builder as to any covenants or other conditions relating to the Property which may affect the costs of construction.

5 The Owner acknowledges and agrees that all plans, designs, drawings and specifications, whether in standard form or developed between the Owner and the Builder, remain copyright to the Builder. If the Owner provides to the Builder any plans, designs, drawings and specifications, then the Owner shall indemnify the Builder, its employees, directors, shareholders, subcontractors, employees, servants and agents from any claim which

may be brought against the Builder in relation to copyright over those plans, designs, drawings and specifications or otherwise arising from the use of such documents.

6 The Owner acknowledges that prior to entering into this Agreement the Builder has provided to the Owner the prescribed checklist required under section 362D of the Building Act 2004.

## C Execution

**Signed by Owner/s:**

Signature:

Full Name:

Date: 30/3/2021

Signature:

Full Name: Susan Mary Ford

Date: 30/03/2021

**Signed by Builder:**

Signature:

Full Name: Graham Vercoe

Date: 30/03/2021

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

New Zealand Government

# PRESCRIBED CHECKLIST

## About this checklist

A building contractor is required to provide you with this checklist and other prescribed information under the Building Act 2004 before you sign a contract for the building work if -

(a) you request this checklist and the prescribed disclosure information; or

(b) the building work is going to cost $30,000 or more (including GST).

The building contractor is the person or company you have asked to do building work for you.

The building contractor may not be an actual builder. The building contractor could be a plumber, an electrician, or any other tradesperson who is doing some building work for you and whom you are dealing with directly.

| Steps *(See notes below)* | | Completed *(Tick when completed)* |
|---|---|---|
| 1 | Become informed | ✓ |
| 2 | Agree on project structure and management | ✓ |
| 3 | Hire competent building contractors | ✓ |
| 4 | Agree on price and payments | ✓ |
| 5 | Have a written contract | ✓ |
| 6 | Take control | ✓ |
| 7 | Resolving disputes | ✓ |

## Notes

### Step 1 – Become informed

*All building work must comply with the provisions of the Building Act 2004. You can find a copy of the Building Act 2004 on the New Zealand Legislation website: www.legislation.govt.nz*

Building work is any work done in relation to the construction or alteration of a building. This includes any work done on your home or other structure, such as a garage, retaining walls, and fences. It also includes work like painting, decorating, and landscaping if it is part of the construction or alteration of a building.

However, if the only work you are getting done is redecorating and there is no construction or alteration work involved, it is not building work. If landscaping work does not include any structures (eg, pergolas or retaining walls), it is also not building work.

*All building work requires a building consent unless it is exempt under the Building Act 2004.*

Generally, only simple or low-risk work is exempt from the requirement to have a building consent. Certain gas and electrical work is also exempt. For more information, go to www.mbie.govt.nz

Building work that is significant or of higher risk (such as structural alterations) requires a building consent and must be carried out or supervised by a licensed building practitioner. For more information on these requirements, go to www.mbie.govt.nz

### Step 2 – Agree on project structure and management

*Building projects do not run themselves. Decide how you want to manage the building project.*

A few different roles are needed on a building project. You need someone to -

- manage timelines and costs:
- manage subcontractors:
- liaise with the local council:
- make decisions about the design of the work.

You can do some of this yourself, but if you are not knowledgeable about the building work process, you should get help from an architect, an independent project manager, a building company, or a licensed building practitioner who is licensed to co-ordinate the building work involved.

You should be really clear about the scope and size of the project and get detailed plans up front.

Be clear with your building contractor about who is doing the building work and who is responsible for making design and change decisions during the project.

## Step 3 – Hire competent building contractors

*Ensure that your building contractor has the skills and resources to carry out the project.*

You should –

- ask around about the building contractor and get references for other work that the building contractor has done:
- find out if the building contractor is a licensed building practitioner or has other appropriate qualifications. For more information about licensed building practitioners, go to www.mbie.govt.nz
- determine whether the building contractor has sufficient insurance to cover the work while it is being carried out:
- ask about the building contractor's employees and what subcontractors the building contractor will use on the project:
- if the building contractor is a company, look up its company records on the Companies Office's internet site. If your search raises concerns, ask the building contractor to explain.

## Step 4– Agree on price and payments

*The contract should clearly state what payments are required and when. Where possible, a fixed price is preferable. The lowest price is not always the best price.*

You should –

- get detailed quotes (not estimates) for the building work:
- when comparing quotes, ensure that the scope of the building work and the materials and fixtures that you are comparing are the same across quotes so that you are "comparing apples with apples":
- make sure you have the funds to pay for the project before the work begins and that you understand the payment terms agreed with the building contractor:
- think carefully before agreeing to pay more than the cost of the work that has been completed and the costs of any materials that have been supplied at the time you make the payment.

## Step 5 – Have a written contract

You should have a written contract. The contract should include items such as –

- a description of the building work:
- the start and completion dates for the building work:
- how variations to the building work will be agreed:
- the payment process, including dates or stages for payment and how payments will be invoiced, made and receipted:
- the dispute resolution processes to be followed.

You should obtain legal advice to ensure that you understand your rights and obligations and that the contract complies with all legal requirements.

**Note:** The Building Act 2004 requires that there must be a written contract for residential building work with a value of $30,000 or more (including GST), and the Building (Residential Consumer Rights and Remedies) Regulations 2014 prescribe matters that must be included in every contract for residential building work with a value of $30,000 or more. You can find a copy of the Building Act 2004 and the Building (Residential Consumer Rights and Remedies) Regulations 2014 on the New Zealand Legislation website: www.legislation.govt.nz

## Step 6 – Take control

All residential building work is covered by implied warranties prescribed by the Building Act 2004 that address matters such as workmanship and building work being fit for purpose. For more information, go to www.mbie.govt.nz

You should –

- make sure there is a clear line of communication with the building contractor through the site foreman, the project manager, or any other person who has authority to speak on behalf of the building contractor. (This person should be identified as the "key contact person" in the prescribed disclosure information that the building contractor has provided along with this checklist):
- when you are making decisions along the way, be clear as to whether those decisions will affect your contract and costs. If you do decide to make a change, keep track of the effect of that change.

## Step 7 – Resolving disputes

*It is in both your interests and the building contractor's interests to keep the building project running smoothly and to deal with any disputes as they arise.*

If you have concerns about the building project, raise them with the building contractor (or the key contact person) as soon as possible.

Raise your concerns in good faith and use the dispute resolution processes agreed to in your contract. For information on your options, go to www.mbie.govt.nz

If you have received an invoice that you have concerns about, clearly outline your concerns to the building contractor in writing.

If you fail to make a payment when it is due, the building contractor might start dispute resolution proceedings before you have a chance to explain why you have not paid. (Simply withholding payment when there is a dispute will often make the situation worse.)

## Further information

For more information, go to www.mbie.govt.nz or call the Ministry of Business, Innovation, and Employment on 0800 242 243.

# Multiproof Approval - M107

## FORMAL ACKNOWLEDGEMENT

The Building Consent Authority has reviewed this application for compliance with NZ Building Code provisions and is satisfied on reasonable grounds that the proposed building work complies with the NZ Building Code. Please note that as this Approval relates to a Tasman District Council Multi-proof Approval, no physical documentation will be issued at this point.  This document will be retained on record and a copy will be included in subsequent site specific consents as and when the site specific applications are lodged with Council.

We now await the lodgement of site specific documentation for the individual sites associated with this project.

Hazel Thelin

Building Technical Officer (Processing)
On behalf of: Tasman District Council
Issue Date: 12 Jan 2022

PREMIER
SERVICES
Architectural Design Plus

# BUILDING CONSENT DRAWINGS

## KAHIKATEA TOWNHOUSE FOR DAVID & SUSAN FORD.
## AT 18 KAHIKATEA WAY, RICHMOND

| Sheet Index | | |
|---|---|---|
| **Layout ID** | **Layout Name** | Transmittal Set ID |
| 00 | COVER SHEET | B |
| A01 | DRAINAGE PLAN | B |
| A02 | PLUMBING ISOMETRIC | A |
| A03 | SLAB PLAN | A |
| A04 | GROUND FLOOR PLAN | A |
| A05 | MID-FLOOR PLAN | A |
| A06 | FIRST FLOOR PLAN | A |
| A07 | BRACING PLANS | A |
| A08 | ROOF PLAN | A |
| A09 | ELEVATIONS | A |
| A10 | ELEVATIONS | A |
| A11 | CROSS SECTION A-A | A |
| A12 | CROSS SECTION B-B | A |
| A13 | CROSS SECTION C-C | A |
| A14 | CROSS SECTION D-D | A |
| A15 | DETAILS | A |
| A16 | DETAILS | A |
| A17 | DETAILS | A |
| A18 | DETAILS | A |
| A19 | DETAILS | A |
| A20 | DETAILS | A |
| A21 | DETAILS | A |
| A22 | JUNCTION DETAILS | A |
| A23 | JUNCTION DETAILS | A |
| A24 | JUNCTION DETAILS | A |
| A25 | OPENING DETAILS | A |
| A26 | OPENING DETAILS | A |
| A27 | OPENING DETAILS | A |
| A28 | SHOWER DETAILS | A |
| A29 | SHOWER DETAILS | A |
| A30 | BATH DETAILS | A |
| A31 | FIXTURE LAYOUT PLAN | A |
| A32 | SITE PLAN | B |
| A33 | SEDIMENT CONTROL & SETOUT PLAN | B |

### GENERAL NOTES

**DIMENSIONS NOTED ON THESE DRAWINGS ARE FROM STRUCTURAL SURFACES UNLESS OTHERWISE INDICATED. ALL DIMENSIONS ARE GIVEN IN MILLIMETERS.**

The Contractor is responsible for the correct setting out of the building on site. Boundary pegs are to be located, and setting out points are to be verified on site against information provided prior. All levels/dimensions are to be confirmed onsite before commencing any work and any discrepancies are to be brought to the attention of the Premier Services Limited.

Where available, Engineering drawings are to be read in conjunction with this documentation, any discrepancies to be reported to Premier Services Limited.

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Job No. 145596
Email | info@premierservices.co.nz Website | www.premierservices.co.nz
PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829

# KAHIKATEA TOWNHOUSE

## NOTES

DOWNPIPE CALCULATIONS

85m² MAXIMUM ROOF PLAN AREA PER 80Ø DOWNPIPE TO COMPLY WITH THE NEW ZEALAND BUILDING CODE ACCEPTABLE SOLUTION E1/AS1 (SURFACE WATER) FOR 0-25° ROOF PITCH

REFER TO ROOF PLAN FOR CONTRIBUTORY HOUSE PLAN ROOF AREAS.

HOT WATER CYLINDER

HOT WATER CYLINDER SHALL BE 250L ELECTRIC HOT WATER CYLINDER COMPLETE WITH PRESSURE REDUCING & RELIEF VALVES & TEMPERING VALVE 20Ø COPPER SLUDGE PIPE TO DISCHARGE OVER THE NEAREST GULLY TRAP. SECURE WITH SEISMIC RESTRAINTS AS PER ACCEPTABLE SOLUTION G12/AS1 (WATER SUPPLIES) FIGURE 14.

HOT WATER CYLINDER DISCHARGE PIPES

HWC TO HAVE 15mm COLDWATER LINE FEEDING FWG TO SAFETRAY & 15mm COPPER PIPE, CONNECTING TO 20mm COPPER PIPE AND BOTH DISCHARGING TO GT WITH 4 WAY RISER. REFER TO DETAILS FOR FURTHER GUIDANCE.

STORAGE WATER HEATER PIPE INSULATION

PIPING ASSOCIATED WITH STORAGE WATER HEATER SHALL BE THERMALLY INSULATED TO NZS4305. PROVIDE 25mm OF CLOSED CELL POLYMER (R0.6) INSULATION TO THE VENT PIPE FOR 300mm ABOVE THE STANDING WATER LEVEL AND THE FIRST 2m OF THE DISTRIBUTION PIPE.

SAFE TRAYS

FREE WATER FROM ACCIDENTAL OVERFLOW FROM SANITARY FIXTURES OR SANITARY APPLIANCES MUST BE DISPOSED OF IN A WAY THAT AVOIDS LOSS OF AMENITY OR DAMAGE TO HOUSEHOLD UNITS OR OTHER PROPERTY. AN ACCEPTABLE METHOD OF PREVENTING WATER DAMAGE IS TO LOCATE A SAFE TRAY BELOW THE WATER TANK WITH AN INCORPORATED DRAIN WITH A MINIMUM DIAMETER OF 40mm.

OVERFLOW PIPE TO DISCHARGE ANY OVERFLOW TO A VISIBLE PLACE WITHIN THE SAME PROPERTY THAT DOES NOT CREATE A NUISANCE OR DAMAGE TO BUILDING ELEMENTS.

WATER SUPPLY

ALL COLD-WATER SUPPLY PIPEWORK SHALL BE MEDIUM/HIGH-DENSITY POLYETHYLENE (MDPE/HDPE), ARRANGED AND FIXED SO THAT ALL JOINTS ARE IN A FULLY 'RELAXED' CONDITION, WITHOUT ANY STRESS OR TENSION.

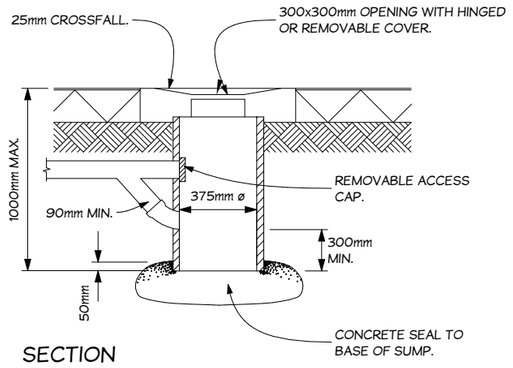
INSTALL CONVENIENTLY LOCATED ISOLATING VALVES TO TURN OFF EACH GROUP OF FITTINGS, AND INSTALL A SMALL ISOLATING VALVE ALONGSIDE EACH TOILET CISTERN NOT INTEGRALLY FITTED WITH ONE.

FOUL WATER/SANITARY PLUMBING

SANITARY DRAINAGE SYSTEM TO NEW ZEALAND BUILDING CODE CLAUSE G13/AS1 (FOUL WATER)

FIXTURE DISCHARGE PIPE SIZES AND GRADIENT

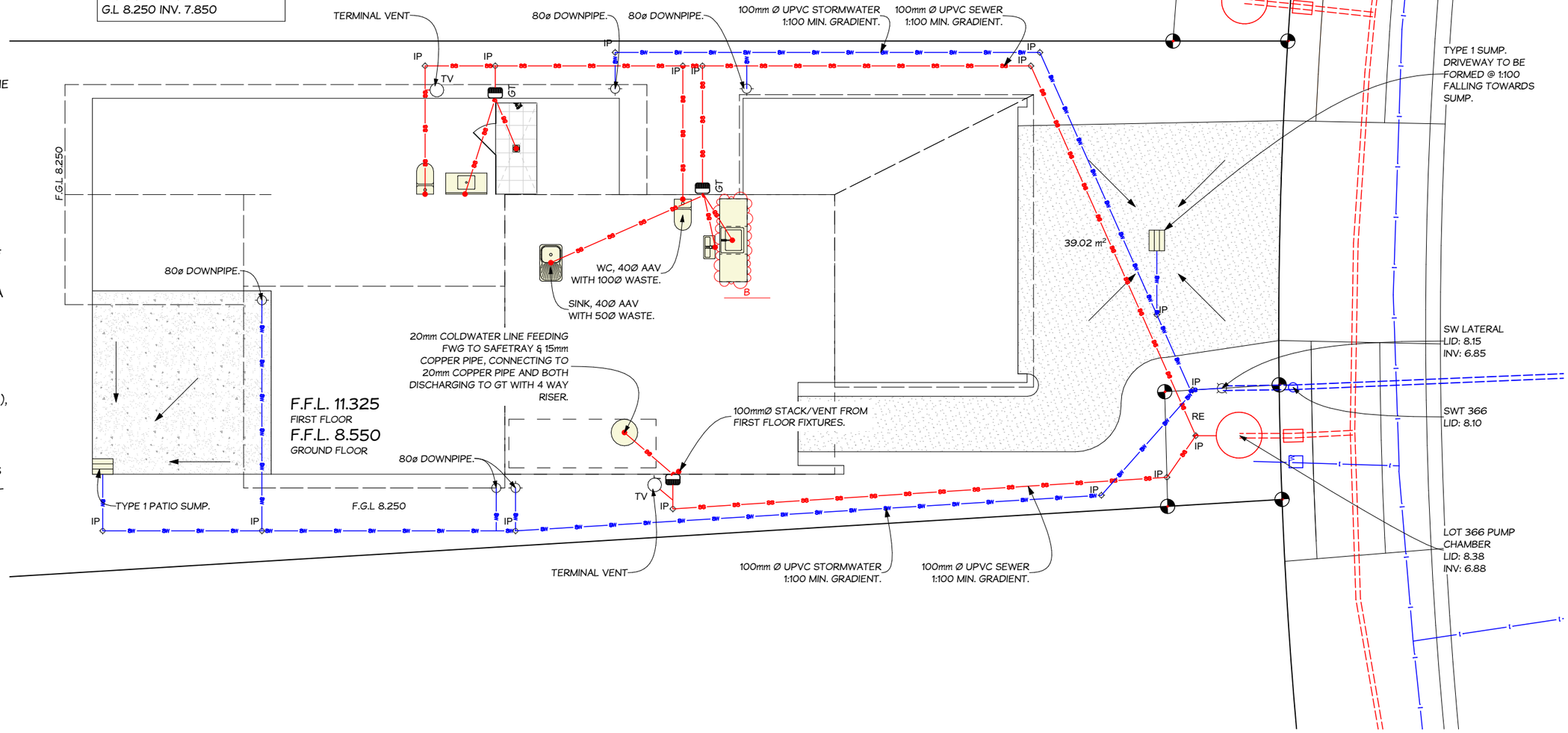
| SANITARY FIXTURE OR APPLIANCE | DISCHARGE PIPE (mm) | MINIMUM GRADIENT |
|---|---|---|
| Basin/Vanity | 40ø | 1:40 |
| Bathtub | 40ø | 1:40 |
| Shower | 40ø | 1:40 |
| Water Closet Pan | 100ø | 1:40 |
| Kitchen Sink | 50ø | 1:40 |
| Laundry Tub | 50ø | 1:40 |




SECTION

1 . TYPICAL TYPE 1 SUMP 1:10

NOTE: ALL 80ø DOWNPIPES & TERMINAL VENTS. G.L 8.250 INV. 7.850




| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | Individual Building Consent | 19/11/2021 |
| B | Individual Building Consent | | 10/02/2022 |

# DRAINAGE PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | G.J. Gardner. HOMES<br>PREMIER SERVICES Architectural Design Plus | A01 |

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# KAHIKATEA TOWNHOUSE

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| B | Individual Building Consent | | 10/02/2022 |

## SITE IDENTIFICATION

| | |
|---|---|
| Legal Description: | LOT 366 DP 561194 |
| TA Zoning: | Residential |
| Topographic Class: | T1 |

Zones

| | |
|---|---|
| - Wind: | High |
| - Earthquake: | 2 |
| - Durability: | C |
| - Snow Loading: | 0.0 kPa |
| Designed to: | NZS3604:2011 |

## NOTES

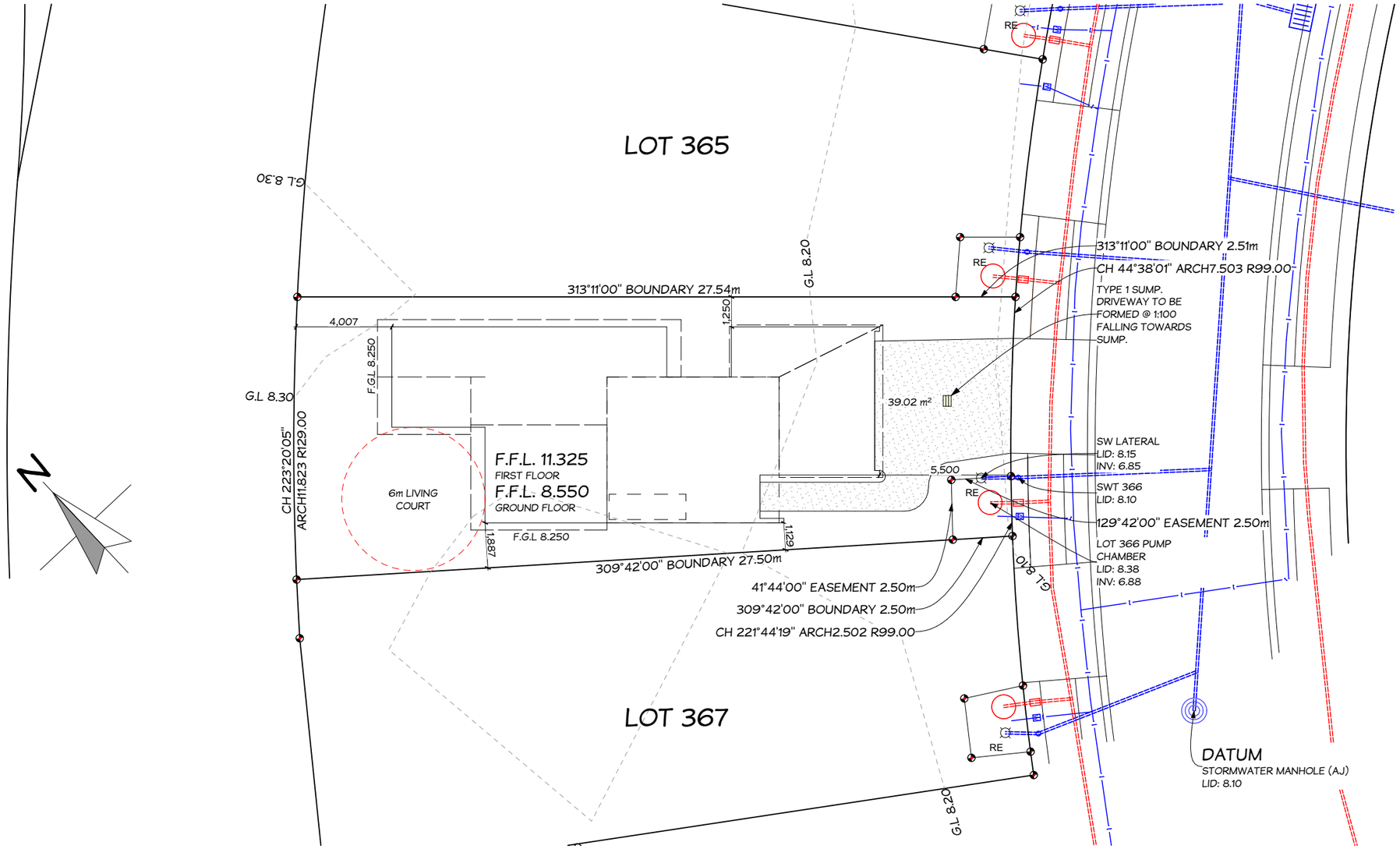
WIND CALCULATION

| | |
|---|---|
| WIND REGION: | A |
| LEE ZONE: | NO |
| GROUND ROUGHNESS: | OPEN |
| SITE EXPOSURE: | EXPOSED |
| TOPOGRAPHIC CLASS: | T1 |

TOWNHOUSE AS CONSENTED BY SH180022V2
APPROVED PLANS (APPENDIX A)

**MECHANICAL VENTILATION**

MECHANICAL VENTILATION TO BE INSTALLED AS PER THE SPECIFICATIONS IN ACCORDANCE WITH THE CONSENT NOTICE 11806549.12




## SITE COVERAGE

| | |
|---|---|
| Site Area: | 327m² |
| Building Coverage Area: | 135.04m² |
| Building Coverage: | 41.30% |

COVERED BY RESOURCE CONSENT.

# SITE PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:200 | G.J. Gardner. HOMES<br>PREMIER SERVICES<br>Architectural Design Plus | A32 |

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# KAHIKATEA TOWNHOUSE

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

SEDIMENT CONTROL

SEDIMENT CONTROL IN ACCORDANCE WITH "BUILDING SITE GUIDE FOR EROSION AND SEDIMENT CONTROL".

MAINTENANCE OF TEMPORARY WORKS

MAINTAIN ALTER, ADAPT AND MOVE TEMPORARY WORKS AND SERVICES AS NECESSARY. CLEAR AWAY WHEN NO LONGER REQUIRED AND MAKE GOOD.

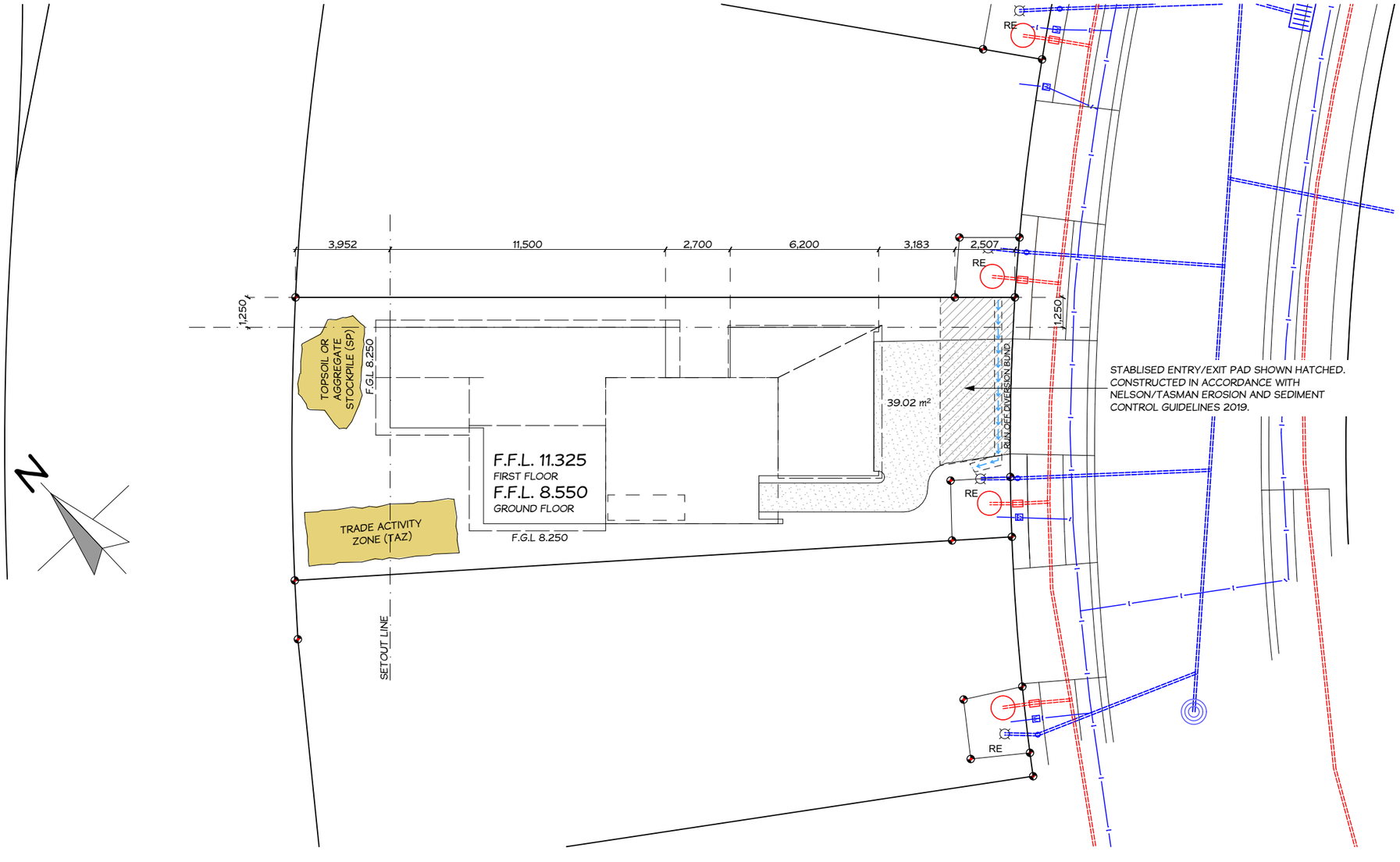
CONCRETE RUN OFF PROTECTION

PROVIDE APPROPRIATE MEASURES TO PREVENT CEMENT/CONCRETE WASHWATER OR SLURRY RUN OFF TO; DRAINS OR WATERWAYS, LANDSCAPED AREAS NEW OR REMAINING AND ADJOINING PUBLIC OR PRIVATE PROPERTIES. COMPLY WITH TERRITORIAL AND OTHER AUTHORITY REQUIREMENTS RELATING TO CEMENT / CONCRETE WASHWATER. CONTROL RUN OFF FROM:

(A) CEMENT/CONCRETE BASED MATERIAL PRODUCTION, PLACING AND FINISHING.
(B) HOSING DOWN AND CLEANING OF, TOOLS AND EQUIPMENT, FRESH MATERIAL, AND SPILT OR SURPLUS MATERIAL, PUMPS AND MIXERS ETC.
(C) WET CUTTING OR GRINDING.
(D) SLAB WATERING ETC.
(E) WATER CLEANING OF NEW CONCRETE ELEMENTS, FRESH USED FORMWORK ETC.

**ADVISORY NOTE**

PLEASE CONNECT DOWNPIPES AS SOON AS POSSIBLE OR USE TEMPORARY PIPES TO SW SYSTEM TO REDUCE WATER FLOW OVER BUILDING SITE TACKING SEDIMENT TO STORMWATER SYSTEMS. THE SEDIMENT CONTROLS SHOULD BE IN PLACE PRIOR TO ANY SITE LAND DISTURBANCE BEING UNDERTAKEN.




| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| B | Individual Building Consent | | 10/02/2022 |

# SEDIMENT CONTROL & SETOUT PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:200 | G.J. Gardner. HOMES<br>PREMIER SERVICES<br>Architectural Design Plus | A33 |

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PREMIER
SERVICES
Architectural Design Plus

# BUILDING CONSENT DRAWINGS

## KAHIKATEA TOWNHOUSE FOR DAVID & SUSAN FORD.
## AT 18 KAHIKATEA WAY, RICHMOND

| Sheet Index | | |
|---|---|---|
| **Layout ID** | **Layout Name** | Transmittal Set ID |
| 00 | COVER SHEET | D |
| A01 | DRAINAGE PLAN | B |
| A02 | PLUMBING ISOMETRIC | A |
| A03 | SLAB PLAN | D |
| A04 | GROUND FLOOR PLAN | D |
| A05 | MID-FLOOR PLAN | D |
| A06 | FIRST FLOOR PLAN | D |
| A07 | BRACING PLANS | D |
| A08 | ROOF PLAN | A |
| A09 | ELEVATIONS | C |
| A10 | ELEVATIONS | C |
| A11 | CROSS SECTION A-A | A |
| A12 | CROSS SECTION B-B | A |
| A13 | CROSS SECTION C-C | A |
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| A15 | DETAILS | A |
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| A17 | DETAILS | A |
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| A21 | DETAILS | A |
| A22 | JUNCTION DETAILS | A |
| A23 | JUNCTION DETAILS | A |
| A24 | JUNCTION DETAILS | A |
| A25 | OPENING DETAILS | A |
| A26 | OPENING DETAILS | A |
| A27 | OPENING DETAILS | A |
| A28 | SHOWER DETAILS | A |
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| A30 | BATH DETAILS | A |
| A31 | FIXTURE LAYOUT PLAN | D |
| A32 | SITE PLAN | B |
| A33 | SEDIMENT CONTROL & SETOUT PLAN | B |

### GENERAL NOTES

**DIMENSIONS NOTED ON THESE DRAWINGS ARE FROM STRUCTURAL SURFACES UNLESS OTHERWISE INDICATED. ALL DIMENSIONS ARE GIVEN IN MILLIMETERS.**

The Contractor is responsible for the correct setting out of the building on site. Boundary pegs are to be located, and setting out points are to be verified on site against information provided prior. All levels/dimensions are to be confirmed onsite before commencing any work and any discrepancies are to be brought to the attention of the Premier Services Limited.

Where available, Engineering drawings are to be read in conjunction with this documentation, any discrepancies to be reported to Premier Services Limited.

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Job No. 145596
Email | info@premierservices.co.nz Website | www.premierservices.co.nz
PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829

# KAHIKATEA TOWNHOUSE

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment | 7/03/2022 |
| | | | |
| | | | |

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

CUPOLEX BUILDING SYSTEM

CUPOLEX FLOOR SLAB REINFORCED WITH FLETCHERS DUCTILE MESH SE62. UNLESS NOTED OTHERWISE PERIMETER FOUNDATION BEAM TO BE 300mm WIDE x 320mm DEEP REINFORCED WITH 2/HD12 TO BOTTOM & 2/HD12 TO UNDERSIDE OF DUCTILE MESH. REFER TO CUPOLEX RIBRAFT FOUNDATION LAYOUT PLAN FOR FURTHER GUIDANCE.

(A) WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.
(B) TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE PODS SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 60mm THICK TOPPING FOR THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENTS.
(C) CONCRETE TO BE 25MPa AT 28 DAYS.
(D) SLAB REINFORCING TO BE SE62 WITH MIN LAPS OF 225mm.
(E) LOAD BEARING PADS TO BE REINFORCED WITH HD12's @ 200mm CRS EACH WAY TOP & BOTTOM.
(F) ALL SAWCUTS TO BE AS PER NZS3604:2011 SECTION 7.

STEEL REINGFORCING COVER

FLOOR SLAB REINFORCING SHALL EXTEND TO A MINIMUM EXTERNAL COVER OF:

(A) AGAINST GROUND 75mm
(B) AGAINST FORMWORK 50mm
(C) TOP COVER TO MESH 30mm

STEEL REINFORCING MESH SHALL HAVE A COVER OF 30mm MINIMUM FROM THE TOP SURFACE OF THE GROUND SLAB AND SHALL BE PLACED IN SUCH A MANNER AS TO AVOID DAMAGE TO THE DPM ON PROPRIETARY CHAIRS. REINFORCING MESH SHALL COMPLY WITH NZS 3422.

KITCHEN DESIGN

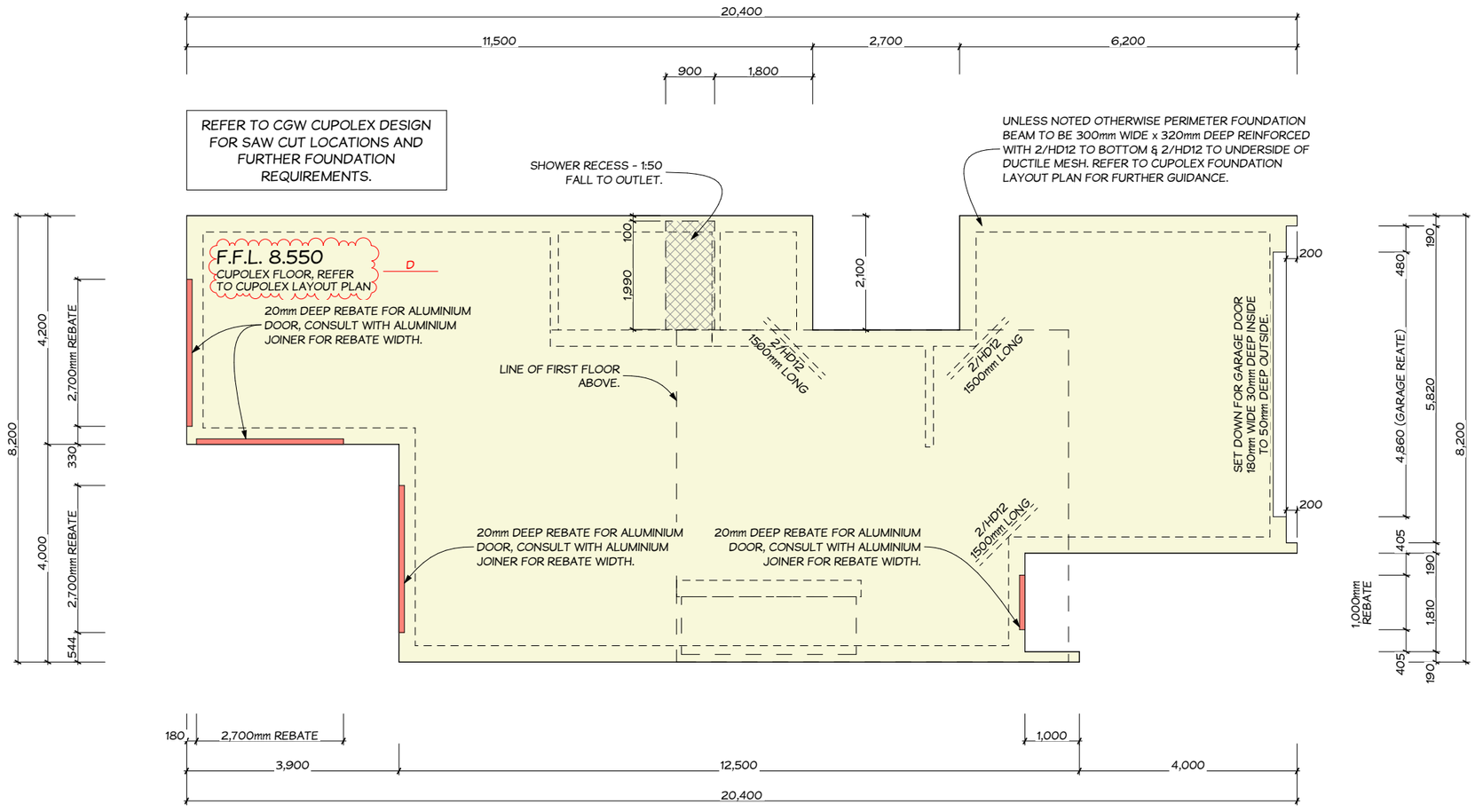
KITCHEN DESIGN SHALL BE IN ACCORDANCE WITH SEPARATE KITCHEN PLANS. CONFIRM POSITION OF WASTE PIPES PRIOR TO POURING THE FLOOR SLAB.

ALUMINIOUM DOOR REBATES

ALLOW FOR 20mm DEEP REBATE FOR EXTERNAL ALUMINIUM DOOR. DEPTHS OF REBATES TO BE AS FOLLOWS:

(A) SINGLE SLIDER – 45mm WIDE
(B) DOUBLE/STACKER SLIDER - 70mm WIDE

CONFIRM ONSITE WITH ALUMINIUM JOINER PRIOR TO POURING FLOOR SLAB.




# SLAB PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | G.J. Gardner. HOMES<br>PREMIER SERVICES Architectural Design Plus | A03 |

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# KAHIKATEA TOWNHOUSE

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE I.C. RATED.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICES.

PUMP CHAMBER CONTROL PANEL

POWER SUPPLY AND CONTROL PANEL FOR SEWER PRESSURIZED PUMP TO BE LOCATED ON EXTERIOR WALL ON DWELLING ADJACENT TO GARAGE.

HOUSE BRACING REQUIREMENTS

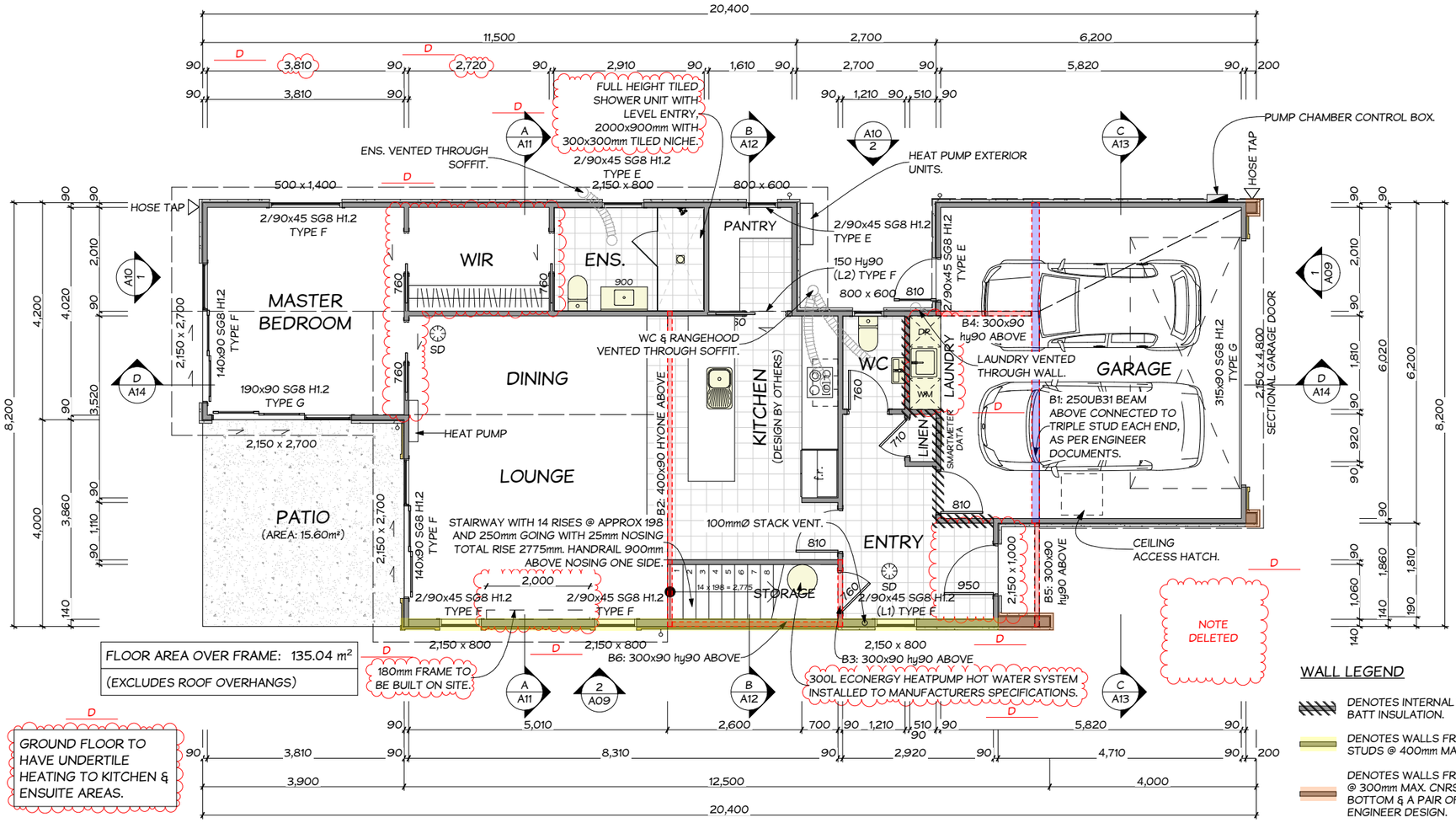
REFER TO WILTON JOUBERT CONSULTING ENGINEERS DOCUMENTS FOR FURTHER GUIDANCE ON WALL BRACING REQUIREMENTS.

## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE F = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2150x800 = OPENING SIZE (H x W)

TOWNHOUSE AS CONSENTED BY SH180022V2
APPROVED PLANS (APPENDIX A)




### WALL LEGEND

DENOTES INTERNAL WALLS TO BE INSULATED WITH R2.6 BATT INSULATION.

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment: | 7/03/2022 |

# GROUND FLOOR PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | G.J. Gardner. HOMES<br>PREMIER SERVICES Architectural Design Plus | A04 |

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# KAHIKATEA TOWNHOUSE

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment: | Amendment: | 7/03/2022 |

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

KOPINE FLOORING

20mm KOPINE FLOORING TO BE FIXED WITH 8G x 50mm STAINLESS STEEL COUNTERSUNK SCREWS. PROTECT FRAMING FROM EXCESSIVE MOISTURE AND GROUND CONTACT WITH MOISTURE LEVELS BETWEEN 12% TO 16% MAXIMUM. FIXINGS AT STANDARD FIXING PATTERN 150mm CRS AT SHEET EDGES AND WITHIN THE PANEL AT NO MORE THAN 300mm CRS.

BLOCKING TO JOISTS

PROVIDE PARTIAL BLOCKING TO JOISTS AS NECESSARY.

FIXTURE DRAINAGE

REFER TO GROUND FLOOR DRAINAGE PLAN & PLUMBING ISOMETRIC FOR FURTHER DETAILS.

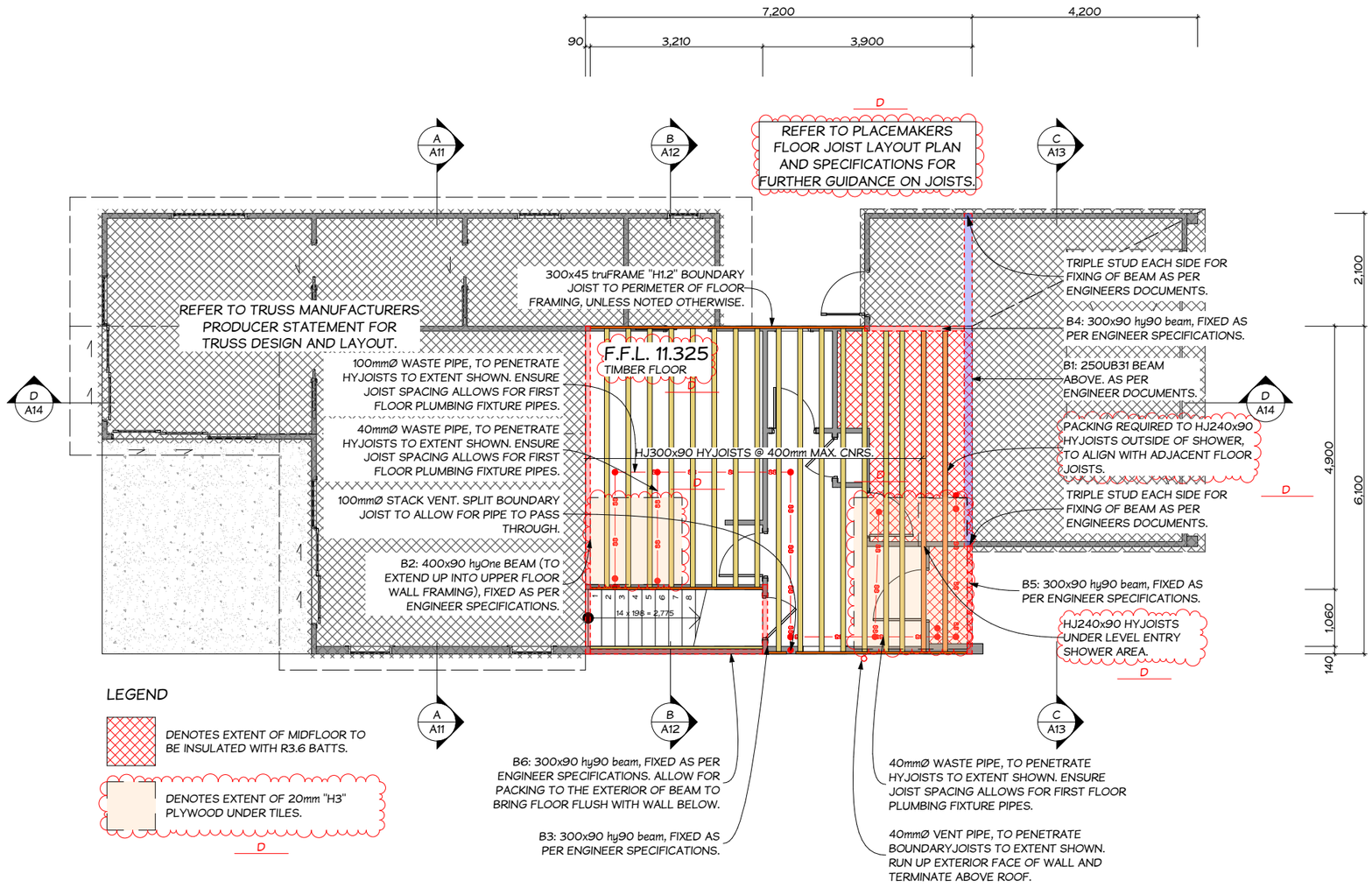
STRUCTURAL ENGINEER

JOHNSON ZHANG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

INSPECTIONS

LAL CINZAH
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.




# MID-FLOOR PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | G.J. Gardner. HOMES<br>PREMIER SERVICES<br>Architectural Design Plus | A05 |

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# KAHIKATEA TOWNHOUSE

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE I.C. RATED.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICES.

HOUSE BRACING REQUIREMENTS

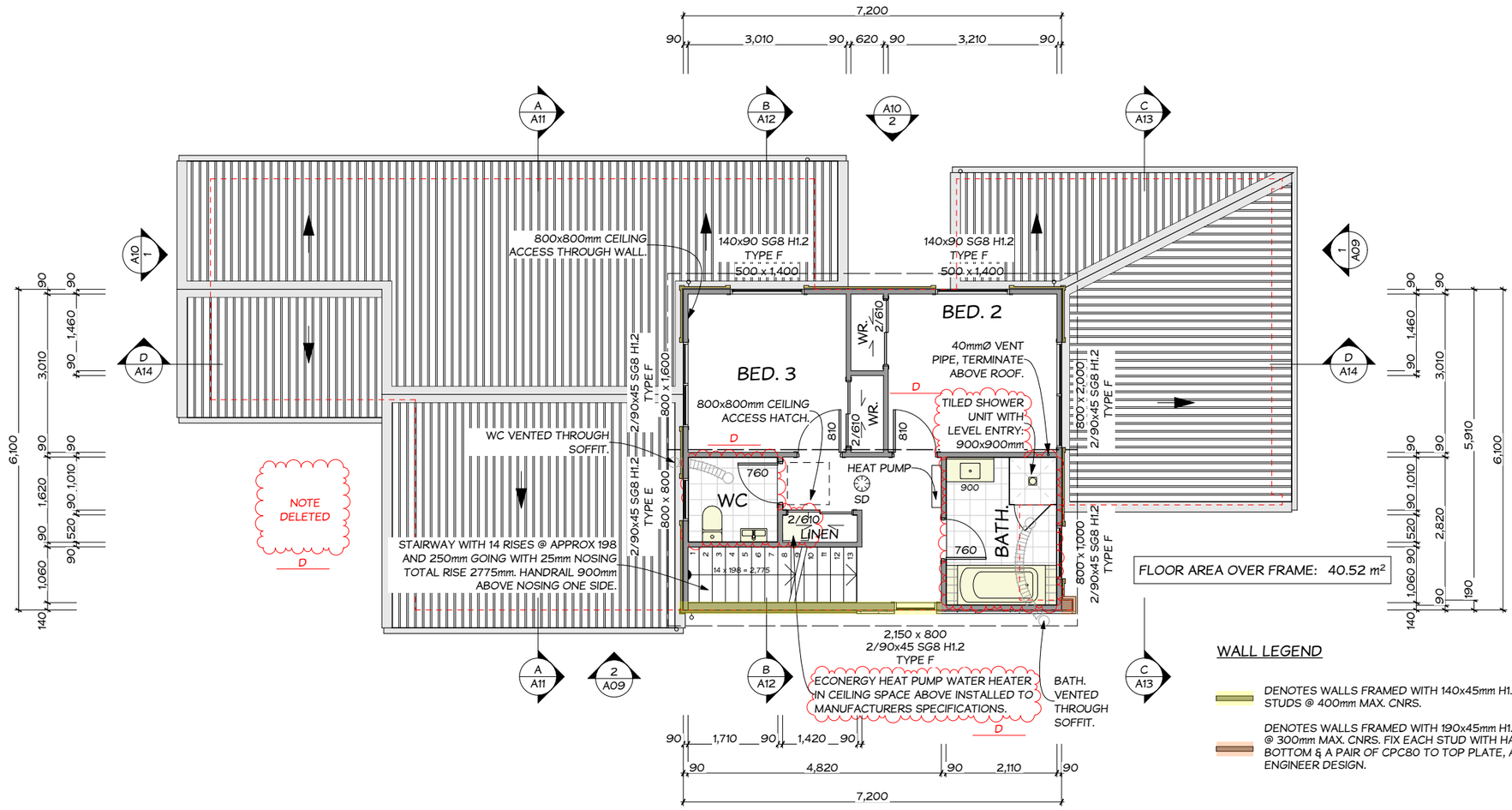
REFER TO WILTON JOUBERT CONSULTING ENGINEERS DOCUMENTS FOR FURTHER GUIDANCE ON WALL BRACING REQUIREMENTS.

## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE F = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2150x800 = OPENING SIZE (H x W)

TOWNHOUSE AS CONSENTED BY SH180022V2 APPROVED PLANS (APPENDIX A)




FLOOR AREA OVER FRAME: 40.52 m²

WALL LEGEND

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment: | 7/03/2022 |

# FIRST FLOOR PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | G.J. Gardner. HOMES<br>PREMIER SERVICES Architectural Design Plus | A06 |

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# KAHIKATEA TOWNHOUSE

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment | 7/03/2022 |

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

BRACING NOTES

BRACED PANELS SHALL BE CONSTRUCTED TO COMPLY WITH RELEVANT "BRANZ" APPRAISAL CERTIFICATES. GIB EZYBRACE SYSTEMS 2016 HAVE BEEN APPRAISED BY THE BUILDING RESEARCH ASSOCIATION OF NEW ZEALAND (BRANZ), APPRAISAL NO. 928 (2016) GIB EZYBRACE®SYSTEMS, 2016. IT IS OF PRIME IMPORTANCE TO COMPLY WITH THE DETAILS OF DESIGN, CONSTRUCTION AND WORKMANSHIP IN THE EZYBRACE SYSTEMS SPECIFICATION AND INSTALLATION MANUAL.

STRUCTURAL ENGINEER

JOHNSON ZHANG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

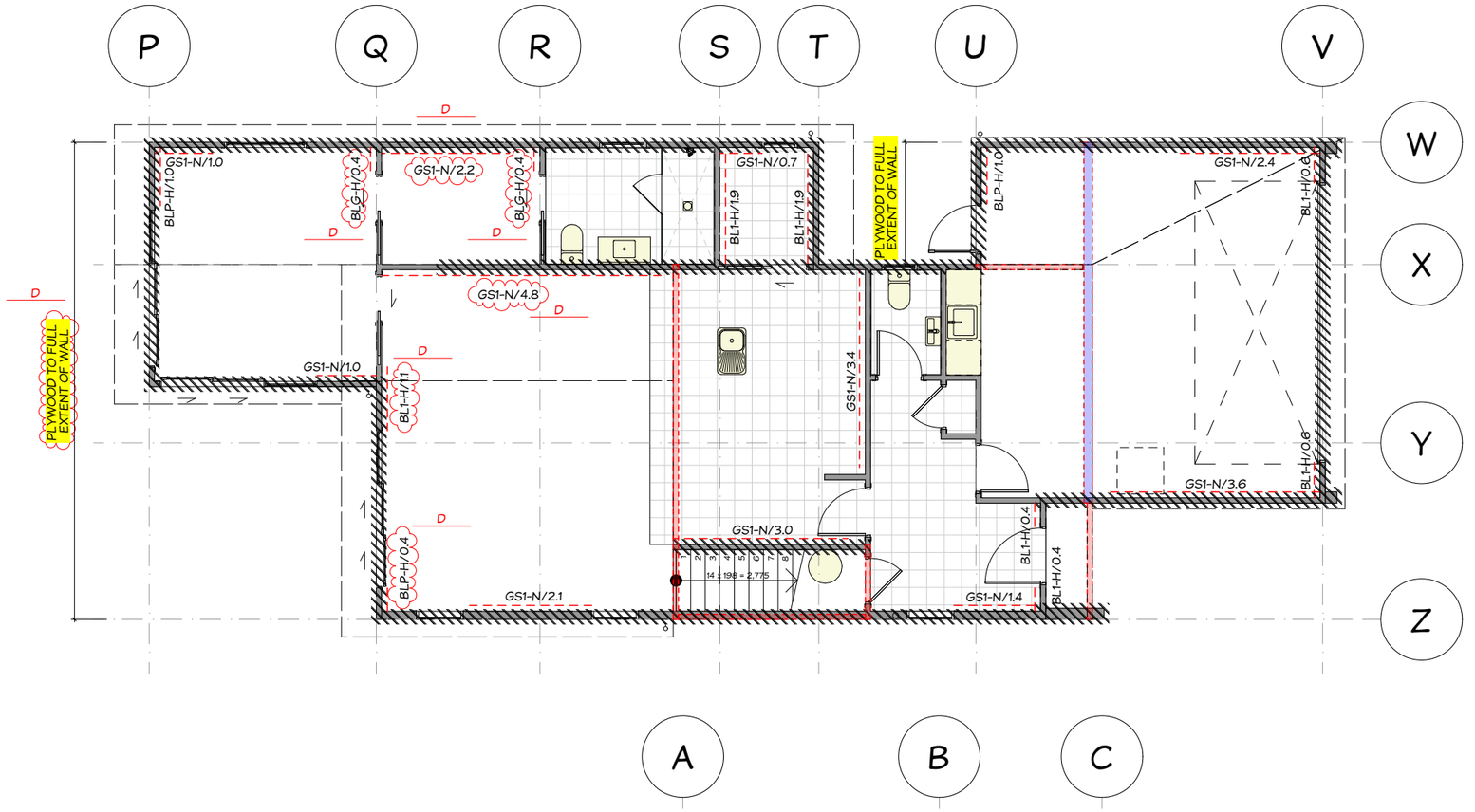
INSPECTIONS

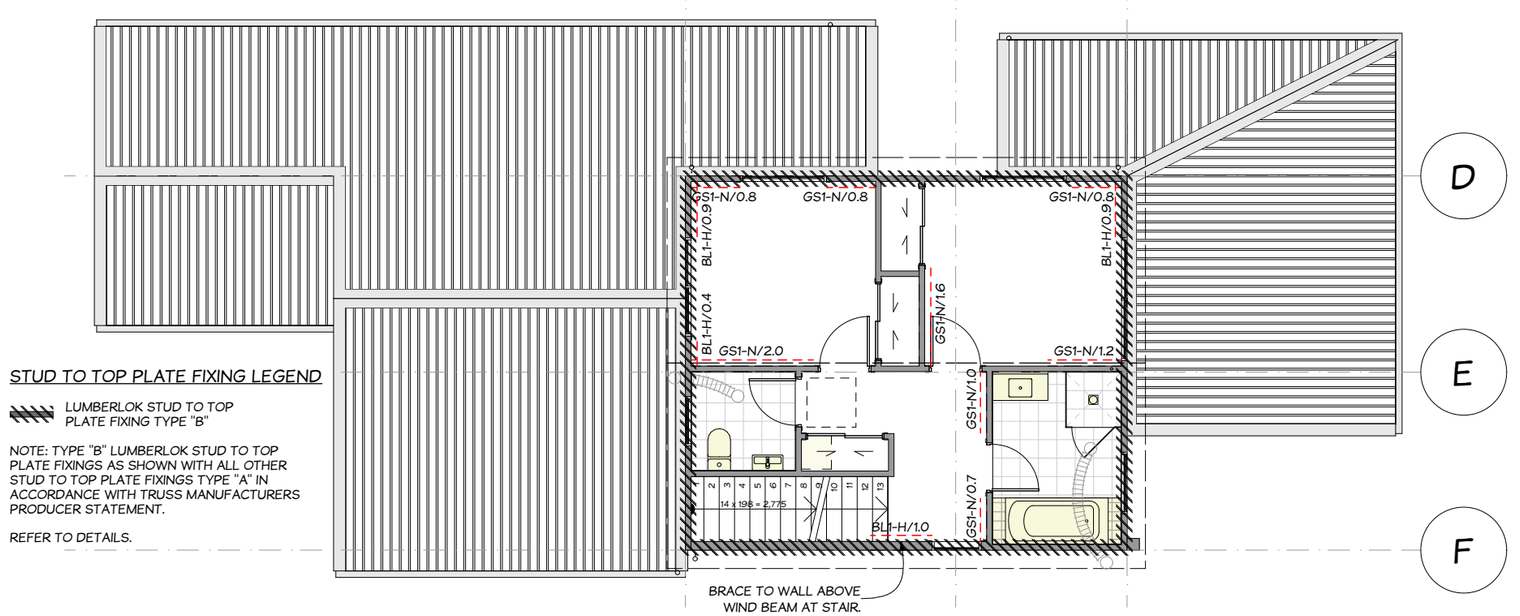
LAL CINZAH
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.

**ENGINEER DESIGN**

BRACING COVERED BY ENGINEER PS1, REFER TO ENGINEER DOCUMENTS FOR FURTHER GUIDANCE ON BRACING SPECIFICATIONS.




STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS AS SHOWN WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

REFER TO DETAILS.

# BRACING PLANS

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | G.J. Gardner. HOMES<br>PREMIER SERVICES<br>Architectural Design Plus | A07 |

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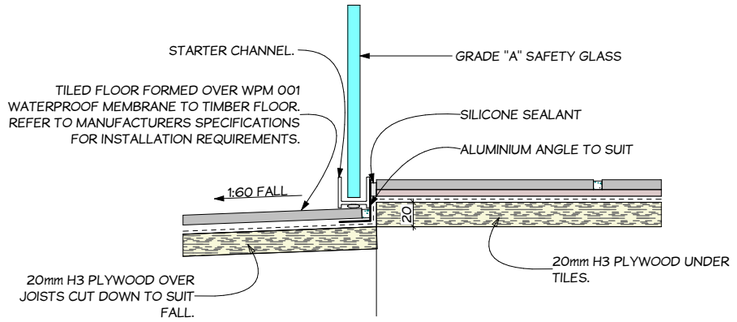
# KAHIKATEA TOWNHOUSE

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment | 7/03/2022 |
| | | | |




123 SHOWER FIRST FLOOR RECESS DETAIL
1:5




125 FIRST FLOOR SHOWER WALL BASE DETAIL
1:5

D

D

PROPRIETARY SHOWER DETAILS REMOVED.

# SHOWER DETAILS

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:5 | G.J. Gardner. HOMES<br>PREMIER SERVICES Architectural Design Plus | A29 |

Copyright - This drawing remains the property of G.J. Gardner Homes | contractors are required to comply with the Building Act 2004 and the Health and Safety Act 1992. Including all amendments | all dimensions are to be checked on site before commencement of work - contractor to report any discrepancy - do not scale | all workmanship and materials shall conform to the Building Act 2004, the Building Code 1992 and its current approved documents

# KAHIKATEA TOWNHOUSE

| Rev/D | Rev. Name | Change Name | Date |
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## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

FOUL WATER/SANITARY PLUMBING

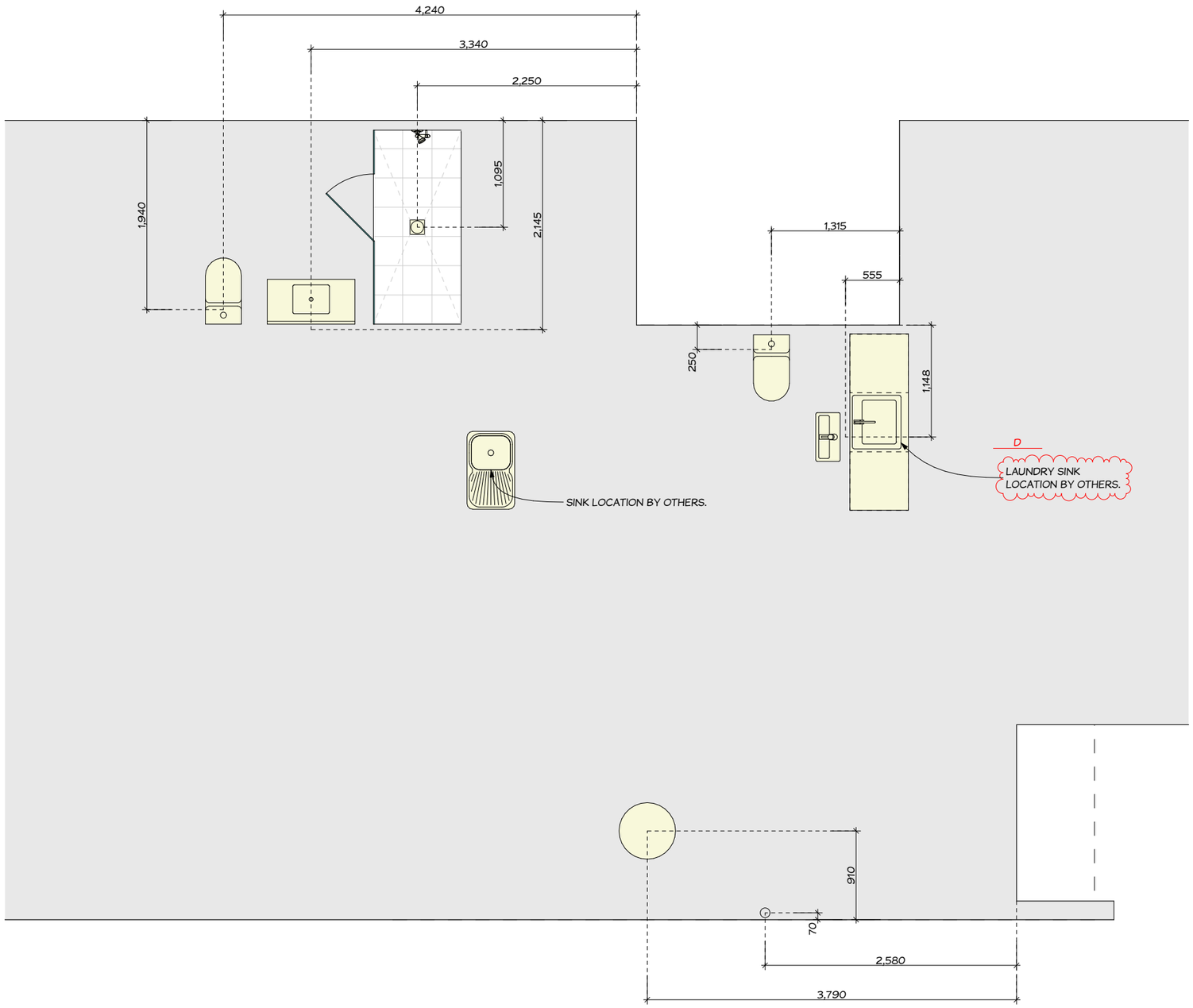
SANITARY DRAINAGE SYSTEM TO NEW ZEALAND BUILDING CODE CLAUSE G13/AS1 (FOUL WATER)

| FIXTURE DISCHARGE PIPE SIZES AND GRADIENT | | |
|---|---|---|
| SANITARY FIXTURE OR APPLIANCE | DISCHARGE PIPE (mm) | MINIMUM GRADIENT |
| Basin/Vanity | 40ø | 1:40 |
| Bathtub | 40ø | 1:40 |
| Shower | 40ø | 1:40 |
| Water Closet Pan | 100ø | 1:40 |
| Kitchen Sink | 50ø | 1:40 |
| Laundry Tub | 50ø | 1:40 |
| | | |

WATER SUPPLY

ALL COLD-WATER SUPPLY PIPEWORK SHALL BE MEDIUM/HIGH-DENSITY POLYETHYLENE (MDPE/HDPE), ARRANGED AND FIXED SO THAT ALL JOINTS ARE IN A FULLY 'RELAXED' CONDITION, WITHOUT ANY STRESS OR TENSION.

INSTALL CONVENIENTLY LOCATED ISOLATING VALVES TO TURN OFF EACH GROUP OF FITTINGS, AND INSTALL A SMALL ISOLATING VALVE ALONGSIDE EACH TOILET CISTERN NOT INTEGRALLY FITTED WITH ONE.




# FIXTURE LAYOUT PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:50 | G.J. Gardner. HOMES<br>PREMIER SERVICES<br>Architectural Design Plus | A31 |

Copyright - This drawing remains the property of G.J. Gardner Homes | contractors are required to comply with the Building Act 2004 and the Health and Safety Act 1992. Including all amendments | all dimensions are to be checked on site before commencement of work - contractor to report any discrepancy - do not scale | all workmanship and materials shall conform to the Building Act 2004, the Building Code 1992 and its current approved documents

Building Code Clause(s) B1

# PRODUCER STATEMENT – PS1 – DESIGN

**ISSUED BY:** Wilton Joubert Ltd.
(Design Firm)

**TO:** G.J Gardner Homes Nelson (LSK Builders 2011 Ltd)
(Owner/Developer)

**TO BE SUPPLIED TO:** Tasman District Council
(Building Consent Authority)

**IN RESPECT OF:** structural design services
(Description of Building Work)

**AT:** 18 Kahikatea Way
(Address)

Town/City: Richmond (Address) **LOT** 366 **DP** ..... **SO** .....

We have been engaged by the owner/developer referred to above to provide:

structural beams, wing wall frame, wall bracing (rev01)

(Extent of Engagement)

services in respect of the requirements of Clause(s) B1 of the Building Code for:

☐ All or ■ Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

☑ Compliance Documents issued by the Ministry of Business, Innovation & Employment B1/VM1,VM4 (verification method/acceptable solution) or

☐ Alternative solution as per the attached schedule

The proposed building work covered by this producer statement is described on the drawings titled:

12 Kahikatea Way, Richmond and numbered SD0, SD1, sheet A04, A05, A06, A07, A19
together with the specification, and other documents set out in the schedule attached to this statement.

**On behalf of the Design Firm,** and subject to:
(i) Site verification of the following design assumptions .....
(ii) All proprietary products meeting their performance specification requirements;

**I believe on reasonable grounds** that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation:

☐ CM1 ■ CM2 ☐ CM3 ☐ CM4 ☐ CM5 (Engineering Categories) or ☐ as per agreement with owner/developer (Architectural)

I, David Lau (Name of Design Professional) am: ■ CPEng 221906 # ☐ Reg Arch ..... #

I am a member of: ☐ Engineering New Zealand ☐ NZIA and hold the following qualifications: BE(Hons),PhD,CMEngNZ,CPEng,IntPE
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Design Firm is a member of ACENZ: ☐

**SIGNED BY** David Lau (Name of Design Professional) (Signature)

**ON BEHALF OF** Wilton Joubert Ltd. (Design Firm) Date 25/01/2022

*Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000*.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

**THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, ENGINEERING NEW ZEALAND AND NZIA**

WILTON JOUBERT
Consulting Engineers

Recommended Site Inspections / Construction Review

WJ Job #: 110906 rev01

Site Address: 18 Kahikatea Way

Important Notes:

- Check building consent conditions for any inspections that are required by the Building Consent Authority.

Ultimately, it is up to the building consent authority to determine which step of the construction process requires an engineer's review. Please check your eventual building consent conditions thoroughly for these. In support of your application for building consent, the following inspections / construction reviews are suggested:

- Beams and wing wall frame connections
- .....
- .....
- .....
- .....
- .....
- .....
- .....
- .....
- .....
- .....

WILTON JOUBERT
Consulting Engineers

Site address: 18 Kahikatea Way

## Re: B2 (Durability) Compliance

To whom it may concern,

We have provided a Producer Statement for Design (PS1) for clause B1 of the Building Act - Structure. Our PS1 does not cover clause B2 of the Building Act – Durability because there is no effective means of compliance for structural durability in the Building Code. However, we can confirm that the structural elements shown in our documentation have been treated as noted below:

**Timber**

The timber has been specified in accordance with NZS3640:2003. The quality of timber treatment is dependent on the QA systems of manufacturers, suppliers and the onsite contractors and sub-contractors. Refer to the contractor's PS3 and QA records where available.

**Concrete**

Compliance with cover and concrete quality requirements for B2/AS1 are in accordance with NZS3101:2006 Section 3.

**Reinforced Concrete Masonry**

Compliance with cover and concrete quality requirements for B2/AS1 are in accordance with NZS4230:2004 Section 4.

**Mild Steel**

Protective coatings as specified in building consent documentation (may be by others) in accordance with AS/NZS 2312:2014 and SNZ TS 3404:2018 on a life to first major maintenance basis.

The quality of mild steel protective coatings is dependent on:

- Steel preparation
- Quality and production consistency of the coating products
- QA of the application and curing
- QA of the handling, protection and repair

Refer to:

- Contractor's and sub-contractor's PS3s and QA records where available
- Third-party inspection and test results

On-going maintenance plan (attached)

Yours faithfully

David Lau, Wilton Joubert Ltd.

Dated: 25/01/2022

WILTON JOUBERT
Consulting Engineers

# STRUCTURAL MAINTENANCE SCHEDULE

This schedule of ongoing inspection and maintenance of structural elements shall be included with the O&M manuals and provided to the Owner/Body Corporate and building managers.

| **Inspection/Maintenance timeframe and item** | |
|---|---|
| (a) Half-yearly | Wash down all exposed steelwork that is not in a fully interior environment including:<br>• Veranda steelwork<br>• Steel carpark structure (beams, columns, braces etc)<br>• Deck and balcony steelwork<br>• Exposed façade steelwork, both primary and secondary structure<br>• Sub-ground floor mild-steel structures such as beams. |
| (b) 5-yearly | Inspect and repair sealant that encloses structural mild-steel components and/or timber with mild-steel fixings. |
| (c) 10-yearly | Check exposed timber fixings for corrosion, repair as required. |
| | Inspect/replace sealant that encloses structural mild-steel components and/or timber with mild-steel fixings. This will typically include sealants around the perimeter of precast panels. **Note that 10 years is the expected useful life for many sealants.** |
| | Check all exposed steelwork that is not in a fully interior environment for signs of corrosion. Repair protective coatings as required. |
| (d) 25-yearly | Inspect samples of structural steel that is hidden from view but not enclosed within a vapour barrier, and repair protective coatings as necessary. A typical example is a veranda with built-in steelwork (Such steelwork should typically have duplex protective coatings). Inspection may typically require removal of claddings and/or the drilling of holes for borescope access. Repair as required. |
| | Inspect all exposed, external timber. Repair as required. |
| | Inspect all exposed, external reinforced concrete for signs of spalling. Repair as required. |
| Following seismic shaking > SLS1 event | Inspections and repair as per b), c) and d) above. |

WILTON JOUBERT
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# PRODUCER STATEMENTS – Advisory Note

Producer Statements shall be submitted to territorial authorities or building consent authority in order for Code of Compliance Certificates to be issued. The requirement for consultants to issue the related Producer Statements may appear as a condition under the building consent documents or as a separate letter from the territorial authority or building certifier. **It is the owner's (or consent applicant) responsibility to check the building consent documentation and notify Wilton Joubert Ltd. in relation to the requirement for construction inspections required (and the subsequent PS4: Producer Statement for Construction Review) as stated on the consent documents. Please note, we cannot issue PS4 if we did not carry out the inspection.**

In order to secure our inspection services, it is strongly recommended that Wilton Joubert Ltd. be given at least 48 hours notice prior to time of inspection. Our inspections are limited to items that have been designed and detailed by us. We are also unable to inspect non-consented or unauthorised work. Building consented, stamped plans with consent numbers (or legible copy of the same) including amendments where applicable shall be made available on site during inspections.

In some cases due to the distance of the job from our offices, it may be more practical and cost effective to contact a local professional engineer to carry out the inspection, who may contact us with any questions that may arise. The engineer who carried out the inspection would subsequently be responsible for the issue of the producer statement for construction review.

The costs associated with site inspections and issuing of Producer Statements are separate from any previous work that we have been engaged for, such as engineering design of works. The costs for carrying out the inspections and related work are based on time spent travelling to site, time on site and other associated costs. Please contact us for an estimate of costs. Our assumptions are that the person(s) who arranged the inspection is responsible for payment of the fees, unless otherwise stated at time of engagement.

engineering new zealand

# CERTIFICATE OF DESIGN WORK
# MEMORANDUM FROM LICENSED BUILDING PRACTITIONER

## Section 30C and Section 45, Building Act 2004

### The Building

| | | | |
|---|---|---|---|
| **Street address** | 18 Kahikatea Way | | |
| **Suburb** | | **Town/city** | Richmond |
| **Postcode** | | **Building consent no.** | |

### The Owner

| | | | |
|---|---|---|---|
| **Name(s)** | G.J Gardner Homes Nelson (LSK Builders 2011 Ltd) | | |
| **Email** | nelson@gjgardner.co.nz | **Phone** | 03 543 9502 |
| **Address** | 195 Queen Street, RICHMOND 7020 | | |

## Basis for providing this memorandum

I am providing this memorandum in my role as the **specialist** designer who carried out or supervised specific Primary structure elements of restricted building work (RBW) design work as described in this memorandum. Other designers will provide memoranda covering the remaining RBW design work. Refer also to the attached PS1.

## Identification of restricted building work (RBW) design work

I, David Lau carried out or supervised the following RBW design work:

### Primary structure: B1

| Design work that is RBW | | Description (as required) and reference to plans and specifications | Carried out or supervised |
|---|---|---|---|
| Foundations and subfloor framing | ✗ | | |
| Retaining walls | ✗ | | |
| Beams | ✓ | SED Beams and Wing Wall Frame as per SD0, SD1, sheet A04, A05, A06, A19 | Supervised |
| Portal | ✗ | | |
| Bracing | ✓ | SED Wall bracing as per sheet A07 | Supervised |
| Other (primary) | ✗ | | |

Note: SED = Elements subject to Specific Engineering Design outside of the scope of NZS3604:2011, unless otherwise noted.

**Initial** _____ **Date** 25/01/2022

## Waivers and modifications

**Are waivers or modifications of the Building Code required?** No

If yes, please provide details of the waivers or modifications:

| Building Code clause | Waiver/modification required |
|---|---|
| N/A | N/A |

## Issued by

| | | | |
|---|---|---|---|
| **Name** | David Lau | **Design entity/company** | Wilton Joubert Ltd. |
| **Chartered status** | CPEng | **Chartered no.** | 221906 |
| **Email** | david@wjl.co.nz | **Website** | www.wiltonjoubert.co.nz |
| **Phone (daytime)** | 09 527 0196 | **Phone (after hours)** | |
| **Mobile** | | | |
| **Postal address** | PO Box 11381 Ellerslie, Auckland 1542 | | |
| **Physical address** | 108 Lunn Avenue, Mt. Wellington, Auckland 1072 | | |

## Declaration

I, David Lau, LBP state that I have applied the skills and care reasonably required of a competent design professional in carrying out or supervising the RBW described in this memorandum and that based on this, I certify that the RBW described in this memorandum:

- complies with the Building Code; or
- ~~complies with the Building Code subject to any waiver or modification of the Building Code described in this memorandum.~~

**Signature** **Date** 25/01/2022

WILTON JOUBERT
Consulting Engineers

Northland: 021 401388
Auckland: 09 5791114
Canterbury: 021 801984
Southern Lakes: 021 494586

www.wiltonjoubert.co.nz
email: jobs@wjl.co.nz

**Project Name:** Lot 366, 18 Kahikatea Way

**Job Number:** 110906 rev01

| | |
|---|---|
| Wind zone: | High |
| Earthquake zone: | 2 |
| Soil class: | D & E |

***Section 1 Dwelling - two storeys on concrete slab:***

| | | | | | |
|---|---|---|---|---|---|
| Building height to apex: | 7.5 | m | Roof weight: | light | |
| Roof height above eaves: | 2.4 | m | Cladding weights: | | |
| Stud height: | | m | upper | light | |
| upper | 2.4 | m | lower | light | |
| lower | 2.4 | m | | | |

| | | | | | |
|---|---|---|---|---|---|
| Upper building length: | 7.2 | m | Lower building length: | 7.2 | m |
| Upper building width: | 6.1 | m | Lower building width: | 7.2 | m |
| Upper building area: | 44.0 | $m^2$ | Lower building area: | 44.0 | $m^2$ |
| Roof pitch: | 35.0 | degrees | | | |

BUs required for Wind (From NZS3604:2011)

| | | |
|---|---|---|
| upper storey across | 50 | BUs/m |
| upper storey along | 52 | BUs/m |
| lower storey across | 107.5 | BUs/m |
| lower storey along | 106 | BUs/m |

BUs required for EQ (From NZS3604:2011)

| | | |
|---|---|---|
| upper storey E = | 7.2 | $BUs/m^2$ |
| lower storey E = | 12.8 | $BUs/m^2$ |

***Section 2 dwelling - single storey on concrete slab:***

| | | | | | |
|---|---|---|---|---|---|
| Building height to apex: | 3.8 | m | Roof weight: | light | |
| Roof height above eaves: | 0.0 | m | Cladding weights: | light | |
| Stud height: | 2.4 | m | | | |

| | | |
|---|---|---|
| Building length: | 13.2 | m |
| Building width: | 2.0 | m |
| Building area: | 91.0 | $m^2$ |
| Roof pitch: | 8.0 | degrees |

BUs required for Wind (From NZS3604:2011)

| | | |
|---|---|---|
| single storey across | 43.0 | BUs/m |
| single storey along | 43.0 | BUs/m |

BUs required for EQ (From NZS3604:2011)

| | | |
|---|---|---|
| single storey E = | 4.8 | $BUs/m^2$ |

***Upper Floor:***

**Direction:** Across

| Bracing Line | Bracing Required | | | | | | | | Bracing Provided | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Earthquake | | | | Wind | | BU's req. (Wind) | BU's req. (EQ) | Length | Height | Block? (y/n) | Wind BU's/m | EQ BU's/m | Wind BU's prov. | EQ BU's prov. | |
| | Length | Width | Area | BU's /m2 | Width | BU's /m | | | | | | | | | | |
| A | 6.1 | 2.2 | 13.42 | 7.2 | 2.2 | 50 | 110 | 97 | 0.9 | 2.4 | n | 90 | 100 | 81 | 90 | BL1-H |
| | | | | | | | | | 0.4 | 2.4 | n | 90 | 100 | 36 | 40 | BL1-H |
| | | | | | | Subtotal | **110** | **97** | | | | | | **117** | **130** | **OK** |
| B | 6.1 | 3.6 | 21.96 | 7.2 | 3.6 | 50 | 180 | 158 | 1.6 | 2.4 | n | 70 | 60 | 112 | 96 | GS1-N |
| | | | | | | | | | 1 | 2.4 | n | 50 | 55 | 50 | 55 | GS1-N |
| | | | | | | | | | 0.7 | 2.4 | n | 50 | 55 | 35 | 39 | GS1-N |
| | | | | | | Subtotal | **180** | **158** | | | | | | **197** | **190** | **OK** |
| C | 6.1 | 1.4 | 8.54 | 7.2 | 1.4 | 50 | 70 | 61 | 0.9 | 2.4 | n | 90 | 100 | 81 | 90 | BL1-H |
| | | | | | | Subtotal | **70** | **61** | | | | | | **81** | **90** | **OK** |
| | 0 | | | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | 0 | | | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | 0 | | | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |

7.2 43.92

***Upper Floor:***

**Direction:** Along

| Bracing Line | Bracing Required | | | | | | | | Bracing Provided | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Earthquake | | | | Wind | | BU's req. (Wind) | BU's req. (EQ) | Length | Height | Block? (y/n) | Wind BU's/m | EQ BU's/m | Wind BU's prov. | EQ BU's prov. | |
| | Length | Width | Area | BU's /m2 | Width | BU's /m | | | | | | | | | | |
| D | 7.2 | 1.5 | 10.8 | 7.2 | 1.5 | 52 | 78 | 78 | 0.8 | 2.4 | n | 50 | 55 | 40 | 44 | GS1-N |
| | | | | | | | | | 0.8 | 2.4 | n | 50 | 55 | 40 | 44 | GS1-N |
| | | | | | | | | | 0.8 | 2.4 | n | 50 | 55 | 40 | 44 | GS1-N |
| | | | | | | Subtotal | **78** | **78** | | | | | | **120** | **132** | **OK** |
| E | 7.2 | 3.1 | 22.32 | 7.2 | 3.1 | 52 | 161 | 161 | 2 | 2.4 | n | 70 | 60 | 140 | 120 | GS1-N |
| | | | | | | | | | 1.2 | 2.4 | n | 70 | 60 | 84 | 72 | GS1-N |
| | | | | | | Subtotal | **161** | **161** | | | | | | **224** | **192** | **OK** |
| F | 7.2 | 1.5 | 10.8 | 7.2 | 1.5 | 52 | 78 | 78 | 1 | 2.4 | n | 90 | 100 | 90 | 100 | BL1-H |
| | | | | | | Subtotal | **78** | **78** | | | | | | **90** | **100** | **OK** |
| | | | 0 | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | | | 0 | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | | | 0 | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |

6.1 43.92

***Lower Floor:***

**Direction:** Across

| Bracing Line | Bracing Required | | | | | | | | Bracing Provided | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Earthquake | | | | Wind | | BU's req. (Wind) | BU's req. (EQ) | Length | Height | Block? (y/n) | Wind BU's/m | EQ BU's/m | Wind BU's prov. | EQ BU's prov. | |
| | Length | Width | Area | BU's /m2 | Width | BU's /m | | | | | | | | | | |
| P | 4.2 | 2.2 | 9.24 | 4.8 | 2.2 | 43 | 95 | 44 | 1 | 2.4 | n | 135 | 135 | 135 | 135 | BLP-H |
| | | | | | | Subtotal | **95** | **44** | | | | | | **135** | **135** | **OK** |
| Q | 6 | 4.5 | 27 | 4.8 | 4.5 | 43 | 194 | 130 | 1.1 | 2.4 | n | 90 | 100 | 99 | 110 | BL1-H |
| | | | | | | | | | 0.4 | 2.4 | n | 110 | 115 | 44 | 46 | BLG-H |
| | | | | | | | | | 0.4 | 2.4 | n | 135 | 135 | 54 | 54 | BLP-H |
| | | | | | | Subtotal | **194** | **130** | | | | | | **197** | **210** | **OK** |
| R | 8.2 | 1 | 8.2 | 4.8 | 1 | 43 | 43 | 39 | 0.4 | 2.4 | n | 110 | 115 | 44 | 46 | BLG-H |
| | | | | | | Subtotal | **43** | **39** | | | | | | **44** | **46** | **OK** |
| S | 7.4 | 2.1 | 15.54 | 12.8 | 2.1 | 107.5 | 226 | 199 | 1.9 | 2.4 | n | 125 | 105 | 238 | 200 | BL1-H |
| | | | | | | Subtotal | **226** | **199** | | | | | | **238** | **200** | **OK** |
| T | 7.2 | 4.3 | 30.96 | 12.8 | 4.3 | 107.5 | 462 | 396 | 1.9 | 2.4 | n | 125 | 105 | 238 | 200 | BL1-H |
| | | | | | | | | | 3.4 | 2.4 | n | 70 | 60 | 238 | 204 | GS1-N |
| | | | | | | Subtotal | **462** | **396** | | | | | | **476** | **404** | **OK** |
| U | 7.9 | 3.8 | 30.02 | 12.8 | 3.8 | 107.5 | 409 | 384 | 0.4 | 2.4 | n | 90 | 100 | 36 | 40 | BL1-H |
| | | | | | | | | | 0.4 | 2.4 | n | 90 | 100 | 36 | 40 | BL1-H |
| | | | | | | | | | 1.7 | 2.4 | n | 125 | 105 | 213 | 179 | BL1-H |
| | | | | | | | | | 1 | 2.4 | n | 135 | 135 | 135 | 135 | BLP-H |
| | | | | | | Subtotal | **409** | **384** | | | | | | **420** | **394** | **OK** |
| V | 5.7 | 2.5 | 14.1375 | 4.8 | 2.5 | 43 | 108 | 68 | 0.6 | 2.4 | n | 90 | 100 | 54 | 60 | BL1-H |
| | | | | | | | | | 0.6 | 2.4 | n | 90 | 100 | 54 | 60 | BL1-H |
| | | | | | | Subtotal | **108** | **68** | | | | | | **108** | **120** | **OK** |

20.4 135.1

***Lower Floor:***

**Direction:** Along

| Bracing Line | Bracing Required | | | | | | | | Bracing Provided | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Earthquake | | | | Wind | | BU's req. (Wind) | BU's req. (EQ) | Length | Height | Block? (y/n) | Wind BU's/m | EQ BU's/m | Wind BU's prov. | EQ BU's prov. | |
| | Length | Width | Area | BU's /m2 | Width | BU's /m | | | | | | | | | | |
| W | 18.5 | 2 | 37 | 4.8 | 2 | 43 | 86 | 178 | 1 | 2.4 | n | 50 | 55 | 50 | 55 | GS1-N |
| | | | | | | | | | 2.2 | 2.4 | n | 70 | 60 | 154 | 132 | GS1-N |
| | | | | | | | | | 2.4 | 2.4 | n | 70 | 60 | 168 | 144 | GS1-N |
| | | | | | | Subtotal | **86** | **178** | | | | | | **372** | **331** | **OK** |
| X | 7.2 | 1.9 | 13.68 | 12.8 | 1.9 | 106 | 201 | 175 | 4.8 | 2.4 | n | 70 | 60 | 336 | 288 | GS1-N |
| | 9.8 | 1.9 | 18.62 | 4.8 | | | 0 | 89 | | | | | | | | |
| | | | | | | Subtotal | **201** | **264** | | | | | | **336** | **288** | **OK** |
| Y | 7.2 | 2.8 | 20.16 | 12.8 | 2.8 | 106 | 297 | 258 | 1 | 2.4 | n | 50 | 55 | 50 | 55 | GS1-N |
| | 9.8 | 2.8 | 27.44 | 4.8 | | | 0 | 132 | 3 | 2.4 | n | 70 | 60 | 210 | 180 | GS1-N |
| | | | | | | | | | 3.6 | 2.4 | n | 70 | 60 | 252 | 216 | GS1-N |
| | | | | | | Subtotal | **297** | **390** | | | | | | **512** | **451** | **OK** |
| Z | 7.2 | 1.5 | 10.8 | 12.8 | 1.5 | 106 | 159 | 138 | 2.1 | 2.4 | n | 70 | 60 | 147 | 126 | GS1-N |
| | 4.9 | 1.5 | 7.2975 | 4.8 | | | 0 | 35 | 1.4 | 2.4 | n | 70 | 60 | 98 | 84 | GS1-N |
| | | | | | | Subtotal | **159** | **173** | | | | | | **245** | **210** | **OK** |
| | | | | | 0 | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | | | | | 0 | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |

PREMIER SERVICES
Architectural Design Plus

# BUILDING CONSENT DRAWINGS

## KAHIKATEA TOWNHOUSE FOR DAVID & SUSAN FORD.
## AT 18 KAHIKATEA WAY, RICHMOND

| Sheet Index | | |
|---|---|---|
| **Layout ID** | **Layout Name** | Transmittal Set ID |
| 00 | COVER SHEET | A |
| A01 | DRAINAGE PLAN | A |
| A02 | PLUMBING ISOMETRIC | A |
| A03 | SLAB PLAN | A |
| A04 | GROUND FLOOR PLAN | A |
| A05 | MID-FLOOR PLAN | A |
| A06 | FIRST FLOOR PLAN | A |
| A07 | BRACING PLANS | A |
| A08 | ROOF PLAN | A |
| A09 | ELEVATIONS | A |
| A10 | ELEVATIONS | A |
| A11 | CROSS SECTION A-A | A |
| A12 | CROSS SECTION B-B | A |
| A13 | CROSS SECTION C-C | A |
| A14 | CROSS SECTION D-D | A |
| A15 | DETAILS | A |
| A16 | DETAILS | A |
| A17 | DETAILS | A |
| A18 | DETAILS | A |
| A19 | DETAILS | A |
| A20 | DETAILS | A |
| A21 | DETAILS | A |
| A22 | JUNCTION DETAILS | A |
| A23 | JUNCTION DETAILS | A |
| A24 | JUNCTION DETAILS | A |
| A25 | OPENING DETAILS | A |
| A26 | OPENING DETAILS | A |
| A27 | OPENING DETAILS | A |
| A28 | SHOWER DETAILS | A |
| A29 | SHOWER DETAILS | A |
| A30 | BATH DETAILS | A |
| A31 | FIXTURE LAYOUT PLAN | A |

## GENERAL NOTES

**DIMENSIONS NOTED ON THESE DRAWINGS ARE FROM STRUCTURAL SURFACES UNLESS OTHERWISE INDICATED. ALL DIMENSIONS ARE GIVEN IN MILLIMETERS.**

The Contractor is responsible for the correct setting out of the building on site. Boundary pegs are to be located, and setting out points are to be verified on site against information provided prior. All levels/dimensions are to be confirmed onsite before commencing any work and any discrepancies are to be brought to the attention of the Premier Services Limited.

Where available, Engineering drawings are to be read in conjunction with this documentation, any discrepancies to be reported to Premier Services Limited.

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*B.E. (Hons), F.E.D., MIPENZ, CPEng*

WILTON JOUBERT
Consulting Engineers

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

Job No. 21109

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE I.C. RATED.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICES.

PUMP CHAMBER CONTROL PANEL

POWER SUPPLY AND CONTROL PANEL FOR SEWER PRESSURIZED PUMP TO BE LOCATED ON EXTERIOR WALL ON DWELLING ADJACENT TO GARAGE.

HOUSE BRACING REQUIREMENTS

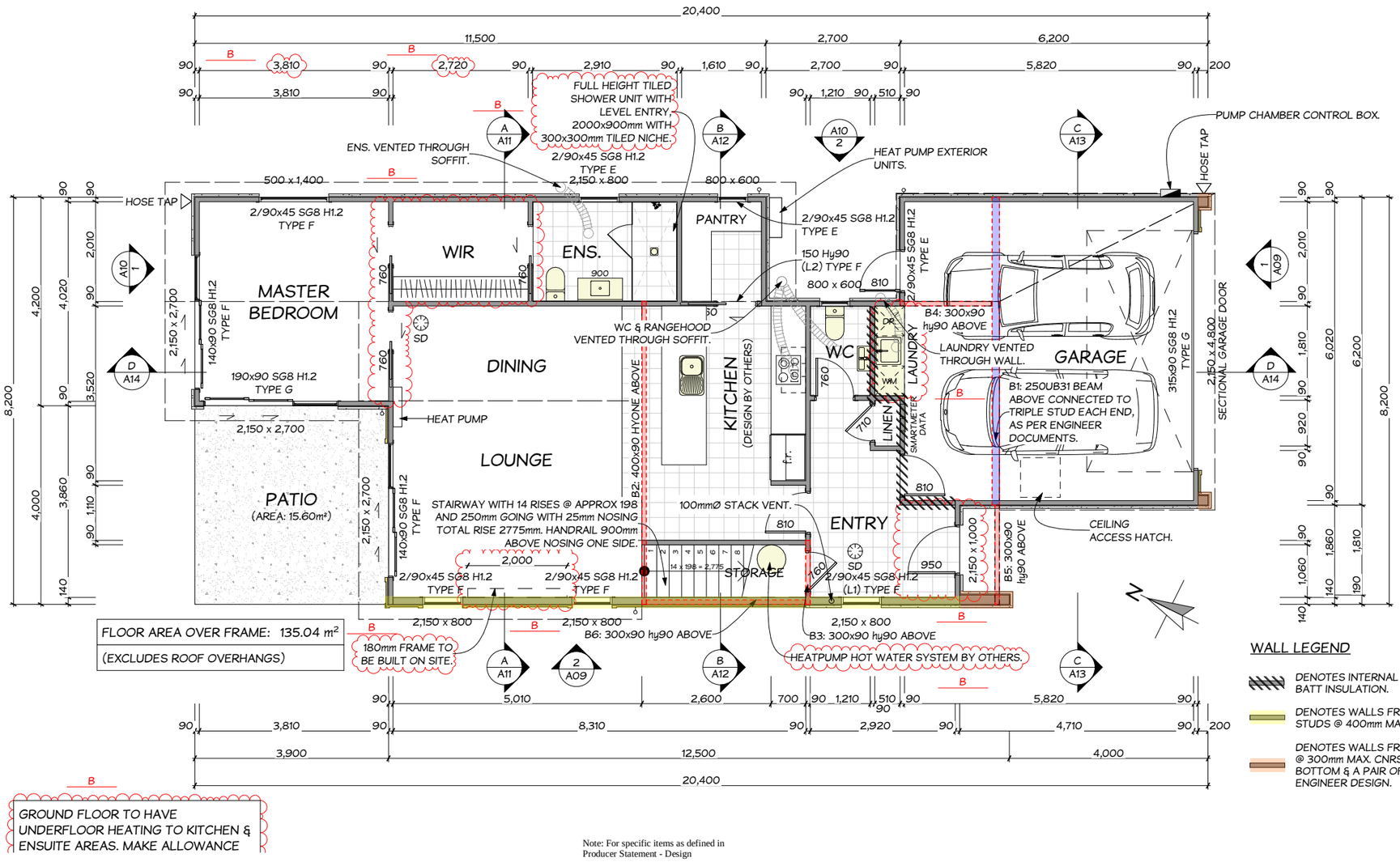
REFER TO WILTON JOUBERT CONSULTING ENGINEERS DOCUMENTS FOR FURTHER GUIDANCE ON WALL BRACING REQUIREMENTS.

## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE F = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2150x800 = OPENING SIZE (H x W)

TOWNHOUSE AS CONSENTED BY SH180022V2
APPROVED PLANS (APPENDIX A)




### WALL LEGEND

DENOTES INTERNAL WALLS TO BE INSULATED WITH R2.6 BATT INSULATION.

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

Note: For specific items as defined in Producer Statement - Design

signed by: David B.N. Lau
*B.E. (Hons), Ph.D., MIPENZ, CPEng*

WILTON JOUBERT
Consulting Engineers

All work is to be carried out in full accordance with the NZBC and Territorial Authority requirements as they apply. Any queries and discrepancies must be confirmed with the Designer before beginning any work

| | |
|---|---|
| A04 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 19/01/2022 | DATE : |
| 1:100 | SCALE : |
| JM, CW | DRAWN : |

Job No. 21109

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | Building Consent | 19/11/2021 |
| B - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

DAVID & SUSAN FORD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

18 KAHIKATEA WAY, RICHMOND — LOCATION :

GROUND FLOOR PLAN — DRAWING :

PREMIER SERVICES
Architectural Design Plus

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

BRACING NOTES

BRACED PANELS SHALL BE CONSTRUCTED TO COMPLY WITH RELEVANT "BRANZ" APPRAISAL CERTIFICATES. GIB EZYBRACE SYSTEMS 2016 HAVE BEEN APPRAISED BY THE BUILDING RESEARCH ASSOCIATION OF NEW ZEALAND (BRANZ), APPRAISAL NO. 928 (2016) GIB EZYBRACE®SYSTEMS, 2016. IT IS OF PRIME IMPORTANCE TO COMPLY WITH THE DETAILS OF DESIGN, CONSTRUCTION AND WORKMANSHIP IN THE EZYBRACE SYSTEMS SPECIFICATION AND INSTALLATION MANUAL.

STRUCTURAL ENGINEER

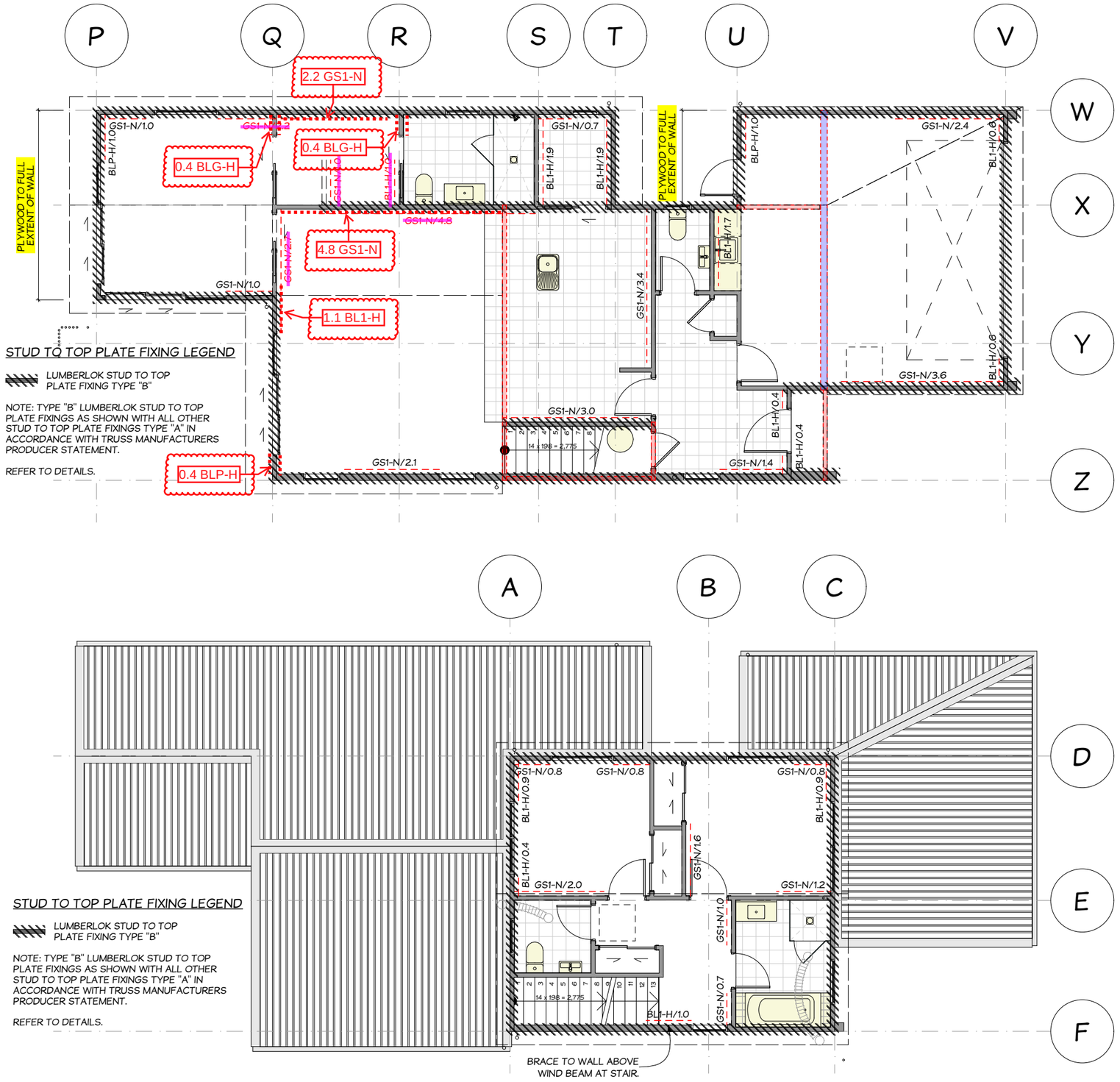
JOHNSON ZHANG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

INSPECTIONS

LAL CINZAH
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.

**ENGINEER DESIGN**
BRACING COVERED BY ENGINEER PS1, REFER TO ENGINEER DOCUMENTS FOR FURTHER GUIDANCE ON BRACING SPECIFICATIONS.




STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS AS SHOWN WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

REFER TO DETAILS.

STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS AS SHOWN WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

REFER TO DETAILS.

Note: For specific items as defined in Producer Statement - Design

signed by: David B.N. Lau
*B.E. (Hons), Ph.D., MIPENZ, CPEng*

WILTON JOUBERT Consulting Engineers

A07 — SHEET : original A3
BUILDING CONSENT — REVISION :
19/01/2022 — DATE :
1:100 — SCALE :
JM, CW — DRAWN :
Job No. 21109

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| B - WIP | Building Consent | | Work in Progress |

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DAVID & SUSAN FORD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

18 KAHIKATEA WAY, RICHMOND — LOCATION :

BRACING PLANS — DRAWING :

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Architectural Design Plus

All work is to be carried out in full accordance with the NZBC and Territorial Authority requirements as they apply. Any queries and discrepancies must be confirmed with the Designer before beginning any work

layITout

CarterHoltHarvey LVL

Date printed: 15/12/2021
Page 1 of 1
Ref. no.: FS12781

futurebuild LVL

| | |
|---|---|
| **Specifier preparing this design and layout:** | Futurebuild Residential Design Service |

**Project details:**

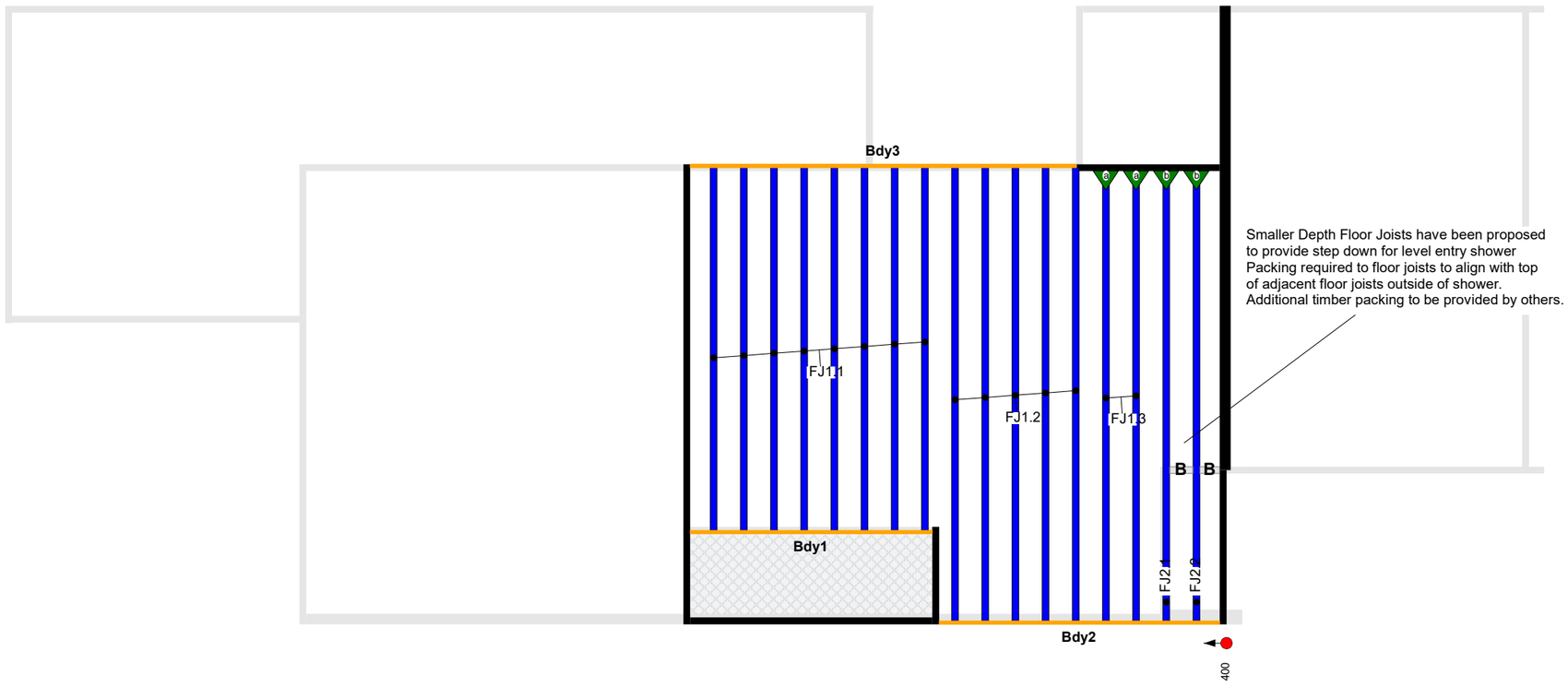
| | |
|---|---|
| **Site address:** | Lot 366 18 Kahikatea Way, Richmond, Tasman |
| **Constructed for:** | |
| **Constructed by:** | |

Please find attached Futurebuild Residential Design Service take off FS12781 including Joist and Beam Layouts and associated costing for the engineered wood products specified for the mid-floor framing components of the proposed dwelling at Lot 18 Kahikatea Way, Richmond, Tasman.
Please note the following assumptions apply:

^ Floor layout follows Architectural Drawing sheet A05.
^ We have applied HJ300 90 hyJOIST floor joists at 400 centres as specified on Architect Drawing.
^ We have applied HJ240 90 hyJOIST floor joists at 400 centres under the entry level shower as mentioned in your email.
^ We have applied 300x90 hy90 beams and 400x90 hyONE beams as specified on Architect Drawing.
400x90 hyONE beam is larger than floor joist system, and will be required to be built up into wall framing above.
^ We have applied HJ240 90 hyJOIST floor joists at 400 centres under the entry level shower as mentioned in your email.
^ No allowance has been made for steel beams or timber required to pack out the steel to facilitate connection.
^ Bracketry has been allowed for connection of hyJOIST's to steel supporting members within the floors.
^ Futurebuild hyJOIST products have been supplied untreated in accordance with NZS 3602, solid LVL including boundary members have been treated to H1.2 level.

0 Metres 5

NOTE:
Floor joist setout as per Architectural Drawings.
Refer Architectural Drawings for more information.




## Floor Joist Layout

| Label | Member | | No/Length (m) |
|---|---|---|---|
| | Type | Size | |
| Quantities determined by laylTout | | | |
| FJ1.1 | hyJOIST | HJ300 90 | 8/5.4 |
| FJ1.2 | hyJOIST | HJ300 90 | 5/6.6 |
| FJ1.3 | hyJOIST | HJ300 90 | 2/6.0 |
| FJ2.1 | hyJOIST | HJ240 90 | 1/6.0 |
| FJ2.2 | hyJOIST | HJ240 90 | 1/6.0 |
| Bdy3 | truFRAME H1.2 | 300 x 45 | 1/6.0 |
| Bdy2* | truFRAME H1.2 | 300 x 45 | 1/4.8 |
| Bdy1* | truFRAME H1.2 | 300 x 45 | 1/4.8 |

| Bracket codes | | |
|---|---|---|
| a | IBHF30090 | 2 |
| b | IBHF24090 | 2 |

***NOTES.***
*1. Spacings given are nominal maximum spacings.*
*2. Joists to be installed in accordance with product literature.*
*3. Bearing and/or support in excess of the basic requirements may need to be specified separately. Refer designIT for Houses or Futurebuild LVL literature.*
*4. Persons relying on information provided should verify the proposed lengths, spacings and layout and check that assumptions for loading and support, as specified in the Design certificate, correspond to requirements.*

*06103*

futurebuild LVL®

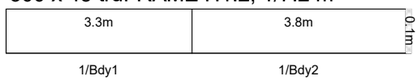
Ver: 115 Sheet: 1
Drawing No.:FS12781 - FL
Date: Wednesday, 15 December 2021 Time: 3:21 pm
Specified by: Futurebuild Residential Design Service
Project: Ford
Site address: Lot 366 18 Kahikatea Way, Richmond, Tasman
For:

Symbols:
- yyy — Denotes start point for laying members at yyy mm centres
- ▶ Hangers required
- B Indicates blocking
- • Rationalised member (refer to cutting list)
- Load bearing wall
- — Indicates rimboard

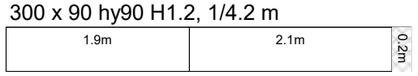
**FLOOR JOIST LAYOUT**

**laylTout**

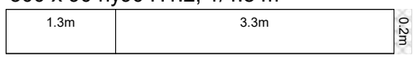
rat3 (Rationalised member)
300 x 45 truFRAME H1.2, 1/7.2 m




rat1 (Rationalised member)
300 x 90 hy90 H1.2, 1/4.2 m




rat2 (Rationalised member)
300 x 90 hy90 H1.2, 1/4.8 m




*Make sure that each Rat member is checked to correctly match its label code on the applicable layout*

futurebuild LVL

Ver: 115 Sheet: 2

Drawing No.:FS12781 - FL

Date: Wednesday, 15 December 2021 Time: 3:21 pm

Specified by: Futurebuild Residential Design Service

Project: Ford

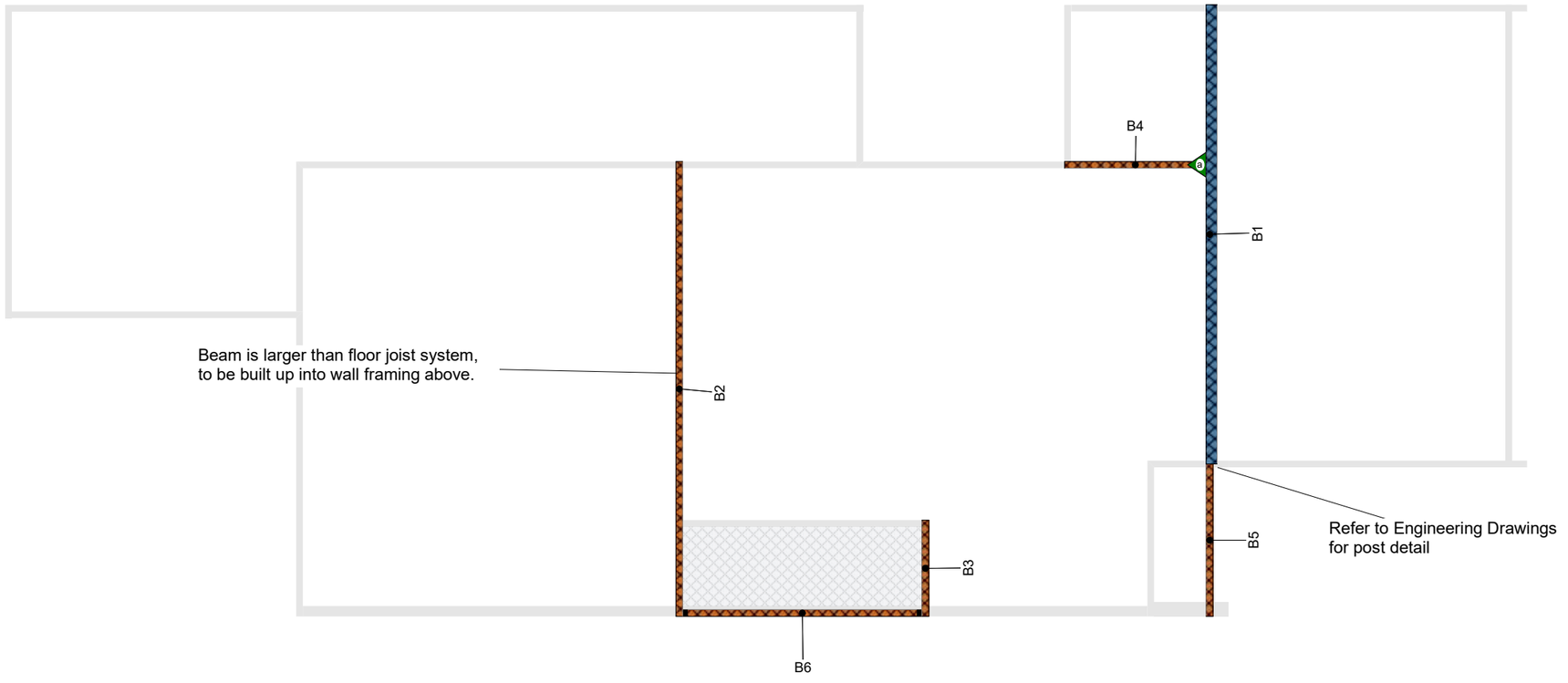
Site address: Lot 366 18 Kahikatea Way, Richmond, Tasman

For:

**FLOOR JOIST LAYOUT**
**Cutting list**

**laylTout**

0 Metres 5




## Floor beam layout

| Label | Member | | No/Length (m) |
|---|---|---|---|
| | Type | Size | |
| Beam schedule - user specified | | | |
| B1 | 250UB31.4 | | |
| B2 | hyONE H1.2 | 400 x 90 | 1/7.2 |
| B3* | hy90 H1.2 | 300 x 90 | 1/1.3 |
| B4* | hy90 H1.2 | 300 x 90 | 1/1.9 |
| B5* | hy90 H1.2 | 300 x 90 | 1/2.1 |
| B6* | hy90 H1.2 | 300 x 90 | 1/3.3 |

| Bracket codes | | |
|---|---|---|
| a | LVSIA-V | 1 |

***NOTES.***

*1. Futurebuild LVL solid section beams to be installed in accordance with Futurebuild LVL literature and NZS 3604.*

*2. Persons relying on information provided should verify the proposed lengths, spacings and layout and check that assumptions for loading and support, as specified in the Design certificate, correspond to requirements*

06103

futurebuild LVL®

Ver: 115 Sheet: 1

Drawing No.:FS12781 - FLB

Date: Wednesday, 15 December 2021 Time: 3:21 pm

Specified by: Futurebuild Residential Design Service

Project: Ford

Site address: Lot 366 18 Kahikatea Way, Richmond, Tasman

For:

Symbols:

- Post support
- Beam below floor joists
- Floor level beam
- Rationalised member

**FLOOR BEAM LAYOUT**

**laylTout**

Econergy®

The smarter way to heat water™

# Heat Pump Water Heater Installation Guide

FOR QUALIFIED PERSONNEL ONLY

HOT WATER HEAT PUMPS LTD

Advancing Water Heat Pump Technology SINCE 1980

## Contents

Location of the Unit ..... 4
Installation Design ..... 5
Ordering Econergy Accessories ..... 8
Installation ..... 10
Installation Procedure ..... 13
Piping Diagram ..... 14
Commissioning ..... 19
Troubleshooting ..... 20
Important Information ..... 22
Wiring Diagram ..... 23
Hot Water Cylinder Specifications ..... 24
Heat Pump Specifications ..... 26

**NOTE TO INSTALLERS: Installation must be completed by qualified and licensed tradesmen to National Codes and in strict accordance with this manual.**

**A pre-made CAT- 5/6 cable is required for installation of Econergy heat pumps**



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www.econergy.co.nz

## Location of the Water Heater Unit

Econergy® water heater units are designed to be installed outside, in the ceiling cavity (if one exists), under the house or in a garage, adjacent to the hot water cylinder (HWC). The Econergy® water heater should not be located within living areas as the unit produces cold air.

Location of the Econergy® water heater will be determined by a combination of factors including proximity to the hot water cylinder, proximity to bedrooms and whether there is usable space where the unit is going to be located.

For installation to existing homes, the unit should be installed with a maximum insulated pipe run of 9 metres.

For new homes, the layout should be designed so that the unit can be installed as close to the HWC as practical within the 9 metre maximum pipe run. The HWC can be installed inside or outside but as close to main points of use as possible.

**Econergy® Water Heaters must be installed in a well ventilated space outside the living areas**

**The Econergy® Water Heater emits 52 dbA at 1.5 metres (HP4000LT) and should not be installed adjacent to bedrooms. Ensure that the unit is located so that noise will not affect the residents. If installing in roof cavities, the cavities must be at least 80m². The unit must be seismically restrained and located away from bedrooms to avoid noise breakthrough.**



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# Installation Design

### Design to avoid cavitation

The installation must be designed so that the unit will operate reliably and with no water flow issues due to cavitation.

**Cavitation of the circulating pump may occur when there is less than 50kPa pressure at the heat pump inlet. This can lead to a malfunction of the Econergy® water heater and MUST BE AVOIDED by ensuring adequate pressure at the system inlet.**

To ensure successful operation of the Econergy® water heater on open vent application where operating pressure is less than 50kPa (or 5m static head), a valve vented system should be used. This has the added benefit of increasing the pressure of supply in the house. The installer should be aware of and avoid adding a relief valve to an old HWC of questionable structural integrity since it could cause the HWC to fail.

### Distance from Hot Water Cylinder

The Econergy® water heater should be mounted as close as possible to the HWC to ensure best efficiency. This is because each leg of supply/ return piped water loses its heat during the off-cycle despite being insulated. The cylinder should be located within 9 metres of the Econergy® water heater for retrofit installations and directly adjacent for new installations.

# Wetback Systems

**The Econergy® system cannot be used with a wetback system where the piping design allows a thermosyphon to develop**

Wetback systems involve large bore copper pipes running into the cylinder and back again. Because the heat source is uncontrolled, temperatures can rise to 100°C, generating steam. Plumbing codes dictate that an open vent is used to eliminate the possibility of an explosion occurring due to rapid pressure rise in the system.


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Econergy® units can be combined with wetback systems but only with strict constraints as the temperature limit on the Econergy® water heater is 80°C. The Econergy® water heater unit must be mounted level with the hot water cylinder or below, and the piping designed to eliminate a thermosyhon loop to stop the possibility of over temperature hot water circulating from the cylinder to the unit.

## Solar Water Heating Systems

**The Econergy® system cannot be used with a solar water heating system where the piping design allows a thermosyphon loop to develop**

Solar water heating systems, like wetback systems, are usually uncontrolled systems. Temperatures can rise to 100°C, boiling the water. As the Econergy® system is super efficient it would not normally be required to integrate the unit with a solar water heating system, however if this was specified or required by the customer then the piping design (as per wetback) must be designed to avoid thermosyphoning of high temperature water through the unit while not running.

## Ring Main Management (Optional)

A ring main should not be used on an Econergy cylinder setup without management unless it is operated from a separate cylinder. Ring main management is a software update that can be installed during production. A switch or PIR sensor(s) can be wired to the heat pump and the heat pump will control the ring main circulation pump (ring main pumps are not supplied as part of a typical Econergy system unless specifically requested). Once the mechanism is triggered the ring main pump will be activated for 60 seconds to flood the ring main with hot water. A minimal amount of hot water may be reintroduce back to the cylinder as a result. The ring main pump will then be locked out for 30 minutes regardless of additional triggers.


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## Hot Water Cylinders

The Econergy® water heater requires a well insulated hot water cylinder to function correctly. The tank must be sized to the maximum anticipated draw off in an 8 hour period so that the consumer does not run out of hot water. As a guide, we recommend 300L for a family of 4. The water heater unit can be retrofitted to any electric cylinder as long as it has PU or EPS insulation. Econergy® water heaters cannot be installed into gas HWC's as they are generally inefficient and there is no electrical backup.

| Econergy Heat Pump Ready HWC - Recommended Storage Sizes | | |
|---|---|---|
| **Household Size # Adults** | **Recommended Size** | **Ordering Code** |
| 2 | 180L | EC180L |
| 3 | 250L | EC250L |
| 4-6 | 300L | EC300L |
| 6+ / high use | 350L + | EC [capacity]L Custom |

**The Econergy cannot be retrofitted to gas hot water cylinders, or any storage tank that cannot deliver more than 50kPa pressure to the pump inlet.**

### A) New construction

We recommend Econergy® heat pump ready hot water cylinders. Available in mains pressure stainless steel, these contain dual 20mm inlet fittings, dedicated 20m return fittings and dual sensors integrated into the tank. They are guaranteed from the factory with a 10 year warranty. Use of Econergy® heat pump ready cylinders avoids any potential warranty issues resulting from modification to fit sensor pockets.

### B) Retrofit

Retrofit can be made to any electric hot water cylinder with PU or EPS in good condition by teeing into the cold water line just before the tank isolation valve and by fitting a tank outlet fitting (code HPTP) into the hot water outlet line. It is recommended not to fit a pressure relief valve to an old LP cylinder as this could cause leaks.



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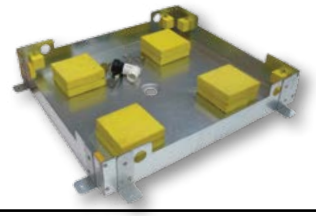
## Ordering Econergy Accessories

| Part No. | Application | Picture |
|---|---|---|
| Outdoor Mounting Kit<br>HPOMK | For mounting outdoors & under houses on flat surfaces | |
| Ceiling Mounting Kit<br>HPCMK | For mounting in ventilated/accessible ceiling cavities |  |
| Roof Mounting Kit<br>HPRMK | For mounting on colour steel roofs (specify Standard or Dimondek profiles) | |
| Wall Mounting Kit<br>HPWMK | For mounting on concrete or concrete block walls (not suitable for timber or brick structures) | |



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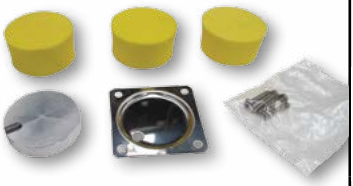
| Part No. | Application | Picture |
|---|---|---|
| Generic Retrofit Kit<br>HPGRK | For retrofit to existing hot water cylinders | |
| Coopers Solar Ready Retrofit Kit<br>HPCRK | For retrofit to Coopers Solar Ready Hot Water Cylinders | |
| Dux/Rinnai Retrofit Kit<br>HPTSK | For retrofit to Dux Proflow and Rinnai Hotflow Hot Water Cylinders (aka Tank Sensor |  |
| Tank Pocket<br>HPTP | Tank Pocket - For retrofit to Rheem Stainless Solar Ready HWC | |
| Condensate Fitting<br>HPCDF | For outdoor installations requiring a condensate drain (for ceilings use HPCMK instead) | |



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# Installation

## Standard Specifications

| No | Installation Component | Approved Specification |
|---|---|---|
| | **Plumbing Installation** | |
| 1 | Piping systems from Heat Pump Unit to Hot Water Cylinder | 15mm nominal bore piping **(no more, no less).**<br>Dux or Buteline Polybutylene<br>REHAU PE<br>Kembla PEX<br>Fusiotherm<br>Copper AS/NZS compliant |
| 2 | Pipe Line Fittings | Dux Secura, REHAU, Fusiotherm, Kembla PEX or AS/NZS Standard DR brass fittings |
| 3 | Flexible Hoses | NOT ALLOWED |
| 4 | Ball Valves | Use only full flow 15mm tee handle valves. Bugatti, PWL, Econergy |
| 5 | Pipe Insulation | Min 13mm wall Armaflex or approved equivalent. All piping to be fully lagged along its length |
| 6 | Max Pipe Distance | 9mm flow 9 m return |

| | **Electrical Installation** | |
|---|---|---|
| 1 | Low Voltage Cable | CAT5 UTP, 24AWG and rated to 1 amp max |
| 2 | Main Cable | 2.5 TPS, 2 x 2.5mm$^2$ + E, compliant to AS/NZS5000.2 |
| 3 | MCB | To suit electric back element rating. Max permissible 20A |



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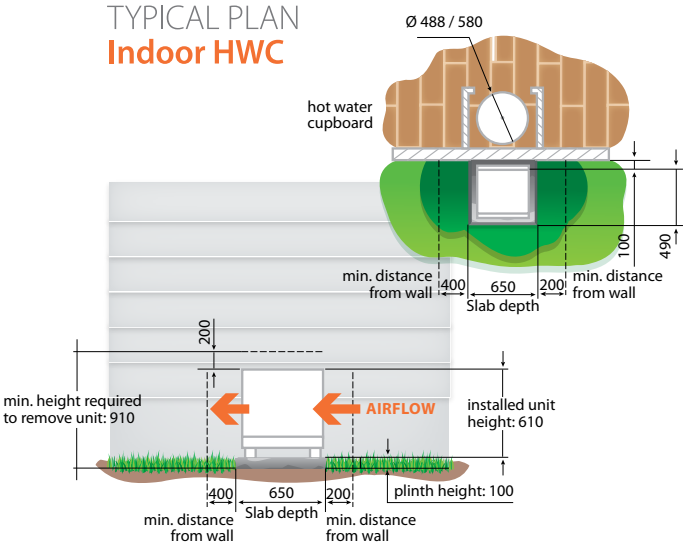
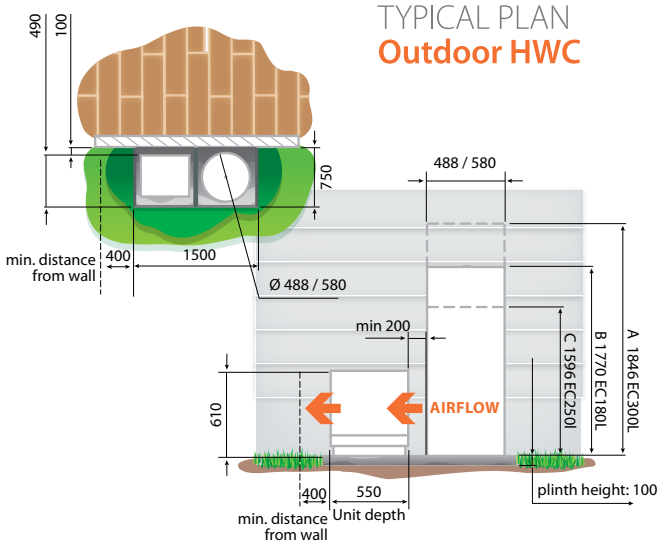
Installation shall be made to and compliant with, the attached drawings.

## Typical Installation Detail – Indoor HWC / Outdoor Unit




## Typical Installation Detail – Outdoor HWC and Unit





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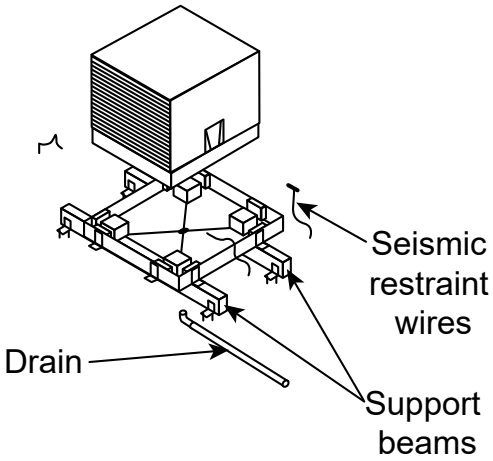
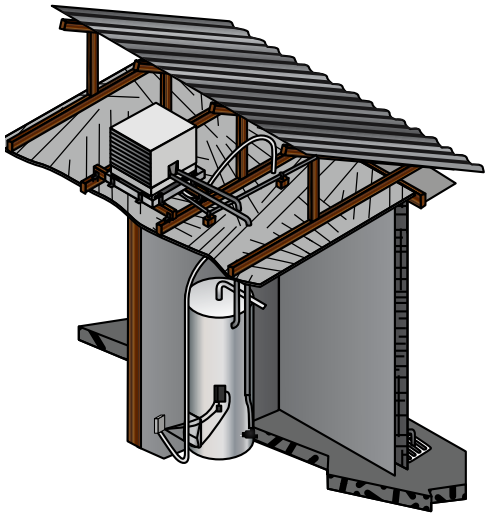
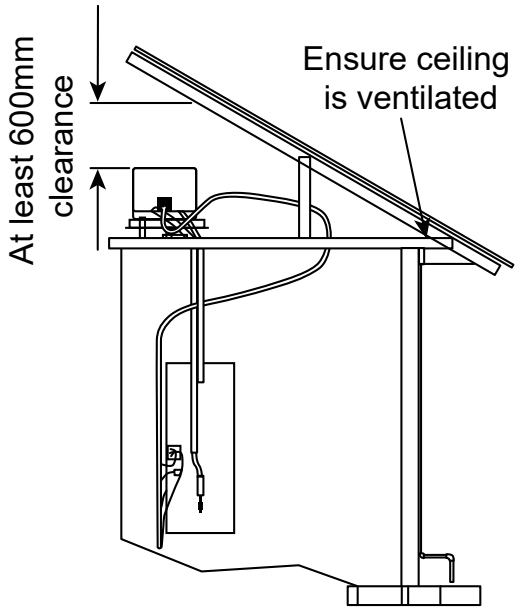
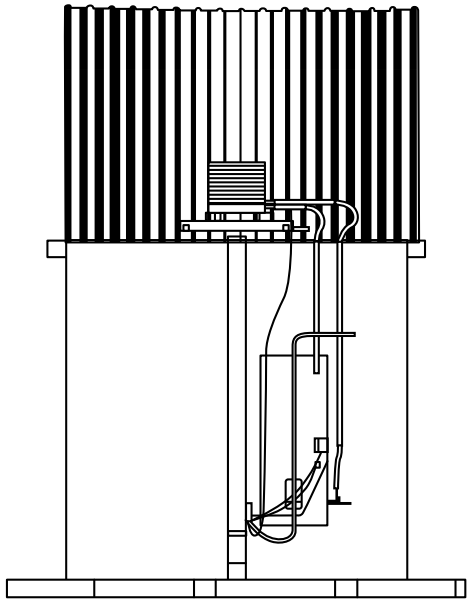
## Typical Installation Detail – Roof Cavity







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# Installation Procedure

**Adequate access and space for service must be allowed for all types of installation**

### 1. Mounting System

**a) Outdoor Mounting.** Use accessory HPOMK. Lay the unit on its side using the cardboard packing as protection. Attach the plastic mounting feet to the underside of the unit using the cap screws provided.

**b) Ceiling Installation.** Use only accessory HPCMK. Mount the ceiling tray in the roof space in a suitable location. The unit should then be placed on the drip tray and secured in place using the seismic restraints, which should be attached to the side of the unit and to the support beams.
Please note: Adequate access and room for service must be allowed for the tradesperson's safety and to prevent potential property damage. Any damage caused to private property due to incorrect installation, including damage caused whilst rectifying faults, is not covered under warranty.

1. Ceiling access must be large enough to allow the heat pump to fit through it easily.
2. A walkway must be installed from the access point to the heat pump.
3. The heat pump must be located on a platform at least 2m x 2m and a minimum height requirement at heat pump of 1500mm to allow working room around the heat pump.
4. A light of at least 12W LED must be installed above the heat pump.

**c) Wall Mounting.** Use accessory HPWMK. Mount wall brackets using level onto concrete block wall. Place anti-vibration mounts supplied onto wall brackets. Screw up into unit using 4x capscrews (supplied).

**d) Closed Garage Installations.** Cold air leaving the unit must be ducted to the outside without loss of air flow. A fresh air supply must also be installed to ensure that the correct air flow through the heat pump is maintained.

1. Windows are insufficient for this purpose.
2. Ensure no objects can be placed within 500mm of the heat pump as this will reduce its efficiency.
3. Allow for drainage of water naturally produced by the cooling coil (evaporator) from within the heat pump.


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**e) Open Ended Garage Installations.** The heat pump must be installed on brackets as high up to the ceiling as possible with louvers fitted to direct the cold air from the unit to fall to the floor. This allows the cold air to flow along the floor to the outside and the heat pump receives warmer air from under the ceiling which makes the unit considerably more efficient. The height at which the heat pump is installed must also allow the covers to be lifted vertically over the top of the unit for service and electrical installation.

**f) Roof Mounting.** Use accessory HPRMK. Mount roof brackets onto roof following instructions supplied with kit. Screw 2x 50x50 AL angles supplied into side of unit. Place angles across mounting rails of roof mounting kit. Using M10 SS bolts supplied, bolt down through anti-vibration mounts into spring nuts in channels.

**Do not invert the outdoor unit to attach the mounting feet or at any other time during installation. This may cause damage to internal components and may void the warranty.**

**Do not wall mount the unit on any timber framed wall (with or without brick veneer)**

**Please note:** If the heat pump is installed in a coastal situation, efforts should be made to protect the unit from salt spray to avoid premature corrosion.

### 2. Pre-wiring & Pre-plumbing for Renovations & New Builds

This is required if piping and/or cables need to run through walls/floors/roof cavities etc. Run 1x Mains cable and 1x CAT-5 UTP cable allowing an extra 2m free play at either end. Run 2x 15mm pipes, fully insulated along their length.

**A pre-made CAT- 5/6 cable is required for installation of Econergy heat pumps**


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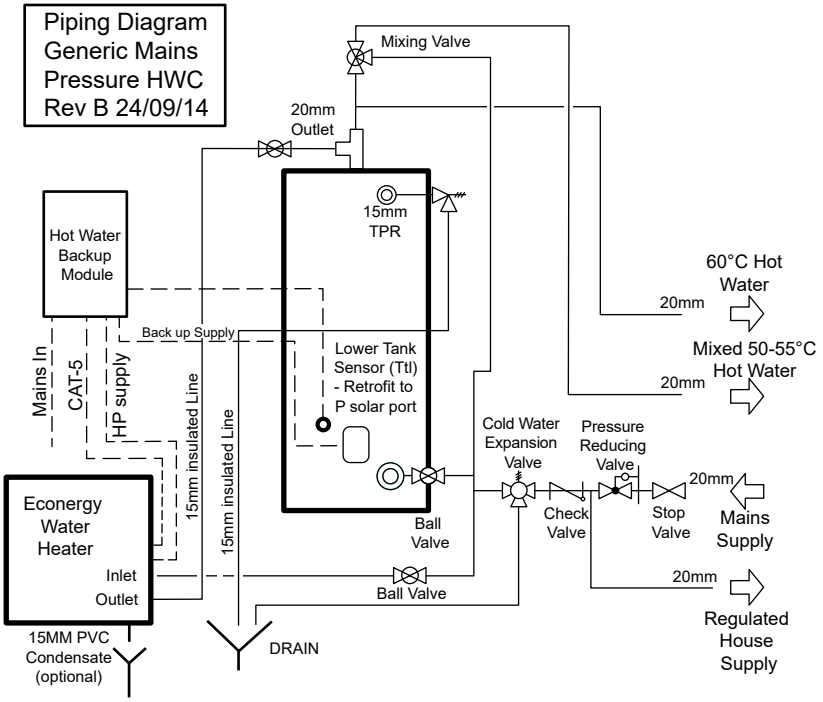
# Piping Diagram 1: Retrofit to Generic Single Inlet Hot Water Cylinder (eg Rheem NZ)




**Notes:** Piping Diagram 1: Generic Single Inlet Hot Water Cylinder

Econergy Accessories Required:

| No | Part Number | Description | Purpose |
|---|---|---|---|
| 1 | HPGRK | Generic Retrofit Kit (comprises tank fitting and tank sensor kit). | Allows retrofit to any standard hot water cylinder |

1. Cylinder must be post 1988 and in good condition
2. Fitting of Tank Sensor kit (HPTSK) may void HWC's manufacturer warranty
3. Ensure minimum pressure of 50kPa met on low pressure installations (may require fitting of relief valve to open vent HWC)



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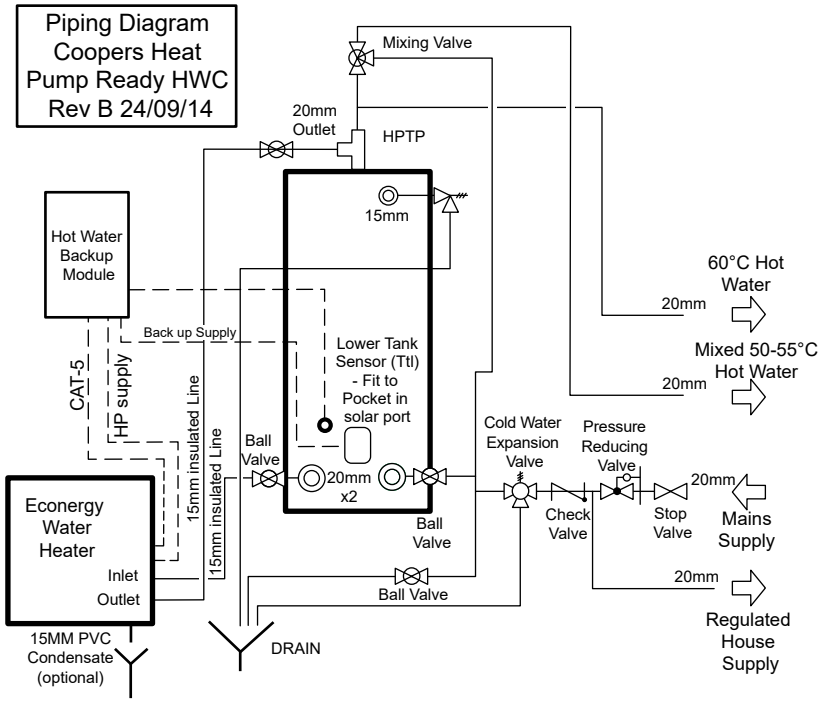
# Piping Diagram 2: Retrofit to Coopers Ready Mains Pressure Hot Water Cylinder




**Notes:** Piping Diagram 2: Coopers Mains Pressure Solar Ready Hot water cylinder

Econergy Accessories Required:

| No | Part Number | Description | Purpose |
|---|---|---|---|
| 1 | HPCRK | Coopers (Solar Ready) Retrofit Kit | Comprises HPTF Tank Fitting and HPTP Tank Pocket |

1. DO NOT connect return line to heat pump to solar connection!
2. Ensure minimum pressure of 50kPa met on low pressure installations (may require fitting of relief valve to open vent HWC)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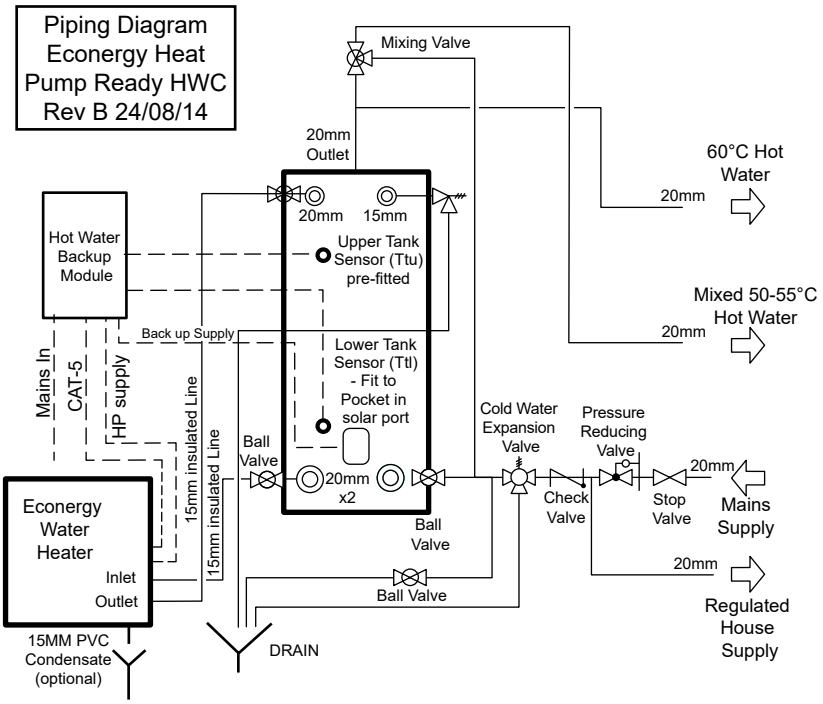
# Piping Diagram 3: Connection to Econergy® Heat Pump Ready Hot Water Cylinder




**Notes:** Piping Diagram 3: Connection to Econergy® Heat Pump Ready Hot Water Cylinder

No Econergy Accessories Required

1. TPR valve is provided in element cover.



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### 3. Plumb Water Heater to Hot Water Cylinder

Plumb the water heater unit in accordance with the correct piping diagram to match the type of cylinder being connected to. Ensure inlet (blue) of heat pump is connected to bottom of HWC and outlet (red) of water heater is plumbed to top of the HWC. All plumbing to be carried out in accordance with AS/NZS 3500 and NZ BC Section G12

### 4. Mount Hot Water Backup Run Electrical Cables

The hot water backup module (HPHWB) shall be mounted close to the hot water cylinder in a location that is easily visible to the hot water user. All wiring to be completed according to AS/NZS3000 and Field Wiring Diagram in page 23 of this manual. Fit isolators next to HWC and within 1 metre of the water heater unit in an easily accessible location. Run all cables from heat pump unit through conduit or trunking to the hot water cylinder location.

### 5. Tank Sensor Mounting

**a) Econergy Hot Water Cylinder.** This comes with dual sensors, upper and lower. Insert the lower tank sensor into the pocket about 1/3 of the way up the HWC and secure with adhesive or silicone sealant. Take both sensors and plug them in to their respective locations in the hot water backup (HPHWB) module TTu/Ttl

**b) Coopers or Rheem Solar Ready Hot Water cylinder.** The plumbing installer needs to thread a tank pocket into the solar port of the hot water cylinder and ensure there are no leaks. Apply thermal paste to the tank sensor and insert the tank sensor into the pocket. Secure the tank sensor with building adhesive or silicone sealant. Plug the tank sensor into the header marked J4 or Ttl on the circuit board of the HWB module.

**c) Generic Hot Water Cylinder.** Drill a 51mm (1/2”) diameter hole in the hot water cylinder jacket at a height ¼ (25%) of the way up the cylinder, when measured from the bottom.

**Do not wall mount the unit on any timber framed wall (with or without brick veneer)**

Apply thermal paste to the tank sensor. Push tank sensor through the tank sensor cover and lodge it in the tank sensor mount.


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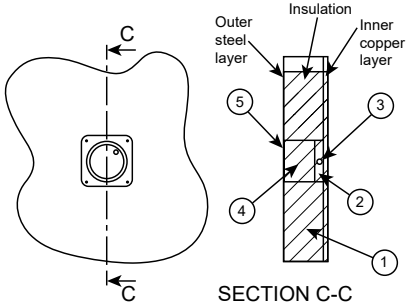
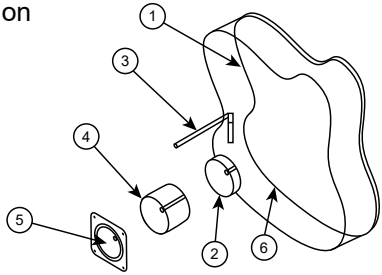
Apply 9cc of thermal paste (supplied with Tank Sensor) to the back of the tank sensor mount and place it in the drilled hole against the inside layer of the cylinder.

Adjust the foam core supplied such that when inserted with the pocket into the hole it sticks out by at least 10mm. Insert the tank sensor foam core, and then attach the tank sensor cover using the screws provided. Pilot holes of 3.2mm (1/8") diameter will need to be drilled for these screws. Plug the tank sensor into the header marked J4 or Ttl on the circuit board of the HWB module.



SECTION C-C




| Item No. | Descripton | Part No. | Quantity |
|---|---|---|---|
| 1 | Hot Water Cylinder Wall | HPX-831 | 1 |
| 2 | Tank Sensor Pocket | HPX-811 | 1 |
| 3 | 6m Sensor | | 1 |
| 4 | Sylomer Insulating Core | HPX-832 | 1 |
| 5 | Tank Sensor Cover | HPX-821 | 1 |
| 6 | Thermal Paste | | 200ml |

## 6. Electrical Connections

All electrical connections must be made, by a licensed tradesman, according to the diagram below. The appliance must be installed in accordance with AS/NZS 3000:2000. A means for disconnection must be incorporated in the fixed wiring. A Certificate of Compliance must be issued by the installer.

## 7. Condensate drain

Condensate drains must be run in the following cases:

a) Where the unit is discharging on a concrete path or other location where wetness/ mould is not desirable or,

b) Where the unit is located in a ceiling cavity

**a) Outdoor Mounting.** Use HPCDF accessory. Remove the rear grille and mount the HPCDF into the punched hole at the bottom right rear of the water heater unit. Run PVC to the nearest drain location.

**b) Ceiling Mounting.** Use drain fitting assembly supplied with HPCMK. Fit drain fitting to the tray. Run PVC pressure pipe from drain pan (for ceiling installs) down to the HWC drain or across to the soffit and down the wall. Do a leak test with water prior to leaving site.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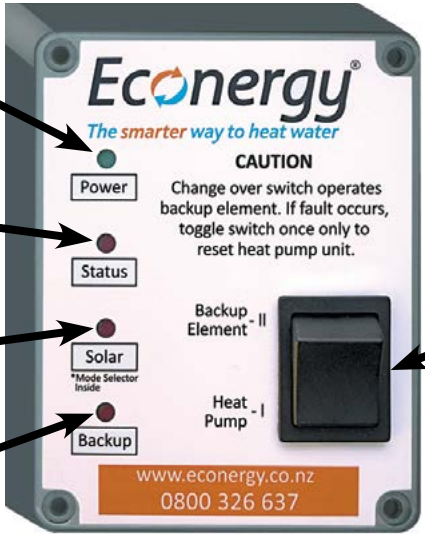
**Only Econergy® factory sensor cables provided with the unit shall be installed. Use of substitute sensor cables or splicing cables may void warranty.**

## Commissioning




Green light indicates that power is on to Econergy® HPWH

Glows red when heat pump is running, flashes if a fault is encountered

Red light indicates Solar Mode is active

Glows red if backup element has been switched on automatically

Allows user to manually force backup element on if required: Position 1 power is onto heat pump, in position 2, to backup element (Note: manual switch doesn't turn on backup light.)

- Fill system with water and leak test all connections at system pressure.
- Check all electrical connections and ensure that water heater is securely grounded to the building's earthing point.
- Ensure both isolation valves on supply and return lines are open.
- Loosen fitting on inlet water heater to heat pump until water flows from fitting. Close fitting.
- Connect laptop to RS232 extension cable on machine and open Econergy® Config Software (if installer has a copy of the software).
- Switch on Main Isolator and Heat Pump Isolator.
- The green (power) light should be lit on the Hot Water Backup Box located on the hot water cylinder.



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**NOTE:** If the heat pump is connected to an off peak power supply or 'ripple control', power may not be available at certain times of the day. We recommend temporarily running a mains supply to the main isolator to allow testing of the heat pump water heater in this case.

- After an 8 minute delay unit will start. The status light will glow solid red.
- The unit will preheat the water to 60°C which takes 3-5 minutes, then the hot water outlet connection will be hot to the touch.
- (If available). Check that the unit has reached 60°C on the Econergy® installation software and the flow has stabilized.
- The unit will now heat the whole tank from the top down until the return temperature is 50°C.
- Tidy up installation.
- If there is time then check that the whole tank has heated successfully otherwise check back later and use the Econergy® Config software to download the events log to ensure that the unit is operating as expected.

## Troubleshooting

If the Econergy® water heating system is not working correctly as per the commissioning instructions above, please refer to the following troubleshooting information.

| Symptom | Possible Cause | Things to Check |
|---|---|---|
| Unit is not heating | a) Isolation valves are closed | Check valves in supply and return lines from water heater to HWC and open if closed. |
| | b) Airlock in system | Close isolation valve going from water heater unit into top of HWC. Slacken fitting on outlet of water heater and purge for a minute or so. Close fitting, open valve and restart unit. |
| | c) heat pump has lost refrigerant charge in transit | Check 8mm pipe coming out of top of compressor. After 5 minutes running it should be hot to touch. If not the unit may have lost refrigerant.<br>Call 0800 32 66 37 for service support. |


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| Symptom | Possible Cause | Things to Check |
|---|---|---|
| No hot water, status indicator has lights off | a) No power to hot water cylinder | Check all switches are on, there is power to house and circuit breaker marked “hot water” is ON |
| | b) Ripple control activated | Either a) temporarily bridge out relay in board OR b) run temporary feed to heat pump to allow commissioning to occur. |
| Water temperature too low | a) temperature valve set incorrectly or malfunctioning | Remove cap from top of tempering valve and screw in to increase water temperature. |
| | b) partial loss of refrigerant or other sealed system malfunction | Call 0800 32 66 37 for service support. |
| Unit stops running less than 30 secs of operation | a) Indicates fault with thermistors or thermisor inputs on PCB or damaged CAT-5 cable. | Remove HWB panel and cover on main electrical box. Check that all sensors are plugged into their correct locations and the CAT-5 cable is securely plugged in and undamaged. If unit still stops use Config Software to determine which thermistor is out of spec and rectify accordingly. |
| Unit stops Running after 10-15 mins operation | a) Likely indicates unit has cut out on high condenser temp event | Check that ball valves are open. Close isolation valve going from water heater unit into top of HWC. Slacken fitting on outlet of water heater and purge for a minute or so. Close fitting, open valve and restart unit. If this fails, use Config Software to determine what is causing the unit to stop. Call 0800 32 66 37 for service support. |
| Unit faults after heating entire tank | a) Likely tank sensor mounting issue | Ensure tank sensor is securely mounted in place. Rectify if required and retest. |
| Water is dripping from rear of unit (behind finned evaporator) | a) This is normal as the unit will remove moisture in the air above 70% RH | No action required. |



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## Important Information

- This product has a classification of 6.101 for appliances not accessible to the general public.
- The appliance is not intended for use by young children or infirm persons without supervision.
- Young children shall be supervised to ensure they do not play with the appliance.
- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent.
- The fuse on the electronic controller is 6A/250V. This should only be replaced by a qualified electrical service technician or electrician.


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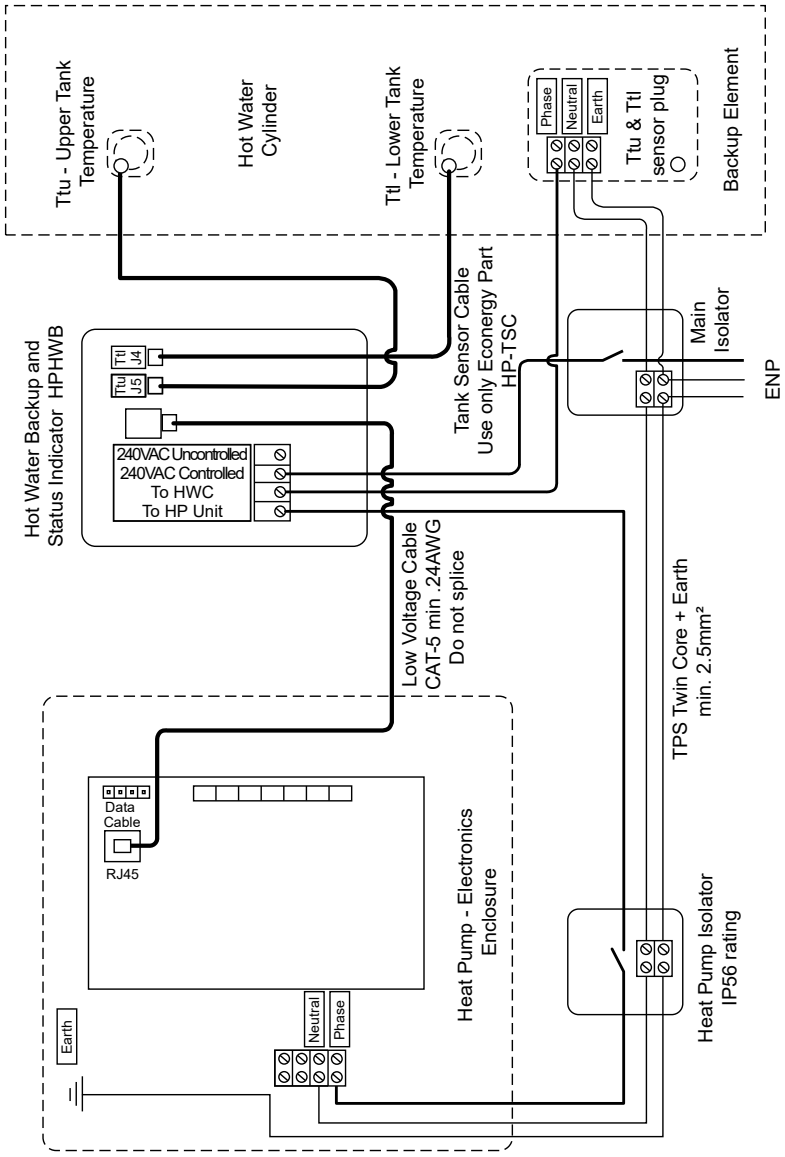
# Field Wiring Diagram



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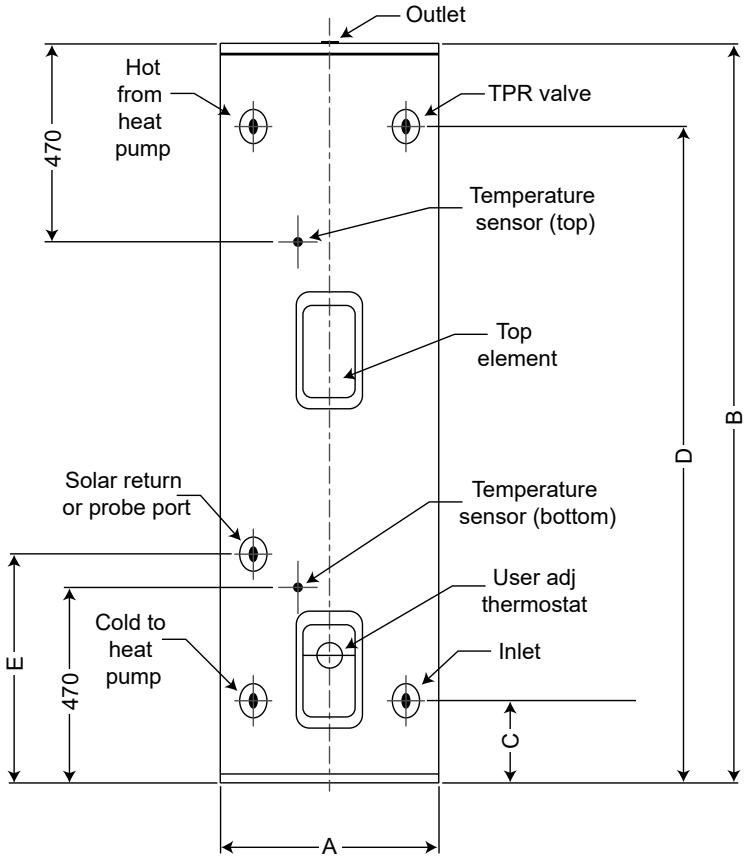
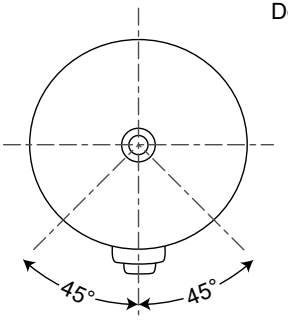
# Typical Heat Pump Ready Water Cylinder Product Specifications




Do not scale. If in doubt, ask



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# Typical Heat Pump Ready Water Cylinder Product Specifications

| TECHNICAL DATA TABLE DIRECT CYLINDERS - ECONERGY | | | | |
|---|---|---|---|---|
| **Model Number** | | **EC180L** | **EC250L** | **EC300L** |
| Total storage capacity | | 181 L | 252 L | 295.5 L |
| Storage capacity above top element | | 85 L | 136 L | 160 L |
| Storage capacity at 470mm from Cylinder Jacket Top (Temperature Sensor) | | 43 L | 60 L | 60 L |
| Storage capacity at 470mm from Cylinder Jacket Bottom (Temperature Sensor) | | 44 L | 59 L | 59 L |
| Weight Empty | | 37.5 kg | 51.5 kg | 61 kg |
| Inlet / Outlet Connections | | RP ¾" / 20 | | |
| Solar / HP Feed Connection | | RP ¾" / 20 | | |
| Solar / HP Return Connection | | RP ¾" / 20 | | |
| T&PR Valve Connection | | RP ½" / 15 | | |
| T&PR Valve Setting | | 1000 KPa | 1000 KPa | 1000 KPa |
| Dimensions | A | 488 mm | 580 mm | 580 mm |
| | B | 1770 mm | 1596 mm | 1846 mm |
| | C | 200 mm | 165 mm | 165 mm |
| | D | 1575 mm | 1418 mm | 1668 mm |
| | E | 550 mm | 565 mm | 565 mm |
| Element Rating (Factory Fitted) | | 2.0 kW | 2.0 kW | 2.0 kW |
| Top Element Rating (Kitset) | | 2.0 kW | 3.0 kW | 3.0 kW |



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# Econergy® HP Series Water Heater Specifications

| General | HP4000LT |
|---|---|
| Height | 520 mm |
| Width | 490 mm |
| Depth | 550 mm |
| Weight | 50 kg |
| Noise rating @ 1.5m | 52 dBA |
| Circuit Breaker | 16 amps |
| Rated Current RLA | 4 amps |
| Refrigerant | R-134a |
| Refrigerant quantity | 590 gm |
| Ambient Air Temperature | -5 to 40°C |

| Performance Specifications ** | HP4000LT |
|---|---|
| Heat output | 3600 W |
| Rated input | 1000 W |
| Recovery rate | 67 L/hr |
| Efficiency (COP) | 3.8 W/W |

| Water / Connections | HP4000LT |
|---|---|
| Min Supply Pressure | 50 kPa |
| Max Supply Pressure | 800 kPa |
| Min/Max Inlet Water Temperature | 5 - 50°C |
| Flow/Return Connections | RP1/2” / 15mm |
| Condensate Drain | 15 mm |
| Max Total Dissolved Solids | 250 mg/L |
| Max saturation index - | +0.80 |
| Zone 1 | 3-8 people |
| Zone 2 | 2-6 people |

***Rated at EN255 Conditions (15˚C / 15˚C / 60˚C /70%)*
*(Cold water/ Ambient Air/ Hot Water/70%RH)*


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www.econergy.co.nz

HOT WATER HEAT PUMPS LTD
Advancing Water Heat Pump Technology SINCE 1980

**0800 33 66 33** **www.waterheating.co.nz**

Phone 09 838 9444 Email info@waterheating.co.nz
3 Corban Ave, Henderson, Auckland 0612 PO Box 21 586, Henderson, Auckland 0650

11 February 2022

Dear Sir/Madam

**REQUEST FOR FURTHER INFORMATION - VETTING**

**REFERENCE:** BC220131
**LOCATION:** 18 Kahikatea Way, Richmond
**PROJECT:** Construct new dwelling with internal access garaging

We have received and vetted your application and require the following information in order to commence processing.

## Main Building

**Engineer Verification**
Please advise if there should be a site specific PS1 issued by Wilton Joubert Ltd for Structural Design Services - if so please provide

**Evidence of Ownership / Owner's Permission**
Please advise I can remove pages not required - Covenant Instrument

**Please respond to this request within 10 working days. We cannot formally accept your application for processing until all required information is received and your application may be refused.**

If we have overlooked any of the information, please advise its location so that it can be re-checked. Should you have any queries, please contact us.

Yours sincerely

Renee Holmes

Renee Holmes

Building Support Officer
On behalf of Tasman District Council

BC220131 | 29 Nov 2022
Vetting Started Date:
VET 1 - BC220131 @ 11/02/2022 12:45 pm
VET 2 - BC220131.A1 @ 08/03/2022 01:13 pm
Vetting Completed Date:
VET 1 - BC220131 @ 11/02/2022 02:52 pm
VET 2 - BC220131.A1 @ 08/03/2022 04:29 pm

Vetting Status: Completed

| VETTING CHECKLIST - MAIN BUILDING - R3 Complexity: Detached or Multi Unit Dwelling - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| Application Form : Has the application form been properly completed? | Y | RHs | 11/02/2022 12:54 pm | Agent discussed with Helen in regards to Formal Amendment being submitted once this application is granted for the changed plans. |
| Deposit / Fee: Has the appropriate deposit / fee been paid? | N/A | RHs | 11/02/2022 12:54 pm | No deposit required for Multiproof |
| Evidence of Ownership / Owner's Permission: Has the applicant provided a current Record of Title or evidence of ownership that is in the owner's name; 0R if the application has been submitted by an agent is owner's permission provided? If Title is not yet available a subdivision scheme plan is required. If the legal description for subdivision is not available please ensure that the parent title is recorded on the application. | N | RHs | 11/02/2022 12:58 pm | Please advise I can remove pages not required - Covenant Instrument |
| | VRFI | RHs | 11/02/2022 01:00 pm | Please advise I can remove pages not required - Covenant Instrument |
| | Y | RHs | 11/02/2022 02:52 pm | Removed pages that were not required - RT is just shy of 3 months but will not be requesting another as this has been sitting in the Portal until we had more information in regards to the Multiproof M107 |
| LBP Details / Certificate of Work / Statutory Notice: If the proposal includes Restricted Building Work then is the application accompanied by: (a) names of each LBP involved AND; (b) Certificate of Work OR (c) Statutory Declaration? Select N/A if the application does not include Restricted Building Work. | Y | RHs | 11/02/2022 12:54 pm | NOTE: From Template M107 already checked |
| Ground Condition / Geotechnical Report: Has a ground condition report been provided? This should be provided by a Chartered Engineer or qualified Geotechnical Engineer if conditions other than "good ground" exist. | N/A | RHs | 11/02/2022 12:57 pm | This question does not apply to this project. |
| Resource Management Information: Does RMA information include a plan showing site and land information with details of proposed site coverage, floor areas for each level of each building, and with elevations depicting recession / daylight planes and height compliance? Select N/A if the application does not require RMA input. | Y | RHs | 11/02/2022 12:57 pm | Plans show:<br>a) site and land information<br>b) details site coverage,<br>c) floor areas for each level of each building, and<br>d) elevations depicting recession / daylight planes and height compliance. |
| Construction over an Easement: Has the building been located to ensure that it will not be constructed over an easement? | N/A | RHs | 11/02/2022 12:57 pm | This question does not apply to this project. |
| Site Plans: Do site plans provide sufficient information to enable a compliance decision? | Y | RHs | 11/02/2022 01:00 pm | The site plans provide sufficient information. |
| Floor Plans: Do floor plans provide the requisite information to enable a compliance decision? (ensure information includes the location of smoke detectors and electrical layout) | Y | RHs | 11/02/2022 12:57 pm | NOTE: From Template M107 already checked |
| Elevations: Is sufficient information provided to enable a compliance decision? | Y | RHs | 11/02/2022 12:57 pm | NOTE: From Template M107 already checked |
| Bracing Detail: Is sufficient bracing information provided to enable a compliance decision? | Y | RHs | 11/02/2022 12:57 pm | NOTE: From Template M107 already checked |
| Roof Frame Detail: Is sufficient information provided to enable a compliance decision? | Y | RHs | 11/02/2022 12:57 pm | NOTE: From Template M107 already checked. |
| Construction & Weathertightness Detailing: Is sufficient detail provided to enable a compliance decision? | Y | RHs | 11/02/2022 12:57 pm | NOTE: From Template M107 already checked |
| Waterproofing Details: Is there sufficient waterproofing information to enable a compliance decision? | Y | RHs | 11/02/2022 12:57 pm | NOTE: From Template M107 already checked |
| Plumbing & Drainage Detailing: Is sufficient plumbing and drainage information provided to enable a compliance decision? | Y | RHs | 11/02/2022 12:57 pm | NOTE: From Template M107 already checked |

| VETTING CHECKLIST - MAIN BUILDING - R3 Complexity: Detached or Multi Unit Dwelling - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| Specifications: Are specifications project specific and do they identify project location, scope of work for each trade, materials, finishes, workmanship; and the appropriate Standards that apply to this project? | N/A | RHs | 11/02/2022 12:56 pm | NOTE: From Template M107 already checked |
| | Y | RHs | 11/02/2022 12:57 pm | NOTE: From Template M107 already checked |
| Hazardous Substances: If storage and use of hazardous substances occurs in this building then are the hazards identified along with the location and quantities that are proposed to be stored? | N/A | RHs | 11/02/2022 12:55 pm | There is no declaration of hazardous substances associated with this project. |
| Approvals from Other Authorities: Does this application involve approvals from other Authorities; and if so have these been provided? | N/A | RHs | 11/02/2022 12:55 pm | This question does not apply to this project. |
| Engineer Verification: Is Specific Engineer Design (SED) accompanied by sufficient information to enable a compliance decision? | N/A | RHs | 11/02/2022 12:55 pm | No SED or Calcs associated with this work. |
| | N | RHs | 11/02/2022 12:56 pm | Please advise if there should be a site specific PS1 issued by Wilton Joubert Ltd for Structural Design Services - if so please provide |
| | VRFI | RHs | 11/02/2022 01:00 pm | Please advise if there should be a site specific PS1 issued by Wilton Joubert Ltd for Structural Design Services - if so please provide |
| | Y | RHs | 11/02/2022 02:49 pm | No Change to M107 Template with Engineer already being checked |
| Fire Report: Is a fire safety analysis and means of escape plan provided that identifies escape routes and location of fire safety features - (final exits, signs, call points, emergency lighting, sounders etc)? | N/A | RHs | 11/02/2022 12:55 pm | This question is not applicable to this project. |
| Fire and Emergency NZ Memorandum (FENZ): Tick if a copy of this application DOES needs to be provided to Fire and Emergency NZ? Select N/A if this application does not need to go to Fire and Emergency NZ. PLEASE DO NOT select the cross (X) for this question as this will stop the time clock. | N/A | RHs | 11/02/2022 12:55 pm | This application does not need to be forwarded to Fire and Emergency NZ. |
| Energy Efficiency: Does information provided demonstrate how H1 energy efficiency provisions will be satisifed? | Y | RHs | 11/02/2022 12:55 pm | NOTE: From Template M107 already checked |
| Access and Facilities for People with Disabilities: Does documentation identify how a person with a disability will move from carpark, into, and throughout the building? | N/A | RHs | 11/02/2022 12:56 pm | This question is not applicable to this project. |
| Compliance Schedule: Do plans identify the location of all specified systems within the building, and have inspection and maintenance procedures and Standards for inclusion on the compliance schedule been provided? An R1 or R2 building that is used wholly as a single household unit will only require a compliance schedule if it has a cable car attached to it or servicing it. Select N/A if the building is R1 or R2 and does not have a cable car attached (ref. BA sec. 100 (2).) | N/A | RHs | 11/02/2022 12:56 pm | There is no CS associated with this project. |
| Solid Fuel Appliance: Is adequate documentation provided? | N/A | RHs | 11/02/2022 12:56 pm | This question does not apply to this project. |
| Liquid Fuel Appliance: Is adequate documentation provided? | N/A | RHs | 11/02/2022 12:56 pm | This question does not apply to this project. |
| Solar Water Heating System: Is adequate, quality documentation provided to enable lodgement? | N/A | RHs | 11/02/2022 12:56 pm | This question does not apply to this project. |
| Swimming / Spa Pool: Does the information provided include construction details, fencing and gate latch details and details about the back-flow location and type? | N/A | RHs | 11/02/2022 12:56 pm | This question does not apply to this project. |
| Swimming Pool Register: The Applicant has identified that there is a Swimming Pool on this site. Please tick to confirm that the Swimming Pool is identified on the Council Swimming Pool Register. | N/A | RHs | 11/02/2022 12:56 pm | The owner has identified that there is not a swimming pool on this site. |
| Relocate Building: Has a building condition report identifying the current condition of the structure, been provided by a suitably qualified person? Please ensure that photos of all elevations are attached to the report. | N/A | RHs | 11/02/2022 12:56 pm | This question does not apply to this project. |
| Miscellaneous: | N/A | RHs | 11/02/2022 12:56 pm | There are no miscellaneous matters. |

BC FINAL

BC220131 | 29 Nov 2022

Vetting Status: Completed

| VETTING CHECKLIST - AMENDMENT 1 - R3 Complexity: Detached or Multi Unit Dwelling - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| Application Form : Has the application form been properly completed? | Y | DWy | 08/03/2022 04:27 pm | The application form is correctly completed. |
| Deposit / Fee: Has the appropriate deposit / fee been paid? | N/A | DWy | 08/03/2022 04:28 pm | Amendments don't require a deposit |
| Evidence of Ownership / Owner's Permission: Has the applicant provided a current Record of Title or evidence of ownership that is in the owner's name; 0R if the application has been submitted by an agent is owner's permission provided? If Title is not yet available a subdivision scheme plan is required. If the legal description for subdivision is not available please ensure that the parent title is recorded on the application. | N/A | DWy | 08/03/2022 04:28 pm | No change of ownership has occurred |
| LBP Details / Certificate of Work / Statutory Notice: If the proposal includes Restricted Building Work then is the application accompanied by: (a) names of each LBP involved AND; (b) Certificate of Work OR (c) Statutory Declaration? Select N/A if the application does not include Restricted Building Work. | N/A | DWy | 08/03/2022 04:28 pm | This application does not include restricted building work. |
| Ground Condition / Geotechnical Report: Has a ground condition report been provided? This should be provided by a Chartered Engineer or qualified Geotechnical Engineer if conditions other than "good ground" exist. | N/A | DWy | 08/03/2022 04:28 pm | This question does not apply to this project. |
| Resource Management Information: Does RMA information include a plan showing site and land information with details of proposed site coverage, floor areas for each level of each building, and with elevations depicting recession / daylight planes and height compliance? Select N/A if the application does not require RMA input. | N/A | DWy | 08/03/2022 04:28 pm | This question is not relevant to this project. |
| Construction over an Easement: Has the building been located to ensure that it will not be constructed over an easement? | N/A | DWy | 08/03/2022 04:28 pm | This question does not apply to this project. |
| Site Plans: Do site plans provide sufficient information to enable a compliance decision? | N/A | DWy | 08/03/2022 04:28 pm | This question does not apply to this application. |
| Floor Plans: Do floor plans provide the requisite information to enable a compliance decision? (ensure information includes the location of smoke detectors and electrical layout) | Y | DWy | 08/03/2022 04:28 pm | Plans show changes in red cloud revisions |
| Elevations: Is sufficient information provided to enable a compliance decision? | N/A | DWy | 08/03/2022 04:28 pm | This question does not apply to this application. |
| Bracing Detail: Is sufficient bracing information provided to enable a compliance decision? | Y | DWy | 08/03/2022 04:28 pm | Sufficient bracing information is provided to enable a compliance decision. |
| Roof Frame Detail: Is sufficient information provided to enable a compliance decision? | N/A | DWy | 08/03/2022 04:28 pm | This question does not apply to this application. |
| Construction & Weathertightness Detailing: Is sufficient detail provided to enable a compliance decision? | Y | DWy | 08/03/2022 04:28 pm | Sufficient details are provided to enable a compliance decision.<br>a.<br>b.<br>c.<br>d.<br>e. |
| Waterproofing Details: Is there sufficient waterproofing information to enable a compliance decision? | N/A | DWy | 08/03/2022 04:28 pm | This question does not apply to this project. |
| Plumbing & Drainage Detailing: Is sufficient plumbing and drainage information provided to enable a compliance decision? | N/A | DWy | 08/03/2022 04:28 pm | This question does not apply to this project. |
| Specifications: Are specifications project specific and do they identify project location, scope of work for each trade, materials, finishes, workmanship; and the appropriate Standards that apply to this project? | N/A | DWy | 08/03/2022 04:28 pm | This question does not apply to this project. |
| Hazardous Substances: If storage and use of hazardous substances occurs in this building then are the hazards identified along with the location and quantities that are proposed to be stored? | N/A | DWy | 08/03/2022 04:28 pm | There is no declaration of hazardous substances associated with this project. |
| Approvals from Other Authorities: Does this application involve approvals from other Authorities; and if so have these been provided? | N/A | DWy | 08/03/2022 04:28 pm | This question does not apply to this project. |
| Engineer Verification: Is Specific Engineer Design (SED) accompanied by sufficient information to enable a compliance decision? | Y | DWy | 08/03/2022 04:28 pm | Engineering verification been submitted in support of Specific Engineering Design components. |


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| VETTING CHECKLIST - AMENDMENT 1 - R3 Complexity: Detached or Multi Unit Dwelling - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| Fire Report: Is a fire safety analysis and means of escape plan provided that identifies escape routes and location of fire safety features - (final exits, signs, call points, emergency lighting, sounders etc)? | N/A | DWy | 08/03/2022 04:28 pm | This question is not applicable to this project. |
| Fire and Emergency NZ Memorandum (FENZ): Tick if a copy of this application DOES needs to be provided to Fire and Emergency NZ? Select N/A if this application does not need to go to Fire and Emergency NZ. PLEASE DO NOT select the cross (X) for this question as this will stop the time clock. | N/A | DWy | 08/03/2022 04:29 pm | This application does not need to be forwarded to Fire and Emergency NZ. |
| Energy Efficiency: Does information provided demonstrate how H1 energy efficiency provisions will be satisifed? | N/A | DWy | 08/03/2022 04:29 pm | This question does not relate to this project. |
| Access and Facilities for People with Disabilities: Does documentation identify how a person with a disability will move from carpark, into, and throughout the building? | N/A | DWy | 08/03/2022 04:29 pm | This question is not applicable to this project. |
| Compliance Schedule: Do plans identify the location of all specified systems within the building, and have inspection and maintenance procedures and Standards for inclusion on the compliance schedule been provided? An R1 or R2 building that is used wholly as a single household unit will only require a compliance schedule if it has a cable car attached to it or servicing it. Select N/A if the building is R1 or R2 and does not have a cable car attached (ref. BA sec. 100 (2).) | N/A | DWy | 08/03/2022 04:29 pm | There is no CS associated with this project. |
| Solid Fuel Appliance: Is adequate documentation provided? | N/A | DWy | 08/03/2022 04:29 pm | This question does not apply to this project. |
| Liquid Fuel Appliance: Is adequate documentation provided? | N/A | DWy | 08/03/2022 04:29 pm | This question does not apply to this project. |
| Solar Water Heating System: Is adequate, quality documentation provided to enable lodgement? | N/A | DWy | 08/03/2022 04:29 pm | This question does not apply to this project. |
| Swimming / Spa Pool: Does the information provided include construction details, fencing and gate latch details and details about the back-flow location and type? | N/A | DWy | 08/03/2022 04:29 pm | This question does not apply to this project. |
| Swimming Pool Register: The Applicant has identified that there is a Swimming Pool on this site. Please tick to confirm that the Swimming Pool is identified on the Council Swimming Pool Register. | N/A | DWy | 08/03/2022 04:29 pm | The owner has identified that there is not a swimming pool on this site. |
| Relocate Building: Has a building condition report identifying the current condition of the structure, been provided by a suitably qualified person? Please ensure that photos of all elevations are attached to the report. | N/A | DWy | 08/03/2022 04:29 pm | This question does not apply to this project. |
| Miscellaneous: | N/A | DWy | 08/03/2022 04:29 pm | There are no miscellaneous matters. |

BC FINAL


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# Form 4
## Certificate attached to Project Information Memorandum
*Section 37, Building Act 2004*

RE: BC220131, David and Susan Ford, 18 Kahikatea Way, Richmond

**Restrictions on commencing building work under the Resource Management Act 1991**

The building work referred to in the attached project information memorandum or building consent is also required to have the following resource consents under the Resource Management Act 1991:

**17.1.3.1(r) - Internal Boundary Setbacks**
Buildings do not comply with internal boundary setbacks
Reduced setbacks in comparison to plans pre aproved.
Proposed building submitted has 1.129m (instead of 1.54 m) and 1.250m (instead of 1.3m) for internal setbacks (both sides).

**As these resource consents will or may materially affect the building work to which the attached project information memorandum or building consent relates, until they have been granted no building work may proceed.**

**Failure to comply with the requirements of this notice may result in legal action being taken against you under the Resource Management Act 1991.**

Sara Azevedo

**Sara Azevedo**
**Consents Officer**
**On behalf of: Tasman District Council**
**Issue Date: 29 March 2022**

tasman district council | Te Kaunihera o te tai o Aorere

File: PB220009
anna.pryde@tasman.govt.nz
Phone 543 8400

14 April 2022

David Ford & Susan Ford
C/- G J Gardner Homes
195 Queen Street
Richmond 7020

Dear David and Susan

**Notice of Deemed Permitted Boundary Activity**

| | |
|---|---|
| Application number: | PB220009 |
| Applicant: | David Ford & Susan Ford |
| Location address: | 18 Kahikatea Way, Richmond |
| Proposed activity: | To construct a new dwelling at 18 Kahikatea Way, Richmond which reduces the southern internal boundary setback from 1.547 metres to 1.129 metres with Lot 367 DP 561194 in the Residential Zone |

Thank you for your deemed permitted boundary activity application which we received on 8 March 2022. Council is satisfied that the proposed activity described above meets the requirements of sections 87AAB and 87BA of the Resource Management Act 1991 (RMA) and is therefore a permitted activity under Section 87BA(1) of the Act.

The fee that you have paid is a fixed fee and covers all of our work on your application.

A copy of the written notice confirming that your activity is permitted is attached. Please note that any changes you make to the activity may trigger the requirement for a new resource management approval from Council.

It is important to note that this notice will lapse 5 years after the date it was issued unless the activity permitted by the notice has been undertaken.

Yours sincerely

Anna Pryde
Graduate Consent Planner - Land Use

# PB220009 NOTICE OF DEEMED PERMITTED BOUNDARY ACTIVITY

Pursuant to sections 87AAB and 87BA of the Resource Management Act 1991 (the Act), Tasman District Council (Council) hereby gives notice that the activity described below is a Deemed Permitted Boundary Activity and therefore may be undertaken without the need for resource consent.

**Notice number:** PB220009

**Activity:** To construct a new dwelling at 18 Kahikatea Way, Richmond which reduces the southern internal boundary setback from 1.547 metres to 1.129 metres with Lot 367 DP 561194 in the Residential Zone.

**Owner:** David and Susan Ford

**Location details:**

| | |
|---|---|
| Address of property: | 18 Kahikatea Way, Richmond |
| Legal description: | Lot 366 DP 561194 |
| Record of title: | 1006967 |
| Valuation number: | 1957016248 |
| Co-ordinates: | Easting: 1613953 Northing: 5424422 (NZTM) |

Council has received the information specified in section 87BA(1) of the Act. The plans relied on by Council in making this decision are attached at Appendix 1.

**Advice notes:**

1 This notice will lapse 5 years after the date it was issued unless the activity permitted by the notice is undertaken.

2 This notice is valid only for the activity described above. Any matters or activities not included in this notice must either:

(a) comply with all the criteria of a relevant permitted activity in the Tasman Resource Management Plan (TRMP); or

(b) be allowed by the Resource Management Act 1991 (RMA); or

(c) be authorised by a separate resource consent.

3 A certificate of compliance (under section 139 of the RMA) cannot be applied for in respect of this activity.

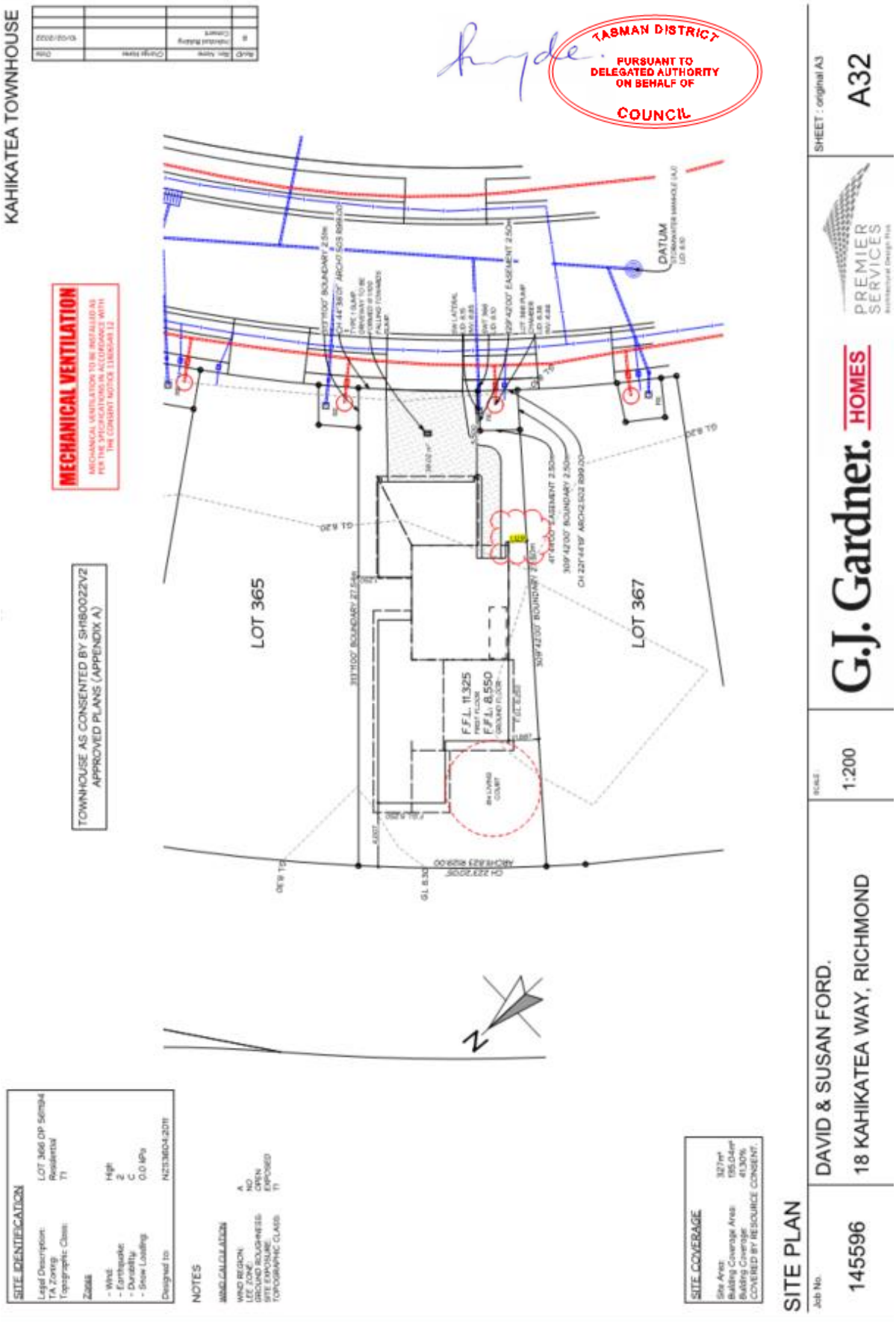
4 This is not a building consent. The activity must comply with the requirements of the Building Act 2004.

5 Please note that Consent Notice 12228818.3 is registered on your property title. You must comply with all conditions of this consent notice.

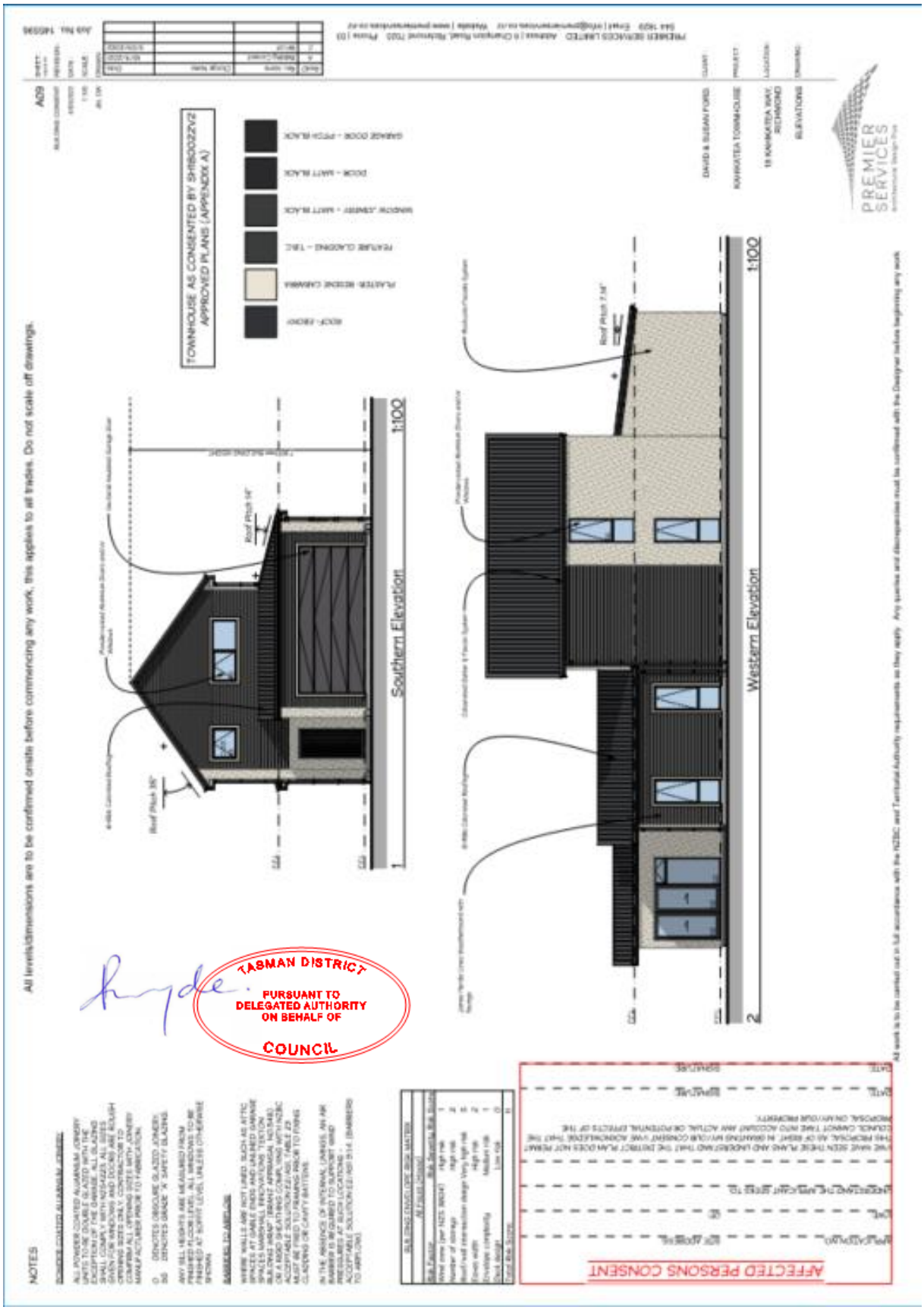
This notice is issued on 14 April 2022 under delegated authority from the Tasman District Council by:

Anna Pryde
Graduate Consent Planner - Land Use

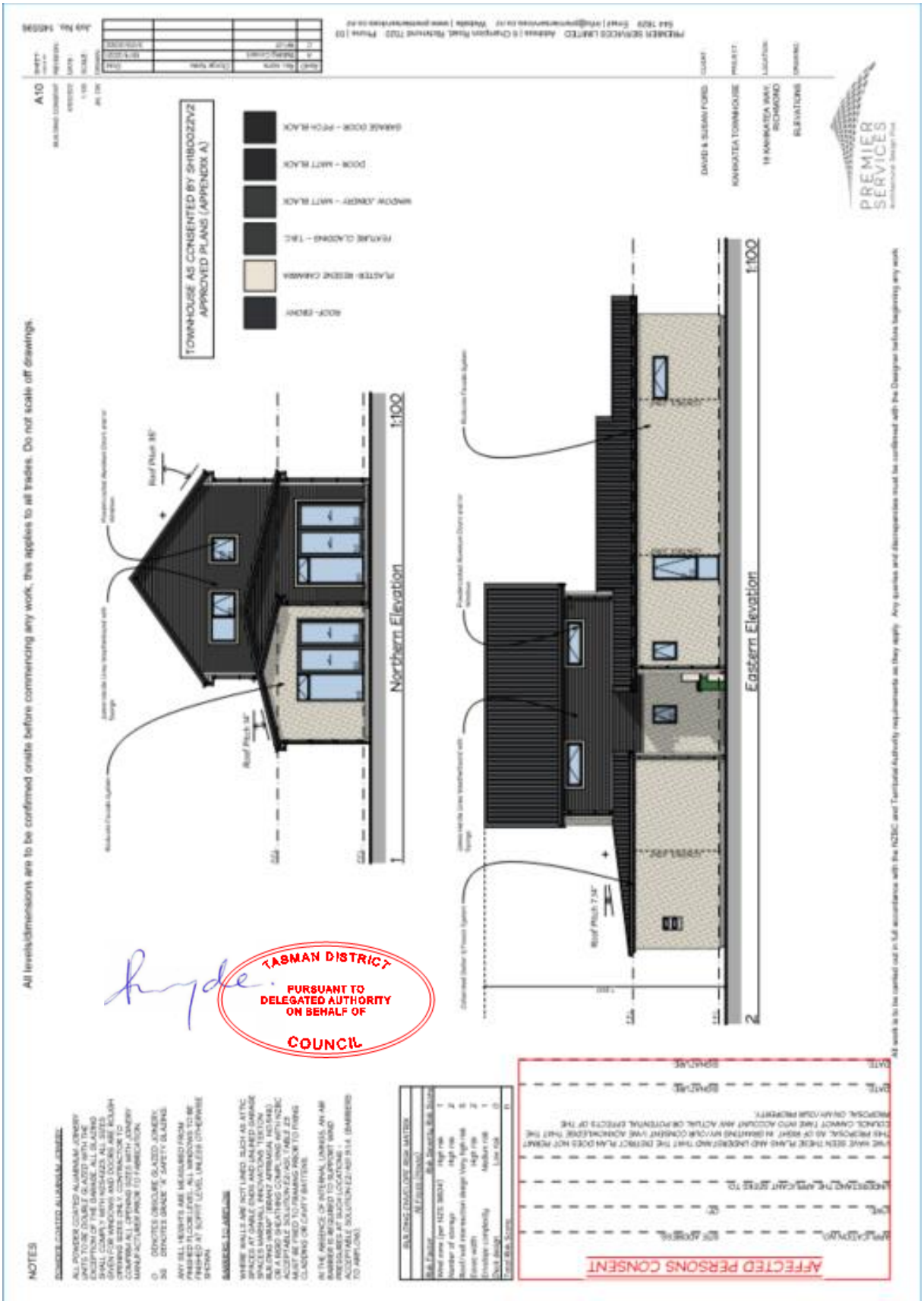
## PB220009 Appendix 1 – Site Plan date 14 April 2022



## PB220009 Appendix 1 – Southern & Western Elevation Plan date 14 April 2022



## PB220009 Appendix 1 – Northern & Eastern Elevation Plan date 14 April 2022



14 March 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**REQUEST FOR FURTHER INFORMATION**

**REFERENCE:** BC220131
**LOCATION:** 18 Kahikatea Way, Richmond
**PROJECT:** Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

Your building consent application has been assessed and the following information or clarification is required in order to demonstrate compliance with the Building Act 2004.

The 20 day statutory clock is currently suspended awaiting a full response to all items below:

## Amendment 1

**Section 45: Consent Documents**
Section 45: consent documents: please provide the following further information so that processing of the application can proceed. Processing of your application will be suspended until this information is received.

As discussed please provide the updated floor slab PS1 plans to accompany structural changes included with amendment documents.

Processing will continue once these are received

Ensure all items are addressed in a single response, and that this includes:

- A covering note outlining the response to each item
- Revised documents that clearly identify changes (e.g. referenced by revision clouds and document versions)
- Files that are in PDF format and to scale
- Only provide information specifically relating to this project

**Please respond to this request within 20 working days or we may refuse to grant the consent. If you have any questions please contact me on 03 543 8400.**

The 20 day statutory clock will be re-started when all the items above have been fully addressed.

You may receive requests for further information from other areas of Council, and these should be addressed separately to this request.

Yours sincerely

Hazel Thelin

Building Technical Officer (Processing)
On behalf of **Tasman District Council**

14 March 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**REQUEST FOR FURTHER INFORMATION**

**REFERENCE:** BC220131
**LOCATION:** 18 Kahikatea Way, Richmond
**PROJECT:** Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

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- A covering note outlining the response to each item
- Revised documents that clearly identify changes (e.g. referenced by revision clouds and document versions)
- Files that are in PDF format and to scale
- Only provide information specifically relating to this project

**Please respond to this request within 20 working days or we may refuse to grant the consent. If you have any questions please contact me on 03 543 8400.**

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You may receive requests for further information from other areas of Council, and these should be addressed separately to this request.

Yours sincerely

Hazel Thelin

Building Technical Officer (Processing)
On behalf of **Tasman District Council**

| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| **BUILDING ACT** | | | | |
| BC Complexity / Competence (Reg 10 & 18 of BCA Regs 2006): Has the correct building complexity and classified use been allocated to this project and is it within the scope of your assessed competence? Do not select X or N/A. If complexity is incorrect please rectify by selecting the correct checklist (under Manage Buildings). If processing of this project is to be undertaken under supervision then ensure that this is recorded in the file notes.. | Y | HTn | 23/02/2022 02:35 pm | Original M107 multiproof template attachments copied to working folder and newly submitted form 2 attachments will be<br>merged with M107 template. Of note any work that is major or not allotment specific details will be stamped info only and merged into set for information and reference only.<br>Once BC issued then amendment can be applied for<br>Complexity is correctly assigned, R3. I Hazel Thelin have the requisite level of competence to undertake this task.<br>Checked form 2 and accompanying plans and specifications and supporting documents<br>Checked RoT and GIS system files and mapping, and form 2, plans and specs. The Lot and DP number and ownership is correct, freehold Lot<br>Lot<br>366 Deposited Plan 561194, 18 Kahikatea Way<br>Checked application form correct 2.0.2 detached building, SH use |
| Section 28: Warning and Bans: Can the building consent authority exercise its powers under BA s28 and issue building consent for the building work relating to this building consent? Please do not select N/A for this question. | Y | AMn | 15/12/2021 07:55 am | [M107] There are no warnings or bans posted on the Ministry's Warnings and Bans register that pertain to methods or building products used in this consent. In terms of section 28, the building consent authority may exercise its powers to issue building consent for the building work relating to this building consent. |
| Section 36: Development Contribution: Has a Development Contribution Notice been attached to the PIM? Please select N/A if a Development Contribution Notice is not required to be issued. | N/A | HTn | 23/02/2022 02:36 pm | There is no development contribution required for this project.<br>checked DC tab<br>Section 36: Development contribution issued during subdivision |
| Section 37: Resource Consent: Has a Resource Consent Certificate (Form 4) been attached to the PIM and have all conditions that affect issue of this building consent been satisfied?<br>Please select N/A if Resource Consent is not required. | N/A | HTn | 23/02/2022 02:36 pm | The TA has not advised that a resource consent is required for this project. elevations planning approved and merged into plans set - checked RMA tab and filenotes, no further issues |
| | N | HTn | 23/02/2022 03:03 pm | You have received a planning RFI and this email is just reminding you of this:<br>The proposal does not comply with internal setbacks pre approved.<br>Plans submitted have 1.129m (instead of 1.54 m) and 1. 250m (instead of 1.3m) for internal setbacks in both sides. Please provide elevations showing building height to proceed<br><br>Please let me know if you wish to amend the plans or apply for a resource consent. I can issue the building consent with planning incomplete stamp on it. |
| | RFI | HTn | 23/02/2022 03:04 pm | You have received a planning RFI and this email is just reminding you of this:<br>The proposal does not comply with internal setbacks pre approved.<br>Plans submitted have 1.129m (instead of 1.54 m) and 1. 250m (instead of 1.3m) for internal setbacks in both sides. Please provide elevations showing building height to proceed<br><br>Please let me know if you wish to amend the plans or apply for a resource consent. I can issue the building consent with planning incomplete stamp on it. |

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| | Y | HTn | 07/03/2022 07:56 am | RFI Response: RFI received 04/03/22 - Please see attached elevation pages.<br>Please note, these elevations do not vary from the Multiproof Application M107 which is why they were not submitted with the individual building consent application.<br>Daylight angles are covered by the approved resource consent.<br><br>As discussed with Katrina, a deemed permitted boundary application will be made for the infringing boundary neighbouring 20 Kahikatea Way.<br><br>Therefore can issue with either RMA stamp or the section 37 advice note will check RMA tab and filenotes |
| Section 45: Consent Documents: Is Form 2 correctly completed and accompanied by the requisite information required by Section 45? | Y | HTn | 23/02/2022 02:37 pm | Section 45: consent documents: form 2 is completed and accompanied by the information required by sec. 45.<br>Original M107 multiproof template attachments copied to working folder and new submitted form attachments will be merged with M107 template. Of note any work that is major or not allotment specific details will be stamped info only and merged into set for information and reference only, these will not be assessed. Once BC issued then amendment can be applied for for any major structural or external moisture amendment for further review<br>. Checked form 2 and accompanying plans and specifications and supporting documents<br>Checked RoT and GIS system files and mapping, and form 2, plans and specs.<br>Checked application form correct 2.0.2 detached building, SH use<br>Means of compliance is correctly completed and indicated on the application form 2 attached.<br>Applicable Code clause indicated and AS1 used for all, some alternative solutions proposed within the application which i have assessed to the requirements of the NZBC, refer to the body of the processing record |
| Section 48(3): Fire and Emergency NZ (FENZ): Has regard been given to a memorandum provided by Fire and Emergency NZ under section 48 (3)(a) of the Building Act? Please select N/A if there is not a requirement under Section 48 for referral. | N/A | AMn | 15/12/2021 07:56 am | [M107] This project does not require Fire and Emergency NZ input. Residential building |
| Section 67 - 70: Waiver / Modifications: Is adequate reasoning for request for waiver / modification provided, and have associated legal obligations been satisfied? Please select N/A if Waiver or Modification is not required. | N/A | HTn | 23/02/2022 02:37 pm | There is no request for waiver or modification associated with this building consent application.<br>Checked form 2 there are no waivers or modifications within scope of work. |
| Section 71 - 74: Natural Hazards: Is the building on land subject to natural hazards: Please select N/A if the hazard risk is already mitigated and/ or if the title is already endorsed to reflect the presence of hazard/s. | | | | |
| **Section 71 - 74: Natural Hazards - Prompt List:** | **N/A** | **HTn** | **10/01/2022 12:54 pm** | [M107] This question does not apply to this application. |
| *1. Deterioration: Is the building work unlikely to accelerate, worsen, or result in a natural hazard on the land or any other property?* | | | | |
| *2. Protection: Where natural hazard/s exist; has adequate provision been made to protect land, building work, or other property from the hazard/s?* | | | | |
| *3. Restoration: Where natural hazard/s exist; does consent documentation demonstrate adequate provision has or will be made to restore any damage to the land or other property as a result of the building work?* | | | | |
| *4. Conditions: Where building consent is to be issued under section 72; have all conditions required under section 73 been initiated and have all parties been notified, and where required, provided with a copy of the PIM that has been issued and that relates to this project accompany such notification?* | | | | |


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| **Supplementary Processing Notes:** | | HTn | 10/01/2022 12:54 pm | Checked File Notes for Natural Hazards input and stated no natural hazards, any issues were dealt with during the subdivision development process |
| Section 75 - 83: More than 1 Allotment: Is the building constructed on more than one allotment, and if so, have the provisions of sections 75 - 83 been satisfied? Please select N/A if building work is only on one allotment. | N/A | HTn | 10/01/2022 12:55 pm | [M107] The building is located on a single allotment therefore this question is not applicable.<br>See main body of processing notes for further information, multiproof application where individual allotments on single title for Kahikatea way |
| Section 84 - 89: Restricted Building Work: Has the applicable restricted building work been properly identified, and have the names of owner-builders, and/or licensed building practitioners that are supervising or carrying out such work been notified to the BCA? Ticking this question will automatically add an advice note requesting Form 6A. Please edit this advice note accordingly. | | | | |
| **Section 84 - 89: Restricted Building Work - Prompt List:** | **Y** | **HTn** | **10/01/2022 01:09 pm** | |
| *1. Design Certificate: Is the design certificate/s correctly completed and is the scope of each practitioners work clearly identified?* | Y | HTn | 10/01/2022 01:09 pm | [M107] |
| *2. License: Do the applicable LBP's that are nominated or involved in the project hold current and correct classes of license?* | Y | HTn | 10/01/2022 01:09 pm | [M107] |
| *3. Statutory Declaration: If restricted work is intended to be carried out by the Owner/Builder, then has the statutory declaration as to Owner/Builder status been provided?* | N/A | HTn | 10/01/2022 01:09 pm | [M107] |
| *4. Fire Safety Systems: If the building work relates to fire safety systems of small to medium apartments then does the designer have the appropriate design license class for this work?* | N/A | HTn | 10/01/2022 01:09 pm | [M107] |
| Section 96: COA or Other Incompleted Building Consents: Are there any COA's or incomplete building consents associated with this project? | N/A | AMn | 15/12/2021 08:21 am | [M107] Alpha Multiproof application for new builds on greenfield site - No's 12, 14, 16, 18 and 20 Kahikatea Way. |
| Section 100 - 104: Compliance Schedule: If project contains specified systems, then have each of these been correctly described and specified with complying performance standards and with the inspection, maintenance are reporting procedures, AND with the location of each specified system clearly identified on the plans? Ensure that any arrangement for review of system design and shop drawings that are to occur after consent issue is clearly identified under Construction Monitoring. Please select N/A if the application does not involve the issue or update of a compliance schedule. | | | | |
| **Section 100 - 104: Compliance Schedule - Prompt List:** | **N/A** | **AMn** | **15/12/2021 07:57 am** | [M107] This question does not apply to this application. |
| *SS 1. Automatic systems for fire suppression Record any arrangement for review of system design or shop drawings that may occur after consent is granted.* | | | | |
| *SS 2. Automatic or manual emergency warning systems for fire or other dangers Record any arrangement for review of system design or shop drawings that may occur after consent is granted.* | | | | |
| *SS 3. Electromagnetic or automatic doors or windows* | | | | |
| *SS 4. Emergency lighting systems Record any arrangement for review of system design or shop drawings that may occur after consent is granted.* | | | | |
| *SS 5. Escape route pressurisation systems* | | | | |
| *SS 6. Riser mains for use by fire services* | | | | |
| *SS 7. Automatic back-flow preventers connected to a potable water supply* | | | | |
| *SS 8. Lifts, escalators, travellators, or other systems for moving people or goods within buildings* | | | | |
| *SS 9. Mechanical ventilation or air conditioning systems Record any arrangement for review of system design or shop drawings that may occur after consent is granted.* | | | | |
| *SS 10. Building maintenance units providing access to exterior or interior walls of buildings* | | | | |
| *SS 11. Laboratory fume cupboards* | | | | |
| *SS 12. Audio loops or other assistive listening systems* | | | | |
| *SS 13. Smoke control systems* | | | | |
| *SS 14. Emergency power systems for, or signs relating to, a system or feature specified in any of SS to SS 13 above* | | | | |


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| *SS 15. Other fire safety systems or features (systems for communicating information intended to facilitate evacuation, final exits, fire separations, signs.* | | | | |
| *SS 14/2 & SS 15/4. Signs* | | | | |
| *SS 16. Cable Cars* | | | | |
| *Misc:* | | | | |
| **Supplementary Processing Notes:** | | AMn | 15/12/2021 07:57 am | Residential building |
| Section 112 (1): Alterations to Buildings: If the proposal involves alteration to an existing building, then does the solution demonstrate on reasonable grounds that after alteration the building will comply, as nearly as is reasonably practicable with provisions that relate to:<br>Select N/A if the proposal is not an alteration to an existing building. | | | | |
| **Section 112 (1): Alterations to Buildings - Prompt List:** | **N/A** | **AMn** | **15/12/2021 07:57 am** | [M107] This question does not apply to this application. |
| *(i) Means of escape from fire* | | | | |
| *(ii) Access & facilities for people with disabilities: (if required by Section 118)?* | | | | |
| *(iii) Continue to comply with the other provisions of the building code to at least the same extent as before the alteration?* | | | | |
| **Supplementary Processing Notes:** | | AMn | 15/12/2021 07:57 am | New build |
| Section 112 (2): Alterations to Buildings - TA Function: Have the provisions of section 112 (2) been satisfied? Select N/A if the Territorial Authority does not need to consider section 112 (2). | N/A | AMn | 15/12/2021 07:57 am | [M107] This question does not apply to this project as TA input is not required |
| Section 112 (3): TA Function - Buildings subject to EPB Notice: Is the alteration to an existing building that is subject to an EPB Notice, and if so have provisions of section 133AT been satisfied? Select N/A if the building is not an alteration to an existing building that is subject to an EPB Notice. | N/A | AMn | 15/12/2021 07:57 am | [M107] The building is not an alteration that is subject to an EPB Notice so this question does not apply to this project. |
| Section 113: Specified Intended Life: Is the specified intended life of the building less than fifty years? Please select N/A if the specified intended life is fifty years or more. | N/A | HTn | 23/02/2022 02:37 pm | The intended life of the building is fifty or more years. Checked application form and specified for 50 years |
| Section 115: Change of Use: Does the proposal provide adequate evidence to enable the TERRITORIAL AUTHORITY to be satisfied, on reasonable grounds that:<br>Please select N/A if there is no change of use occurring. | | | | |
| **Section 115: Change of Use - Prompt List:** | **N/A** | **AMn** | **15/12/2021 07:57 am** | [M107] This question does not apply to this application. |
| *(a) Where the change involves the incorporation in the building of 1 or more household units where household units did not exist before; that the building, in its new use, will comply, as nearly as is reasonably practicable, with the building code in all respects?* | | | | |
| *(b) In other cases; the building will comply, as nearly as is reasonably practicable, with every provision of the building code that relate to either or both of the following: A (i) Means of escape from fire, (ii) Protection of other property, (iii) Sanitary facilities, (iv) Structural performance, and (v) Fire rating performance. B (i) Access and facilities for people with disabilities (if required under BA Sec. 118) and (ii) Continues to comply with the other provisions of the building code to at least the same extent as before the change of use?* | | | | |
| **Supplementary Processing Notes:** | | AMn | 15/12/2021 07:57 am | New build |
| Section 116: Extension of Life: Does the proposal demonstrate compliance with provisions of Section 116? Please select N/A if the application does not apply to a building that currently has a specified intended life. | N/A | AMn | 15/12/2021 07:58 am | [M107] This question does not apply to this application. |
| Section 116A: Subdivision: Is the proposal accompanied by a Certificate issued by The TERRITORIAL AUTHORITY under Section 224 (f) of the Resource Management Act 1991 giving effect to the proposed subdivision affecting the building or part of the building?<br>Please select N/A if the application does not apply to a building that is currently undergoing subdivision. | N/A | AMn | 15/12/2021 08:22 am | [M107] This question does not apply to this application. |


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| Section 116B: Unsafe/ Insanitary or Inadequate means of escape from fire: Is the building safe and sanitary for its intended use and does it have adequate means of escape from fire? Please select N/A if this is an application for a new building. | N/A | AMn | 15/12/2021 07:58 am | [M107] This question does not apply to this project. |
| Section 118 - 120: Accessibility: Does the proposal demonstrate compliance with provisions of Section 118 - 120? LoA: Section 118 only applies to certain buildings - refer to Schedule 2 hyperlink under reference notes. | N/A | AMn | 15/12/2021 07:58 am | [M107] This question does not apply to this application. |
| Section 268 - 272: Product Certificates: If the proposal includes a product certificate issued by an accredited product certification body under BA sec. 261; then is the certificate current and the proposal within the scope of the product certificate? Please check MBIE register and record the product Authorization Number; or select N/A if there no certified building methods or products. | N/A | AMn | 17/12/2021 10:39 am | [M107] This question does not apply to this application. No Product Certs or PTS supplied. |
| | Y | HTn | 17/12/2021 01:28 pm | [M107] Product Certificates are current, fit for use in the context of this application, and issued by an accredited certification body. (identify products)<br>The following product certificates I checked online at MBIE, however relevant BRANZ appraisals and/or current specifications were included with the application<br>- Codemark GM-CM30018-RevH, Linea Weatherboard, issueddd May 2020, within scope and limitations of this documents, specification includes May 2020 specification and site conditions acceptable for use SP sheet 49-111 Branz appraisal included #447 (2020)<br>- Kopine flooring - Codemark CM70064 January 2020, 1. Kopine flooring systems shall only be laid in accordance with the Kopine Installation Guide and Technical Specifications (November 2018). Within scope and use of the codemark Sp sheet 150-169<br>- |
| Section 363: Certificate of Public Use: Please tick if there is likelihood that a CPU will be required i.e. if the building work will result in members of the public using the premises (or part thereof) prior to the issue of a Code Compliance Certificate. Please select N/A if a Certificate of Public Use is not required. | N/A | AMn | 15/12/2021 07:58 am | [M107] There is little likelihood that the building work will trigger need for application for a Certificate of Public Use. |
| **PRELIMINARY** | | | | |
| Required Docs: Please tick if there are any required documents or construction monitoring records required for this project. Select N/A if there are no required documents or construction monitoring records required. Please do not apply a cross to this question. | Y | HTn | 10/01/2022 10:48 am | [M107] Required documents and construction monitoring records will be required before CCC is issued. |
| Site Considerations: Have the following matters been checked and confirmed to be compliant: | | | | |
| **Site Considerations - Prompt List:** | **Y** | **HTn** | **23/02/2022 02:43 pm** | |
| *Site Considerations:1. Siting: Is sufficient information provided to ensure building work will be correctly sited?* | Y | HTn | 23/02/2022 02:43 pm | Sufficient information is provided to ensure building work will be correctly sited<br>DATUM<br>STORMWATER MANHOLE (AJ)<br>LID: 8.10<br><br>reticulated services to site from Boundary however boundary shown clearly<br><br>Survey plan shown on site plan<br>Elevations show heights and dimensions and FFLs checked details provided against council GIS<br>Planning RFI (see filenotes) responses merged these into plans set. |


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| *2. Wind, earthquake, corrosion zones: Have the wind, earthquake and corrosion zones for this site been correctly assessed?* | Y | HTn | 23/02/2022 02:43 pm | The wind, earthquake and corrosion zones for this site been correctly assessed and are considered compliant.<br>checked PL sheet submitted A32 PL sheet 5 of working set -<br>Compliance established -<br>checked Branz maps and NZS3604:2011 found<br>wind zone is H; section 5.2<br>Exposure zone sheltered; section 5.2.4<br>Corrosion Zone is C; section 4.2<br>Earthquake Zone 2 section 5 |
| *3. Liquefaction susceptibility: If the land on which the building work is to occur is deemed susceptible to liquefaction, then please confirm whether a geotechnical report been provided?* | Y | HTn | 23/02/2022 02:43 pm | The land on which the building work is to occur is deemed susceptible to liquefaction. A geotechnical report has been provided that addresses this.<br>Checked liquefaction map and guidance on TDC website and site has possible likelihood of liquefaction<br>Geotechnical report for the subdivision and earthworks completion report 51-354, and within the preliminary geotechnical report SP sheet 270 a liquefaction assessment was undertaken on p. 14-15 of this report which included<br>Level B Calibrated Desktop Assessment<br>Level C Detailed Area-Wide Assessment<br>Level D Site-Specific Assessment<br>IL2 sleeping risk and TC2 from MBIE guidance |
| *4. Easement: Is an easement required for drains or for access that may affect other properties?* | Y | HTn | 23/02/2022 02:43 pm | An easement is provided for drains or for access that may affect other properties. W easement on CT<br>Checked filenote under engineer<br>Checked ROT and this pump statement has an easement, driveway clear of easement on site plan |
| *5. Services: Have the effects of building work on existing services been properly considered?* | Y | HTn | 23/02/2022 02:43 pm | The effects of building work on existing services has been properly considered.<br>checked engineering filenotes<br>Property has a reticulated water, wastewater and stormwater connection available (stormwater connection only has capacity for current land use zoning). Wastewater connection is via an individual wastewater pump station maintained by Council with the power supplied by the property owner.<br>Owner, Occupiers and Commissioning Manual is available on Councils website. The pump station is located within your property and protected by an easement and cannot be built over |
| *6. Slope suitability and overland flow paths: Have the effects of sloping ground in relation to building stability and the effects of overland flow paths been properly considered?* | Y | HTn | 23/02/2022 02:43 pm | The effects of sloping ground in relation to building stability and the effects of overland flow paths been properly considered and a complying solution is provided to address these matters. this was dealt with at subdivision LD1 and engineered cut fill earthworks with report as follows -<br>Geotechnical report for the subdivision and earthworks completion report 51-354, and within the preliminary geotechnical report SP sheet 270<br>no overland flow paths identified after earthworks |
| *7. Ground bearing: Is evidence provided to confirm that ground bearing capacity is adequate to support imposed loads? [ensure construction monitoring / site verification requirements been applied and apply advice note if required].* | Y | HTn | 23/02/2022 02:43 pm | Confirmation is provided verifying that ground bearing capacity is adequate to support imposed loads. SD sheet 15 and construction monitoring entered into system for CGW bearing check at excavation and fill stages p.11/14<br>PS1 report - con mon entered into syste |
| *8. Demolition, excavation, construction, sediment control: Have the effects that these activities may have on people or other properties been properly considered and / or mitigated?* | Y | HTn | 23/02/2022 02:43 pm | The effects that these activities may have on people or other properties have been properly considered and mitigated.<br>Refer plan detailing excavation/erosion and sediment control notes and plan A33 merged into multiproof set depicted which aligns with council environmental management given on TDC website |


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| *9. Finished floor levels: Has compliance with code provisions for finished floor levels in relation to finished ground demonstrated?* | Y | HTn | 23/02/2022 02:43 pm | Compliance with code provisions for finished floor levels in relation to finished ground levels is demonstrated. FFL8. 550 and FGL 8.250 m on plans sheets A33, A01 and A32 consistent levels depicted. complying with E2/AS1, figure 65 and table 18, 225mm clearance from unpaved ground and 150mm from paved ground |
| *10. Misc.:* | N/A | HTn | 23/02/2022 02:43 pm | There are no miscellaneous matters associated with this question. |
| Preconstruction Meeting: Is a pre-construction meeting required? Please select N/A if a Pre-construction meeting is not required. | N/A | HTn | 10/01/2022 10:48 am | [M107] A pre-construction meeting is not required. |
| Miscellaneous - Other: Please select the cross if you wish to raise an RFI for an item that may not clearly fit into any other category. | N/A | HTn | 10/01/2022 10:48 am | [M107] Not required |
| **B1: STRUCTURE** | | | | |
| **B1 - Structure** | | | | |
| **B1: Foundations, Piles, Floors** | | | | |
| B1: Pile: Does the pile design comply with the nominated compliance path and with B1 & B2? | | | | |
| **B1: Pile - Prompt List:** | **N/A** | **HTn** | **10/01/2022 11:36 am** | [M107] This question does not apply to this application. |
| *Pile:1. Pile layout, treatment, type, footing, height: Is compliance demonstrated?* | | | | |
| *2. Bracing: Is pile bracing demand satisfied?* | | | | |
| *3. Load paths: Are the piles correctly located to support imposed loads?* | | | | |
| *4. Pile fixings: Are pile fixing assembly and durability details compliant and appropriate for the pile type?* | | | | |
| *5. Sub-floor access / ventilation: Is sub-floor access and ventilation compliant?* | | | | |
| *6. SED, driven piles: Does specific engineer design information demonstrate compliance, and have construction monitoring requirements been entered into the system? Please review inspections and add further inspections as required to suit method of construction.* | | | | |
| *7. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 10/01/2022 11:36 am | Cupolex floor slab design therefore not within scope of work |
| B1: Footings, Foundations (In-situ, masonry, SED): Does the design comply with that of the nominated compliance path and satisfy the requirements for B1 Structure and B2 Durability? Note: Please assess compliance of all footing and foundations (including those of SED elements) under this question. | | | | |
| **B1: Footings, Foundations (In-situ, masonry, SED) - Prompt List:** | **Y** | **HTn** | **10/01/2022 11:48 am** | |
| *Footings and Foundations:1. Footings, foundations, foundation walls: Is the footing, foundation wall, reinforcing detailing compliant? [Check - Footing and foundation sizes, Reinforcing - grade, size, lap, support; Check concrete cover and concrete strength is appropriate for the environment and corrosion zone].* | Y | HTn | 10/01/2022 11:48 am | [M107] |
| *2. SED footings and foundations (includes those for posts, columns, tilt panels, portal frames): Does the specific design demonstrate compliance and have construction monitoring requirements been determined and entered into the system? [Check that information addresses design actions, loading, uplift, and connections and ensure detailing is compliant]. Please review inspections and add further inspections as required to suit method of construction.* | Y | HTn | 10/01/2022 11:48 am | [M107] |
| *3. Sub-floor access and ventilation: Is the detailing for sub-floor access and sub-floor ventilation compliant?* | N/A | HTn | 10/01/2022 11:48 am | [M107] |
| *4. Miscellaneous:* | N/A | HTn | 10/01/2022 11:48 am | [M107] |
| B1: Floor Slab: Does floor slab detailing demonstrate compliance with the nominated compliance path and with NZBC B1 & B2? Note: Please assess compliance of SED floor slab proposals under this question. | | | | |
| **B1: Floor Slab - Prompt List:** | **Y** | **HTn** | **10/01/2022 12:06 pm** | |


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| *Floor Slab:1. Floor level and ground bearing: Select N/A as this should have been checked under Preliminary > Site Considerations.* | Y | HTn | 10/01/2022 12:06 pm | [M107] |
| *2. Foundation details: Do details demonstrate compliance with the compliance path nominated?* | Y | HTn | 10/01/2022 12:06 pm | [M107] |
| *3. Pod layout, hard fill, blinding, DPM, insulation: Are details complying? [Check that specifications identify requirements for compaction, hard fill, DPM grade and installation].* | Y | HTn | 10/01/2022 12:06 pm | [M107] |
| *4. Reinforcing: Is reinforcing grade, size, lap, support, cover and location of supplementary bars complying?* | Y | HTn | 10/01/2022 12:06 pm | [M107] |
| *5. Point loads: Are the location of point loads correctly identified and is thickening detailing complying? [Check load path support details from roof through to ground level].* | Y | HTn | 10/01/2022 12:06 pm | [M107] |
| *6. Control Joints: Is detailing of control joints complying?* | Y | HTn | 10/01/2022 12:06 pm | [M107] |
| *7. Concrete strength: Is concrete strength and cover appropriate for the environment and corrosion zone?* | Y | HTn | 10/01/2022 12:06 pm | [M107] |
| *8. SED floor slab: Does the floor slab design demonstrate compliance with B1 & B2? [Check - confirmation of suitable ground bearing; ensure construction monitoring requirements are recorded]. Please review inspections and add further inspections as required to suit method of construction.* | Y | HTn | 10/01/2022 12:06 pm | [M107] |
| *9. Miscellaneous:* | N/A | HTn | 10/01/2022 12:06 pm | [M107] |
| B1: Suspended Mid-floor Slab: Does mid-floor, suspended floor slab design and detailing demonstrate compliance with the nominated design solution and with NZBC B1 & B2? | | | | |
| **B1: Suspended Mid-floor Slab - Prompt List:** | **N/A** | **HTn** | **10/01/2022 12:06 pm** | [M107] This question does not apply to this application. |
| *Mid-Floor Slab:1. Design: Does slab thickness, concrete strength and reinforcing detailing and concrete cover comply? See reference notes.* | | | | |
| *2. Methodology: Does methodology indicate that slab will be properly supported prior to pouring and properly cured afterwards?* | | | | |
| *3. Point loads: Is point loads & thickenings detailing compliant?* | | | | |
| *4. Shrinkage: Is shrinkage control & supplementary bar detailing compliant?* | | | | |
| *5. Services: Is detailing for the installation of services below and through the slab compliant?* | | | | |
| *6. SED: Does the Specific Engineer Design information demonstrate compliance and have construction monitoring requirements been entered into the system? Please review inspections and add further inspections as required to suit method of construction.* | | | | |
| *7. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 10/01/2022 12:06 pm | Not within scope of work, checked plans and form 2 application and other supporting documents |
| Producer Statement: Does the statement provide sufficient information and evidence to demonstrate reasonable grounds for its acceptance? | | | | |
| **Producer Statement - Prompt List:** | **Y** | **HTn** | **10/01/2022 12:10 pm** | |
| *Producer Statement:1. Scope: Is the scope and extent of work accurately and clearly identified?* | Y | HTn | 10/01/2022 12:10 pm | [M107] |
| *2. ID: Is the site address & legal description correctly identified?* | Y | HTn | 10/01/2022 12:10 pm | [M107] |
| *3. Recipient: Is the Building Consent Authority identified as the recipient?* | Y | HTn | 10/01/2022 12:10 pm | [M107] |
| *4. Author: Is adequate information is provided? [author name, qualification, registration number, professional affiliation, company name].* | Y | HTn | 10/01/2022 12:10 pm | [M107] |
| *5. Competence: Is work within the author's scope of approval / competence?* | Y | HTn | 10/01/2022 12:10 pm | [M107] |
| *6. Means of compliance: Is the correct code clauses and means of compliance identified and include B2 - Durability?* | Y | HTn | 10/01/2022 12:10 pm | [M107] |
| *7. References: Are references to plans or consent documents correct?* | Y | HTn | 10/01/2022 12:10 pm | [M107] |
| *8. Conditions: If conditions apply then are these clear and practicable?* | Y | HTn | 10/01/2022 12:10 pm | [M107] |
| *9. Construction verification: If on-site construction verification is required then is construction monitoring action completed?* | Y | HTn | 10/01/2022 12:10 pm | [M107] |
| **B1: Sub-floor, Mid-floor, Deck** | | | | |
| B1: Sub-floor structure and flooring: Does the design for the sub-floor structure and flooring comply with the design solution nominated and with NZBC B1 and B2: | | | | |
| **B1: Sub-floor structure and flooring - Prompt List:** | **N/A** | **HTn** | **10/01/2022 07:36 am** | [M107] This question does not apply to this application. |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *Sub-floor Structure and Flooring:1. Sub-floor wall framing: Is compliance demonstrated? Check - framing size, treatment, bracing, fixings and ensure that DPC is detailed between framing and concrete].* | | | | |
| *2. Bearers, stringers, joists: Is compliance demonstrated? [Check - support for floor loads, load bearing walls and point loads; treatment, size, span, spacing and layout of members; support and bracing; DPC; fixings and treatment].* | | | | |
| *3. Services: Is the setout for the subfloor structure and services compatible? [Check - that falls for services pipework will fit within the floor cavity and check that if pipework is to pass through framing members structural integrity will not be compromised].* | | | | |
| *4. Sub-floor bracing: Is detailing compliant? [Check - size and treatment of brace elements; check earthquake and wind demand complies, check bracing values and distribution of elements; check diaphragm ratio; check fixing details].* | | | | |
| *5. Clearances, ventilation: Is clearance between ground and structural elements complying and is adequate subfloor ventilation available? [Check - that the required clearances are provided between ground and underside of the structure and flooring; that threshold clearances comply; that required clearance is provided between the base of wall cladding and decks or finished ground; that subfloor ventilation provisions are satisfied]* | | | | |
| *6. Sub-floor insulation: Is this compliant?* | | | | |
| *7. Internal flooring: Is the flooring system compliant? [Check - treatment, grade, thickness, support, fixings and finish].* | | | | |
| *8. SED: Does the solution demonstrate compliance with the design solution nominated and has construction monitoring requirements been recorded?* | | | | |
| *9. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 10/01/2022 07:36 am | raft slab refer B1 foundations and slab notes |
| B1: Deck Structure and Decking: Does the proposal for the deck structure and decking comply with the nominated compliance path and with NZBC B1 & B2? | | | | |
| **B1: Deck Structure and Decking - Prompt List:** | **N/A** | **HTn** | **10/01/2022 07:43 am** | [M107] This question does not apply to this application. |
| *Deck Structure and Decking:1. Structure: Is the proposed structural detailing compliant? [Check - size, treatment, grade, span and fixing of deck framing and deck bracing elements].* | | | | |
| *2. Decking: Is the decking design compliant? [Check - treatment, grade, thickness, support, fixings, finish; Provision for drainage and maintenance; Ensure decks do not prevent access or visibility of gully traps or impede subfloor ventilation].* | | | | |
| *3. SED:(includes deck barriers): Does the SED solution demonstrate compliance and have compliance monitoring requirements been entered into the system? [NOTE: there are no verification methods or acceptable solutions for the design of deck barriers so these will be subject to specific engineering design].* | | | | |
| *4. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 10/01/2022 07:43 am | no decking, concrete patio to rear with falls to sump |
| B1: Mid-floor Structure and Flooring: Does the design for the mid-floor structure and flooring / decking comply with the design solution nominated and with NZBC B1 and B2: | | | | |
| **B1: Mid-floor Structure and Flooring - Prompt List:** | **Y** | **HTn** | **10/01/2022 08:23 am** | |
| *1. Mid-floor Structure: Mid-floor structure: Is compliance demonstrated? [Check - Floor loads; Stringer and Joists - size, grade, span, spacing, fixing and treatment; Lateral support / blocking; Point loads; Trimmer sizes; Cantilever joist size and projections; Build-ability - check subfloor services, falls and joist layout; Bracing].* | Y | HTn | 10/01/2022 08:23 am | [M107] |
| *2. Flooring, decking: Is the flooring, decking treatment, grade, size, spans and fixing correctly specified and suitable for the imposed loads and for the environmental conditions?* | Y | HTn | 10/01/2022 08:23 am | [M107] |


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|---|---|---|---|---|
| *3. SED: Does the solution demonstrate compliance with the design solution nominated and has construction monitoring requirements been recorded?* | Y | HTn | 10/01/2022 08:23 am | [M107] |
| *4. Miscellaneous:* | N/A | HTn | 10/01/2022 08:23 am | [M107] |
| **B1: Mid-floor Structure and Flooring - Prompt List:** | | **HTn** | **10/01/2022 08:35 am** | |
| *1. Mid-floor Structure: Mid-floor structure: Is compliance demonstrated? [Check - Floor loads; Stringer and Joists - size, grade, span, spacing, fixing and treatment; Lateral support / blocking; Point loads; Trimmer sizes; Cantilever joist size and projections; Build-ability - check subfloor services, falls and joist layout; Bracing].* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *2. Flooring, decking: Is the flooring, decking treatment, grade, size, spans and fixing correctly specified and suitable for the imposed loads and for the environmental conditions?* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *3. SED: Does the solution demonstrate compliance with the design solution nominated and has construction monitoring requirements been recorded?* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *4. Miscellaneous:* | N/A | HTn | 10/01/2022 08:35 am | [M107] |
| | PS | HTn | 10/01/2022 08:35 am | [M107] Wilton Joubert PS1 for structural design SD sheet of structural beams, wing wall frame, wall bracing to B1/VM1/VM4 drawing SD0, Sd1, A04-A07, A19, calculations and PS1 on SD sheet 354-394 and construction monitoring 395-397 by TCE Ltd |
| Producer Statement Acceptance: Does the statement provide sufficient information and evidence to demonstrate reasonable grounds for its acceptance? | | | | |
| **Producer Statement Acceptance - Prompt List:** | **Y** | **HTn** | **10/01/2022 08:35 am** | |
| *1. Scope: Is the scope and extent of work accurately and clearly identified?* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *2. ID: Is the site address & legal description correctly identified?* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *3. Recipient: Is the Building Consent Authority identified as the recipient?* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *4. Author: Is adequate information is provided? - (author name, qualification, registration number, professional affiliation, company name).* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *5. Competence: Is work within the author's scope of approval / competence?* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *6. Means of Compliance: Is the correct code clauses and means of compliance identified and include B2 - Durability?* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *7. References: Are references to plans or consent documents correct?* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *8. Conditions: If conditions apply then are these clear and practicable?* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *9. Construction Verification: If on-site construction verification is required then is construction monitoring action completed?* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| **B1: Mid-floor Structure and Flooring - Prompt List:** | **Y** | **HTn** | **10/01/2022 08:35 am** | |
| *1. Mid-floor Structure: Mid-floor structure: Is compliance demonstrated? [Check - Floor loads; Stringer and Joists - size, grade, span, spacing, fixing and treatment; Lateral support / blocking; Point loads; Trimmer sizes; Cantilever joist size and projections; Build-ability - check subfloor services, falls and joist layout; Bracing].* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *2. Flooring, decking: Is the flooring, decking treatment, grade, size, spans and fixing correctly specified and suitable for the imposed loads and for the environmental conditions?* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *3. SED: Does the solution demonstrate compliance with the design solution nominated and has construction monitoring requirements been recorded?* | Y | HTn | 10/01/2022 08:35 am | [M107] |
| *4. Miscellaneous:* | N/A | HTn | 10/01/2022 08:35 am | [M107] |
| **B1: Walls, Roof, Linings** | | | | |
| B1: Walls, Wall bracing, Posts, Beams: Does the design for the wall structure, posts and beams comply with the design solution nominated and with NZBC B1 and B2? Disable the pre-pour inspection for post footings if these are to be poured in conjunction with the floor slab. | | | | |
| **B1: Walls, Wall bracing, Posts, Beams - Prompt List:** | **N** | **AMn** | **17/12/2021 02:49 pm** | |
| *Walls, Wall bracing, Posts, Beams:1. Wall framing: Is the wall framing construction detail complying? [Check - Framing treatment, grade, size, support, setout, separation between concrete and framing, and fixing of plates, studs, trimmers, lintels and sills].* | | AMn | 17/12/2021 02:49 pm | [M107] |
| *2. Wall bracing: Does the wall bracing design comply? [Check - Complying bracing methodology is applied; Brace demand complies; Brace line layout and distribution of brace elements; Brace element construction and fixing; Allowances applied for wall height variances; Brace elements are clear of wet areas].* | Y | AMn | 17/12/2021 02:49 pm | [M107] |


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| *3. Posts, beams: Does the post / beam design demonstrate compliance? [Check - durability of materials; Post / footings / connections; Post size, grade, spacing; beam size, grade, span; post beam connections].* | | AMn | 17/12/2021 02:49 pm | [M107] |
| *4. SED (structural elements): Does the solution demonstrate compliance with the compliance pathway nominated and have construction monitoring and any inspection requirements been recorded? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS4; Review inspection requirements].* | N | AMn | 17/12/2021 02:49 pm | [M107] |
| *5. Miscellaneous:* | | AMn | 17/12/2021 02:49 pm | [M107] |
| **B1: Walls, Wall bracing, Posts, Beams - Prompt List:** | **Y** | **HTn** | **10/01/2022 09:24 am** | |
| *Walls, Wall bracing, Posts, Beams:1. Wall framing: Is the wall framing construction detail complying? [Check - Framing treatment, grade, size, support, setout, separation between concrete and framing, and fixing of plates, studs, trimmers, lintels and sills].* | Y | HTn | 10/01/2022 09:24 am | [M107] |
| *2. Wall bracing: Does the wall bracing design comply? [Check - Complying bracing methodology is applied; Brace demand complies; Brace line layout and distribution of brace elements; Brace element construction and fixing; Allowances applied for wall height variances; Brace elements are clear of wet areas].* | Y | HTn | 10/01/2022 09:24 am | [M107] |
| *3. Posts, beams: Does the post / beam design demonstrate compliance? [Check - durability of materials; Post / footings / connections; Post size, grade, spacing; beam size, grade, span; post beam connections].* | N/A | HTn | 10/01/2022 09:24 am | [M107] |
| *4. SED (structural elements): Does the solution demonstrate compliance with the compliance pathway nominated and have construction monitoring and any inspection requirements been recorded? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS4; Review inspection requirements].* | Y | HTn | 10/01/2022 09:24 am | [M107] |
| *5. Miscellaneous:* | Y | HTn | 10/01/2022 09:24 am | [M107] |
| **B1: Walls, Wall bracing, Posts, Beams - Prompt List:** | **Y** | **HTn** | **12/01/2022 08:38 am** | |
| *Walls, Wall bracing, Posts, Beams:1. Wall framing: Is the wall framing construction detail complying? [Check - Framing treatment, grade, size, support, setout, separation between concrete and framing, and fixing of plates, studs, trimmers, lintels and sills].* | Y | HTn | 12/01/2022 08:38 am | [M107] |
| *2. Wall bracing: Does the wall bracing design comply? [Check - Complying bracing methodology is applied; Brace demand complies; Brace line layout and distribution of brace elements; Brace element construction and fixing; Allowances applied for wall height variances; Brace elements are clear of wet areas].* | Y | HTn | 12/01/2022 08:38 am | [M107] |
| *3. Posts, beams: Does the post / beam design demonstrate compliance? [Check - durability of materials; Post / footings / connections; Post size, grade, spacing; beam size, grade, span; post beam connections].* | N/A | HTn | 12/01/2022 08:38 am | [M107] |
| *4. SED (structural elements): Does the solution demonstrate compliance with the compliance pathway nominated and have construction monitoring and any inspection requirements been recorded? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS4; Review inspection requirements].* | Y | HTn | 12/01/2022 08:38 am | [M107] |
| *5. Miscellaneous:* | Y | HTn | 12/01/2022 08:38 am | [M107] |
| Roof Structure: Does the roof structure design comply with the design solution nominated and with NZBC B1 and B2? | | | | |
| **Roof Structure - Prompt List:** | **N** | **AMn** | **17/12/2021 02:57 pm** | |
| *Roof Structure (light construction):1. Imposed loads: Is the roof structure adequate to support imposed loads? [Check - wind, snow, earthquake].* | | AMn | 17/12/2021 02:57 pm | [M107] |
| *2. Roof truss certification, layout and bracing: Is a complying and site specific truss design provided along with the layout, a producer statement, a design statement and a manufacturer statement? [Lintels may be considered here or under wall framing].* | N | AMn | 17/12/2021 02:57 pm | [M107] |


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|---|---|---|---|---|
| *3. Timber roof frame elements: Is the detailing for roof frame elements complying? [Check - grade, size, spacing, span, treatment and fixings for roof frame members - rafters, ridge boards, ridge beams, ceiling joists, ceiling runners, valley boards, underpurlins, underpurlin struts, strutting beams, veranda beams, collar ties and cleats, eaves, gable verges, purlins and tile battens].* | N/A | AMn | 17/12/2021 02:57 pm | [M107] |
| *4. Bracing: Is roof bracing complying? [Check - Sarking; Location, distribution, size, spacing, grade and fixing of roof plane and roof space braces; Consider bottom chord restraint and distribution of gable end braces].* | Y | AMn | 17/12/2021 02:57 pm | [M107] |
| *5. Purlins, Tile battens, Ceiling battens: Does the purlin, tile batten, ceiling batten type, size, grade, spacing, span, fixing and durability comply?* | | AMn | 17/12/2021 02:57 pm | [M107] |
| *6. Insulation: Have roof space insulation requirements been considered? [Consider - depth of rafters and thickness of insulation; Clearance between insulation and roof frame at exterior wall junctions and clearance with roof underlay].* | | AMn | 17/12/2021 02:57 pm | [M107] |
| *7. SED: Does the SED solution demonstrate compliance and have compliance monitoring requirements been entered into the system? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS4; Review inspection requirements].* | N/A | AMn | 17/12/2021 02:57 pm | [M107] |
| *8. Miscellaneous:* | | AMn | 17/12/2021 02:57 pm | [M107] |
| **Roof Structure - Prompt List:** | **Y** | **HTn** | **10/01/2022 10:06 am** | |
| *Roof Structure (light construction):1. Imposed loads: Is the roof structure adequate to support imposed loads? [Check - wind, snow, earthquake].* | Y | HTn | 10/01/2022 10:06 am | [M107] |
| *2. Roof truss certification, layout and bracing: Is a complying and site specific truss design provided along with the layout, a producer statement, a design statement and a manufacturer statement? [Lintels may be considered here or under wall framing].* | Y | HTn | 10/01/2022 10:06 am | [M107] |
| *3. Timber roof frame elements: Is the detailing for roof frame elements complying? [Check - grade, size, spacing, span, treatment and fixings for roof frame members - rafters, ridge boards, ridge beams, ceiling joists, ceiling runners, valley boards, underpurlins, underpurlin struts, strutting beams, veranda beams, collar ties and cleats, eaves, gable verges, purlins and tile battens].* | Y | HTn | 10/01/2022 10:06 am | [M107] |
| *4. Bracing: Is roof bracing complying? [Check - Sarking; Location, distribution, size, spacing, grade and fixing of roof plane and roof space braces; Consider bottom chord restraint and distribution of gable end braces].* | Y | HTn | 10/01/2022 10:06 am | [M107] |
| *5. Purlins, Tile battens, Ceiling battens: Does the purlin, tile batten, ceiling batten type, size, grade, spacing, span, fixing and durability comply?* | Y | HTn | 10/01/2022 10:06 am | [M107] |
| *6. Insulation: Have roof space insulation requirements been considered? [Consider - depth of rafters and thickness of insulation; Clearance between insulation and roof frame at exterior wall junctions and clearance with roof underlay].* | Y | HTn | 10/01/2022 10:06 am | [M107] |
| *7. SED: Does the SED solution demonstrate compliance and have compliance monitoring requirements been entered into the system? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS4; Review inspection requirements].* | N/A | HTn | 10/01/2022 10:06 am | [M107] |
| *8. Miscellaneous:* | N/A | HTn | 10/01/2022 10:06 am | [M107] |
| **Roof Structure - Prompt List:** | **Y** | **HTn** | **11/01/2022 12:09 pm** | |
| *Roof Structure (light construction):1. Imposed loads: Is the roof structure adequate to support imposed loads? [Check - wind, snow, earthquake].* | Y | HTn | 11/01/2022 12:09 pm | [M107] |
| *2. Roof truss certification, layout and bracing: Is a complying and site specific truss design provided along with the layout, a producer statement, a design statement and a manufacturer statement? [Lintels may be considered here or under wall framing].* | Y | HTn | 11/01/2022 12:09 pm | [M107] |
| *3. Timber roof frame elements: Is the detailing for roof frame elements complying? [Check - grade, size, spacing, span, treatment and fixings for roof frame members - rafters, ridge boards, ridge beams, ceiling joists, ceiling runners, valley boards, underpurlins, underpurlin struts, strutting beams, veranda beams, collar ties and cleats, eaves, gable verges, purlins and tile battens].* | Y | HTn | 11/01/2022 12:09 pm | [M107] |


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|---|---|---|---|---|
| *4. Bracing: Is roof bracing complying? [Check - Sarking; Location, distribution, size, spacing, grade and fixing of roof plane and roof space braces; Consider bottom chord restraint and distribution of gable end braces].* | Y | HTn | 11/01/2022 12:09 pm | [M107] |
| *5. Purlins, Tile battens, Ceiling battens: Does the purlin, tile batten, ceiling batten type, size, grade, spacing, span, fixing and durability comply?* | Y | HTn | 11/01/2022 12:09 pm | [M107] |
| *6. Insulation: Have roof space insulation requirements been considered? [Consider - depth of rafters and thickness of insulation; Clearance between insulation and roof frame at exterior wall junctions and clearance with roof underlay].* | Y | HTn | 11/01/2022 12:09 pm | [M107] |
| *7. SED: Does the SED solution demonstrate compliance and have compliance monitoring requirements been entered into the system? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS4; Review inspection requirements].* | N/A | HTn | 11/01/2022 12:09 pm | [M107] |
| *8. Miscellaneous:* | N/A | HTn | 11/01/2022 12:09 pm | [M107] |
| B1: Wall & Ceiling Linings: Are wall and ceiling linings fit for purpose and are specifications adequate to ensure complying installation? Consider ceiling diaphragms - Rectangular, Length (L) shall not exceed 2 x width (W); Check sheet specifications and fixing; Protrusions (see NZS 3604:2011 13.5) | Y | AMn | 17/12/2021 11:34 am | [M107] B1: Wall & ceiling lining construction detailing is compliant. 13mm Gib to ceilings on Rondo batten system (600 c/c) and 10mm Std. gib (except where bracing is required -SED) wall linings on studs at 600 c/c. No ceiling diaphragms specified / required. Current Manuf. specification and installation documentation is supplied. |
| B1: Small Chimney: Does the chimney design comply with the design solution nominated, and with NZBC B1 & B2? This question does not address compliance with NZBC C1 - C6. Please GO TO C - FIRE SAFETY Para 7.5 after completing these questions. Please process chimney foundations and footings under B1: Foundations, Piles, Floors. | | | | |
| **B1: Small Chimney - Prompt List:** | **N/A** | **AMn** | **17/12/2021 11:22 am** | [M107] This question does not apply to this application. |
| *Small Chimney1. Ground bearing: Is evidence provided to confirm that the chimney will be founded on good ground?* | | | | |
| *2. Limitations: Have design limitations been checked and confirmed as complying?* | | | | |
| *3. Foundations: Does detailing demonstrate compliance? [Check - reinforcing, size, grade, placement, concrete strength].* | | | | |
| *4. Hearth: Are hearth construction requirements and limitations satisfied?* | | | | |
| *5. Connections: Is detailing of connections and supports compliant?* | | | | |
| *6. Brace demand: Is bracing demand compliant?* | | | | |
| *7. B2: Is compliance with durability provisions satisfied? [Check impact on materials in relation to environment, and access & maintenance risk].* | | | | |
| *8. E2: (Weather-tightness) - Is flashing detailing compliant?* | | | | |
| *9. SED: Does the design demonstrate compliance and have construction monitoring requirements been entered into the system? Please review inspections and add further inspections as required to suit method of construction.* | | | | |
| *10. Miscellaneous:* | | | | |
| B1: Masonry Construction (SED, NZS 4229, NZS 4230): Does the masonry design proposal demonstrate compliance with the design solution nominated and with NZBC B1 and B2? Please process the footings and foundations under B1: Foundations, Piles, Floors. Please process external tanking of blockwork under E2 - E2.3.4 - Drainage and Tanking. Please review inspections and modify as required. | | | | |
| **B1: Masonry Construction (SED, NZS 4229, NZS 4230) - Prompt List:** | **N/A** | **AMn** | **17/12/2021 11:22 am** | [M107] This question does not apply to this application. |
| *Masonry Construction:1. Scope: Is the design within scope of the nominated design solution?* | | | | |
| *2. Design principles: Do the design principles and requirements for construction comply?* | | | | |
| *3. Durability: Has the correct site classification been applied and does the design satisfy provisions of NZBC Clause B2?* | | | | |
| *4. Materials: Do the materials specified comply with the provisions of the nominated design solution?* | | | | |


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|---|---|---|---|---|
| *5. Fire resistance: Do components (walls, beams, columns etc.) have the required fire resistant rating for stability, integrity and insulation?* | | | | |
| *6. Bracing demand: Are bracing demand provisions satisfied?* | | | | |
| *7. Diaphragms: Are the requirements and provisions for diaphragms satisfied?* | | | | |
| *8. Reinforcement: Is the design of reinforcement compliant?* | | | | |
| *9. Structure: Is the design of structural walls, beams, columns, beam / column joints, bond beams and lintels compliant?* | | | | |
| *10. Shrinkage, movement control: Are provisions for movement control and shrinkage satisfied?* | | | | |
| *11. SED: Does the SED solution demonstrate compliance and have compliance monitoring requirements been entered into the system? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS4; Review inspection requirements].* | | | | |
| *12. Miscellaneous:* | | | | |
| **B1: Specific Design Elements** | | | | |
| B1: Concrete Precast Floor Units: Does the Concrete precast floor unit design demonstrate compliance with the design solution nominated and with NZBC Clause B1 & B2? Ensure Producer Statement sections and Construction Monitoring requirements are completed. | | | | |
| **B1: Concrete Precast Floor Units - Prompt List:** | **N/A** | **HTn** | **10/01/2022 10:07 am** | [M107] This question does not apply to this application. |
| *Concrete Precast Floor Units:1. Ground bearing: Is confirmation provided to verify ground bearing capacity is adequate for imposed loads?* | | | | |
| *2. Construction detailing: Is adequate structural detailing provided to enable construction and inspection, and does this information demonstrate compliance with AS/NZS 1170 and all required design actions and loading? [Ensure detailing includes footing / foundation / column / beam / connections].* | | | | |
| *3. Materials: Are complying materials and finishes specified? [Ensure that coatings satisfy durability provisions and that they are appropriate for the environment].* | | | | |
| *4. Construction methodology: Is complying construction methodology provided that identifies construction sequencing and related safety issues? [Consider lifting, support, traffic management, site safety etc]* | | | | |
| *5. Fire: Are protection from fire provisions satisfied?* | | | | |
| *6. Design / Construction monitoring: Does the Specific Engineer Design information demonstrate compliance and have construction monitoring requirements been entered into the system? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS3; Review inspection requirements suit method of construction].* | | | | |
| *7. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 10/01/2022 10:07 am | not within scope |
| B1: Wall Structures: Does the wall structure design comply with the design solution nominated and with NZBC B1 and B2? Please process the footings and foundations for these elements under B1: Foundations, Piles, Floors. | | | | |
| **B1: Wall Structures - Prompt List:** | **Y** | **HTn** | **10/01/2022 10:31 am** | |
| *Wall Structures:1. Design and calculations: Is adequate detailing provided to enable construction and inspection, and does this information demonstrate compliance with AS/NZS 1170? [Check - Structural calculations; Ensure information addresses design actions and loading; Check drawings provide adequate construction detail; Consider provision for services; Check structural drawing coordination has occurred].* | Y | HTn | 10/01/2022 10:31 am | [M107] |
| *2. Fire: Are the protection from fire provisions satisfied?* | N/A | HTn | 10/01/2022 10:31 am | [M107] |
| *3. Durability: Are durability provisions satisfied?* | Y | HTn | 10/01/2022 10:31 am | [M107] |
| *4. Construction monitoring: Have the cm requirements been entered into the system? [Review inspection requirements and ensure that any third party documentation that is required is recorded under construction monitoring i.e. PS 3].* | Y | HTn | 10/01/2022 10:31 am | [M107] |


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|---|---|---|---|---|
| *5. Miscellaneous:* | N/A | HTn | 10/01/2022 10:31 am | [M107] |
| B1: Columns, Posts, Beams: Does the design for the columns, post and /or beams demonstrate compliance with the nominated design solution and with NZBC B1 & B2? Please process the footings and foundations for these elements under B1: Foundations, Piles, Floors. | | | | |
| **B1: Columns, Posts, Beams - Prompt List:** | **Y** | **HTn** | **10/01/2022 10:28 am** | |
| *Columns, Posts, Beams:1. Imposed loads: Is confirmation provided to verify ground bearing capacity is adequate for imposed loads?* | Y | HTn | 10/01/2022 10:28 am | [M107] |
| *2. Construction detailing: Is adequate detailing provided to enable construction and inspection, and does this information demonstrate compliance with AS/NZS 1170? [Ensure information addresses design actions and loading and details include footing, foundation, column, post and beam connections].* | Y | HTn | 10/01/2022 10:28 am | [M107] |
| *3. Materials: Are complying materials and finishes specified? [Check - coatings satisfy durability provisions and are appropriate for the environment].* | Y | HTn | 10/01/2022 10:28 am | [M107] |
| *4. Construction methodology: Is complying construction methodology provided? [This should address construction sequencing, lifting, support, traffic management, site safety etc].* | Y | HTn | 10/01/2022 10:28 am | [M107] |
| *5. Fire: Are the protection from fire provisions satisfied?* | N/A | HTn | 10/01/2022 10:28 am | [M107] |
| *6. Design / Construction monitoring: Does the specific engineer design information demonstrate compliance and have construction monitoring requirements been entered into the system? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS3; Review inspection requirements].* | Y | HTn | 10/01/2022 10:28 am | [M107] |
| *7. Miscellaneous:* | N/A | HTn | 10/01/2022 10:28 am | [M107] |
| B1: Tilt Panels: Is the design in accordance with the design solution nominated, and with NZBC B1 & B2? Please process the footings and foundations for these elements under B1: Foundations, Piles, Floors. | | | | |
| **B1: Tilt Panels - Prompt List:** | **N/A** | **HTn** | **10/01/2022 10:31 am** | [M107] This question does not apply to this application. |
| *Tilt Panels:1. Imposed loads: Is confirmation provided to verify ground bearing capacity is adequate for imposed loads?* | | | | |
| *2. Construction detailing: Is adequate detailing provided to enable construction and inspection, and does this information demonstrate compliance with AS/NZS 1170? [Ensure information addresses design actions and loading and details include footing, foundation, column, post and beam connections].* | | | | |
| *3. Materials: Are complying materials and finishes specified? [Check - that coatings satisfy durability provisions and that they are appropriate for the environment].* | | | | |
| *4. Construction methodology: Is complying construction methodology provided? [This should address matters like construction sequencing, lifting, support, traffic management, site safety etc].* | | | | |
| *5. Fire: Are the protection from fire provisions satisfied?* | | | | |
| *6. Design / Construction monitoring: Does the specific engineer design information demonstrate compliance and have construction monitoring requirements been entered into the system? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS3; Review inspection requirements].* | | | | |
| *7. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 10/01/2022 10:31 am | not within scope of work please refer B1 for processing of any engineered elements, |
| B1: Portal Frame: Is the design in accordance with the design solution nominated, and with NZBC B1 & B2? Please process the footings and foundations for these elements under B1: Foundations, Piles, Floors. | | | | |
| **B1: Portal Frame - Prompt List:** | **N/A** | **HTn** | **10/01/2022 10:32 am** | [M107] This question does not apply to this application. |
| *Portal Frames:1. Imposed loads: Is confirmation provided to verify ground bearing capacity is adequate for imposed loads?* | | | | |


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|---|---|---|---|---|
| *2. Construction detailing: Is adequate detailing provided to enable construction and inspection, and does this information demonstrate compliance with AS/NZS 1170? [Ensure information addresses design actions and loading and details include footing, foundation, portal frame and connections].* | | | | |
| *3. Materials: Are complying materials and finishes specified? [Check - that coatings satisfy durability provisions and are appropriate for the environment].* | | | | |
| *4. Construction methodology: Is complying construction methodology provided? [This should address matters like construction sequencing, lifting, support, traffic management, site safety etc].* | | | | |
| *5. Fire: Are the protection from fire provisions satisfied?* | | | | |
| *6. Design / Construction monitoring: Does the specific engineer design information demonstrate compliance and have construction monitoring requirements been entered into the system?* | | | | |
| *7. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 10/01/2022 10:32 am | refer to B1 beams and midfloor and slab and walls for further considerations |
| B1: Suspended Ceiling Systems: Does the SED suspended ceiling system design demonstrate compliance? [Check - Complying specification is provided; Provision for bracing; Calculations are complying; Proposed system is suitable for the proposed ceiling loads; Seismic restraint provisions; Supporting members provide adequate support]. | N/A | HTn | 10/01/2022 10:32 am | [M107] There is no SED suspended ceiling system. |
| B1: Panelised Construction (SIP, MMC): Does the design demonstrate compliance with NZBC B1 & B2? Review inspections and add / delete / modify inspection questions as required. | | | | |
| **B1: Panelised Construction (SIP, MMC) - Prompt List:** | **N/A** | **HTn** | **10/01/2022 10:32 am** | [M107] This question does not apply to this application. |
| *Panelised Construction:1. Construction detailing: Is structural detailing adequate to enable construction and inspection (i.e. connections, treatment, bracing clearly identified)* | | | | |
| *2. Design actions: Does the design confirm compliance with AS/NZS 1170 and are design actions and loadings appropriate for the site and use of the building? (i.e. correct wind zone, earthquake, snow zone etc.)* | | | | |
| *3. Durability: Does the design confirm compliance with B2 Durability provisions.* | | | | |
| **Supplementary Processing Notes:** | | HTn | 10/01/2022 10:32 am | not within scope of work please refer B1 for processing of any engineered elements, |
| B1: Earth Buildings: Does the proposal demonstrate compliance with the design solution nominated, and with B1 & B2? Review inspections and add / delete / modify inspection questions as required. | N/A | HTn | 10/01/2022 10:32 am | [M107] light timber frame |
| B1: SED Miscellaneous: Please select the cross if you wish to raise an RFI for an item that may not clearly fit into any other category. | N/A | HTn | 10/01/2022 10:32 am | [M107] no further considerations |
| Producer Statement : Does the statement provide sufficient information and evidence to demonstrate reasonable grounds for its acceptance? | | | | |
| **Producer Statement - Prompt List:** | **Y** | **HTn** | **10/01/2022 10:37 am** | |
| *Producer Statement:1. Scope: Is the scope and extent of work accurately and clearly identified?* | Y | HTn | 10/01/2022 10:37 am | [M107] |
| *2. ID: Is the site address & legal description correctly identified?* | Y | HTn | 10/01/2022 10:37 am | [M107] |
| *3. Recipient: Is the Building Consent Authority identified as the recipient?* | Y | HTn | 10/01/2022 10:37 am | [M107] |
| *4. Author: Is adequate information is provided? [author name, qualification, registration number, professional affiliation, company name].* | Y | HTn | 10/01/2022 10:37 am | [M107] |
| *5. Competence: Is work within the author's scope of approval / competence?* | Y | HTn | 10/01/2022 10:37 am | [M107] |
| *6. Means of compliance: Is the correct code clauses and means of compliance identified and include B2 - Durability?* | Y | HTn | 10/01/2022 10:37 am | [M107] |
| *7. References: Are references to plans or consent documents correct?* | Y | HTn | 10/01/2022 10:37 am | [M107] |
| *8. Conditions: If conditions apply then are these clear and practicable?* | Y | HTn | 10/01/2022 10:37 am | [M107] |
| *9. Construction verification: If on-site construction verification is required then is construction monitoring action completed?* | Y | HTn | 10/01/2022 10:37 am | [M107] |
| **B2: DURABILITY** | | | | |


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| B2: DURABILITY: Does the design demonstrate compliance with Functional Requirement - B2.2? Review inspections and add / delete / modify inspection questions as required. | | | | |
| **B2: DURABILITY - Prompt List:** | **N** | **HTn** | **17/12/2021 02:07 pm** | |
| *Durability:1. B2.3.1a): Will building elements (including floors, walls and fixings) that provide structural stability to the building, or elements that are difficult to access or replace, or where failure of those elements would go undetected during normal use or maintenance, with only normal maintenance continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 50 years?* | Y | HTn | 17/12/2021 02:07 pm | [M107] |
| *2. B2.3.1b): Will building elements (including the building envelope, exposed plumbing in the sub-floor space, and in-built chimneys and flues) that are moderately difficult to access or replace, or where failure of those elements would go undetected during normal use of the building, but would be easily detected during normal maintenance, with only normal maintenance continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 15 years?* | Y | HTn | 17/12/2021 02:07 pm | [M107] |
| *3. B2.3.1c): Will building elements (including services, linings, renewable protective coatings, and fixtures) that are easy to access and replace, and where failure of those elements would be easily detected during normal use of the building, continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 5 years?* | Y | HTn | 17/12/2021 02:07 pm | [M107] |
| *4. B2.3.2: Do individual building elements that are components of a building system and are difficult to access or replace have all the same durability OR are installed in a manner that permits replacement of elements of lesser durability without removing elements that have greater durability and are not specifically designed for removal and replacement?* | Y | HTn | 17/12/2021 02:07 pm | [M107] |
| *5. Miscellaneous:* | N | HTn | 17/12/2021 02:07 pm | [M107] |
| **B2: DURABILITY - Prompt List:** | **N** | **HTn** | **10/01/2022 10:50 am** | |
| *Durability:1. B2.3.1a): Will building elements (including floors, walls and fixings) that provide structural stability to the building, or elements that are difficult to access or replace, or where failure of those elements would go undetected during normal use or maintenance, with only normal maintenance continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 50 years?* | Y | HTn | 10/01/2022 10:50 am | [M107] |
| *2. B2.3.1b): Will building elements (including the building envelope, exposed plumbing in the sub-floor space, and in-built chimneys and flues) that are moderately difficult to access or replace, or where failure of those elements would go undetected during normal use of the building, but would be easily detected during normal maintenance, with only normal maintenance continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 15 years?* | Y | HTn | 10/01/2022 10:50 am | [M107] |
| *3. B2.3.1c): Will building elements (including services, linings, renewable protective coatings, and fixtures) that are easy to access and replace, and where failure of those elements would be easily detected during normal use of the building, continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 5 years?* | Y | HTn | 10/01/2022 10:50 am | [M107] |
| *4. B2.3.2: Do individual building elements that are components of a building system and are difficult to access or replace have all the same durability OR are installed in a manner that permits replacement of elements of lesser durability without removing elements that have greater durability and are not specifically designed for removal and replacement?* | Y | HTn | 10/01/2022 10:50 am | [M107] |
| *5. Miscellaneous:* | N | HTn | 10/01/2022 10:50 am | [M107] |
| **B2: DURABILITY - Prompt List:** | **N** | **HTn** | **10/01/2022 12:19 pm** | |
| *Durability:1. B2.3.1a): Will building elements (including floors, walls and fixings) that provide structural stability to the building, or elements that are difficult to access or replace, or where failure of those elements would go undetected during normal use or maintenance, with only normal maintenance continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 50 years?* | Y | HTn | 10/01/2022 12:19 pm | [M107] |


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| *2. B2.3.1b): Will building elements (including the building envelope, exposed plumbing in the sub-floor space, and in-built chimneys and flues) that are moderately difficult to access or replace, or where failure of those elements would go undetected during normal use of the building, but would be easily detected during normal maintenance, with only normal maintenance continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 15 years?* | Y | HTn | 10/01/2022 12:19 pm | [M107] |
| *3. B2.3.1c): Will building elements (including services, linings, renewable protective coatings, and fixtures) that are easy to access and replace, and where failure of those elements would be easily detected during normal use of the building, continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 5 years?* | Y | HTn | 10/01/2022 12:19 pm | [M107] |
| *4. B2.3.2: Do individual building elements that are components of a building system and are difficult to access or replace have all the same durability OR are installed in a manner that permits replacement of elements of lesser durability without removing elements that have greater durability and are not specifically designed for removal and replacement?* | Y | HTn | 10/01/2022 12:19 pm | [M107] |
| *5. Miscellaneous:* | N | HTn | 10/01/2022 12:19 pm | [M107] |
| **Supplementary Processing Notes:** | | HTn | 10/01/2022 12:19 pm | Engineer checking PS1 Hyjoist design and Development company builders therefore have shown leniency with Hyjoist specifications due to adequate construction detailing of SD1 in PL sheet 34 |
| **B2: DURABILITY - Prompt List:** | **Y** | **HTn** | **10/01/2022 12:51 pm** | |
| *Durability:1. B2.3.1a): Will building elements (including floors, walls and fixings) that provide structural stability to the building, or elements that are difficult to access or replace, or where failure of those elements would go undetected during normal use or maintenance, with only normal maintenance continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 50 years?* | Y | HTn | 10/01/2022 12:51 pm | [M107] |
| *2. B2.3.1b): Will building elements (including the building envelope, exposed plumbing in the sub-floor space, and in-built chimneys and flues) that are moderately difficult to access or replace, or where failure of those elements would go undetected during normal use of the building, but would be easily detected during normal maintenance, with only normal maintenance continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 15 years?* | Y | HTn | 10/01/2022 12:51 pm | [M107] |
| *3. B2.3.1c): Will building elements (including services, linings, renewable protective coatings, and fixtures) that are easy to access and replace, and where failure of those elements would be easily detected during normal use of the building, continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 5 years?* | Y | HTn | 10/01/2022 12:51 pm | [M107] |
| *4. B2.3.2: Do individual building elements that are components of a building system and are difficult to access or replace have all the same durability OR are installed in a manner that permits replacement of elements of lesser durability without removing elements that have greater durability and are not specifically designed for removal and replacement?* | Y | HTn | 10/01/2022 12:51 pm | [M107] |
| *5. Miscellaneous:* | Y | HTn | 10/01/2022 12:51 pm | [M107] |
| **C: FIRE SAFETY** | | | | |
| **C/AS1: SH** | | | | |
| C/AS1: Part 2: Fire Safety System [Para 2.2]: Has the designer specified a complying Smoke alarm system and correctly identified the location of the detectors? | Y | HTn | 17/12/2021 03:46 pm | [M107] The designer has specified a complying Type 1 smoke alarm and identified the location of detectors correctly. Checked floor plans PL sheet A04 and A06 Within 3m of bedrooms and on escape route (sleeping residential) type 1 in accordance with F7/AS1 3.3 and A1 2. 0.2 use |
| C/AS1: Part 3: Means of Escape: Does the building design demonstrate compliance with SH means of escape provisions? | Y | HTn | 17/12/2021 03:50 pm | [M107] The design demonstrates compliance with the SH means of escape provisions. checked floor plans A04 and A06<br><br>options for DEOP for the dwelling is less than 25m - table 3. 2 C/AS1 checked 12m from bed 3 to bottom of stair (1 m from wall) and downstairs from bottom of stair to entry/exit 10.5m, satisfied escape path of 22.5m achieved |


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| C/AS1: Parts 4 & 5: Control of Fire and Smoke Spread: Does the design demonstrate compliance with C/AS1 Parts 4 & 5 for control of Internal fire and smoke spread and external fire spread? | | | | |
| **C/AS1: Parts 4 & 5: Control of Fire and Smoke Spread - Prompt List:** | **N/A** | **HTn** | **17/12/2021 04:04 pm** | [M107] This question does not apply to this application. |
| *CONTROL OF INTERNAL FIRE AND SMOKE: Internal separations [Para 2. 3 & 4.1]: Are fire separations correctly located and do they have complying LIFE or PROPERTY ratings? Ensure complying detailing is provided for closures, penetrations and stopping.* | | | | |
| *Surface finish [Para 4.2]: If foam plastics or combustible insulating materials form part of a wall or ceiling system, then will the completed system achieve a Group Number of not more than 3?* | | | | |
| *CONTROL OF EXTERNAL FIRE SPREAD: Fire resistant ratings [Para 5.1]: Do external walls that are within 1m of a relevant boundary have an FRR of no less than 30/30/30?* | | | | |
| *Roof projections [Para 5.2]: Do eaves projections of external walls that require an FRR, have an FRR of 30/30/30; or if not, does the walls fire rating extend up to the underside of the roof?* | | | | |
| *3. Eaves rating [Para 5.2.2]: In cases where the eaves extends to within 650 mm of a relevant boundary; is the entire eaves construction and the wall from which it projects provided with an FRR of not less than 30/30/30?* | | | | |
| *4. Protection from lower roof [Para 5.3]: Has fire spread from a roof that is close to and lower than an external wall of an adjacent building been mitigated by providing a 30/30/30 fire rating to the part of the roof that is within 5.0m horizontally of the wall?* | | | | |
| *5. Exterior surface finishes [Para 5.4]: Do these comply with the provisions of C/AS1 Para 5.4? Not required if surface finishes are less than 1 mm thick and applied directly to non-combustible substrate.* | | | | |
| *6. Carports & similar construction [Para 5.5]: Have provisions of C/AS1 Para 5.5 been satisfied?* | | | | |
| *7. Specifications / detailing: Is complying construction detailing and specifications for fire rated construction provided ? [Check frame construction; Durability; Compatibility of wrap; Insulation; Materials; Finishes].* | | | | |
| *8. Maintenance: Do maintenance requirements demonstrate that the fire rated elements will achieve 50 years durability?* | | | | |
| *9. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 17/12/2021 04:04 pm | This question does not apply to this project. Not a multi unit dwelling or connected to another household, separate standalone dwelling only.<br>No foam plastics or combustible insulating surface materials identified within scope of application. |
| C/AS1: Part 6: Firefighting: Does consent documentation confirm that the pavement is a) able to withstand laden weights of rescue vehicles, b) is traffic-able in all weather, c) is of appropriate width and height, and d) is provided with hard standing within 20 m of building entrance and inlets to sprinkler or hydrants? | N/A | HTn | 17/12/2021 04:03 pm | [M107]<br>This question does not apply to this project. Not a multi unit dwelling with more than 2 stories as per C/AS1 6.1<br>Consent is for a new build in an existing subdivision, Roading has been put in as part of the subdivision and will provide adequate access and facilities to the fire-fighting services for this allotment. |
| C/AS1: Part 7: Down Lights [Para 7.4]: Have the correct types of down lights been specified and do these comply with Para 7.4 of C1/AS1? | | | | |
| **C/AS1: Part 7: Down Lights [Para 7.4] - Prompt List:** | **Y** | **HTn** | **17/12/2021 04:07 pm** | |
| *1. Type: Have complying types of down lights been specified?* | Y | HTn | 17/12/2021 04:07 pm | [M107] |
| *2. Clearance: Are insulation clearance distances specified?* | N/A | HTn | 17/12/2021 04:07 pm | [M107] |
| *3. Miscellaneous:* | N/A | HTn | 17/12/2021 04:07 pm | [M107] |
| C/AS1: Part 7: Open Fire Chimney [Para 7.5]: Does the chimney design demonstrate compliance with Para 7.5 of C1/AS1? THIS PROMPT LIST DOES NOT ADDRESS COMPLIANCE WITH NZBC B1 OR B2 - GO TO STABILITY - B1 - CHIMNEY AFTER COMPLETING QUESTIONS LISTED IN THIS PROMPT LIST. | | | | |
| **C/AS1: Part 7: Open Fire Chimney [Para 7.5] - Prompt List:** | **N/A** | **HTn** | **17/12/2021 04:07 pm** | [M107] This question does not apply to this application. |
| *1. Construction: Do chimney construction details comply with C/AS1 - Table 7.1 & Figure 7.1?* | | | | |


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|---|---|---|---|---|
| *2. Fire bricks: Are these correctly sized (i.e. not less than 50 mm thick)?* | | | | |
| *3. Fireplace Joints: Are these non-combustible and sealed against leaks?* | | | | |
| *4. Chimney brickwork: Is this correctly specified (i.e. min. 90mm thick single skin with 6.5mm grout)?* | | | | |
| *5. Expansion: Has a complying expansion gap been provided to chimneys containing flues?* | | | | |
| *6. Flue Size: Is the cross-sectional area of flues correct?* | | | | |
| *7. Flue linings: Are these correctly specified?* | | | | |
| *8. Chimney clearance: Is the clearance above roof correctly specified?* | | | | |
| *9. Number: Is a separate flue provided to each fireplace?* | | | | |
| *10. Flue joints: Are flue joints of non-combustible materials sealed against air leakage?* | | | | |
| *11. Hearth Construction: Is this correctly specified?* | | | | |
| *12. Clearance: Is clearance between chimneys, hearths and combustible materials correctly specified?* | | | | |
| *13. Ventilation: Is a min. of 50 mm ventilated space provided between the outer face of the chimney and any combustible material?* | | | | |
| *14. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 17/12/2021 04:07 pm | Not within scope of work - no open fire chimney |
| **C: Alt Sol / VM2** | | **AMn** | **11/02/2022 12:46 pm** | Code Clause Disabled: [M107] Not applicable for this project. |
| **New C/AS2** | | **AMn** | **11/02/2022 12:46 pm** | Code Clause Disabled: [M107] Not applicable for this project. |
| **D: ACCESS** | | | | |
| **D1: Access Routes** | | | | |
| D1: Access Routes - Residential: Does the proposal comply with Functional Requirements D1.2.1 & D1.2.2? ( i.e. the buildings have reasonable and adequate access to enable safe and easy access by people; and where loading or parking is provided, these spaces permit safe and easy unloading and movement of vehicles and avoid conflict between vehicles and pedestrians?) Please check limit on applications (LoA) for each question. Add inspections and inspections questions as required. LoA - Requirement D1.2.1 shall not apply to Ancillary buildings or Outbuildings . | | | | |
| **D1: Access Routes - Residential - Prompt List:** | | **HTn** | **06/01/2022 09:12 am** | |
| *D1 - Residential:1. D1.3.1: Does the proposal demonstrate that access routes will enable people to: (a) Safely and easily approach the main entrance of buildings from the apron or construction edge of a building,(b) Enter buildings, (c) Move into spaces within buildings by such means as corridors, doors, stairs, ramps and lifts,(d) Manoeuvre and park cars, (e) Manoeuvre and park delivery vehicles required to use the loading space?* | Y | HTn | 06/01/2022 09:12 am | [M107] |
| *2. D1.3.3: Does the proposal demonstrate that access routes: (a) Have adequate activity space,(b) Are free from dangerous obstructions and from any projections likely to cause an obstruction, (c) Have a safe cross fall, and safe slope in the direction of travel, (d) Have adequate slip-resistant walking surfaces under all conditions of normal use, (e) Include stairs to allow access to upper floors irrespective of whether an escalator or lift has been provided, (f) Have stair treads, and ladder treads or rungs which: (i) provide adequate footing, and (ii) have uniform rise within each flight and for consecutive flights, (g) Have stair treads with a leading edge that can be easily seen, (h) Have stair treads which prevent children from falling through or becoming held fast between treads, where open risers are used, (i) Have smooth, reachable, and graspable handrails to provide support and to assist with movement along a stair or ladder, LoA - Clause (i) does not apply to isolated steps. (j) Have handrails of adequate strength and rigidity as required by Clause B1 "Structure", (k) Have landings of appropriate dimensions and at appropriate intervals along a stair or ramp to prevent undue fatigue, (l) Have landings of appropriate dimensions where a door opens from or onto a stair, ramp or ladder so that the door does not create a hazard, and (m) Have any automatically controlled doors constructed to avoid the risk of people becoming caught or being struck by moving parts?* | Y | HTn | 06/01/2022 09:12 am | [M107] |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *3. D1.3.5: Does the proposal demonstrate vehicle spaces and circulation routes will have: (a) Dimensions appropriate to the intended use, (b) Appropriate cross-fall, and slope in the direction of travel, (c) Adequate queuing and circulation space, and, (d) Adequate sight distances?* | | HTn | 06/01/2022 09:12 am | [M107] |
| *4. Miscellaneous:* | | HTn | 06/01/2022 09:12 am | [M107] |
| **D1: Access Routes - Residential - Prompt List:** | | **HTn** | **11/01/2022 01:30 pm** | |
| *D1 - Residential:1. D1.3.1: Does the proposal demonstrate that access routes will enable people to: (a) Safely and easily approach the main entrance of buildings from the apron or construction edge of a building,(b) Enter buildings, (c) Move into spaces within buildings by such means as corridors, doors, stairs, ramps and lifts,(d) Manoeuvre and park cars, (e) Manoeuvre and park delivery vehicles required to use the loading space?* | Y | HTn | 11/01/2022 01:30 pm | [M107] |
| *2. D1.3.3: Does the proposal demonstrate that access routes: (a) Have adequate activity space,(b) Are free from dangerous obstructions and from any projections likely to cause an obstruction, (c) Have a safe cross fall, and safe slope in the direction of travel, (d) Have adequate slip-resistant walking surfaces under all conditions of normal use, (e) Include stairs to allow access to upper floors irrespective of whether an escalator or lift has been provided, (f) Have stair treads, and ladder treads or rungs which: (i) provide adequate footing, and (ii) have uniform rise within each flight and for consecutive flights, (g) Have stair treads with a leading edge that can be easily seen, (h) Have stair treads which prevent children from falling through or becoming held fast between treads, where open risers are used, (i) Have smooth, reachable, and graspable handrails to provide support and to assist with movement along a stair or ladder, LoA - Clause (i) does not apply to isolated steps. (j) Have handrails of adequate strength and rigidity as required by Clause B1 "Structure", (k) Have landings of appropriate dimensions and at appropriate intervals along a stair or ramp to prevent undue fatigue, (l) Have landings of appropriate dimensions where a door opens from or onto a stair, ramp or ladder so that the door does not create a hazard, and (m) Have any automatically controlled doors constructed to avoid the risk of people becoming caught or being struck by moving parts?* | Y | HTn | 11/01/2022 01:30 pm | [M107] |
| *3. D1.3.5: Does the proposal demonstrate vehicle spaces and circulation routes will have: (a) Dimensions appropriate to the intended use, (b) Appropriate cross-fall, and slope in the direction of travel, (c) Adequate queuing and circulation space, and, (d) Adequate sight distances?* | | HTn | 11/01/2022 01:30 pm | [M107] |
| *4. Miscellaneous:* | | HTn | 11/01/2022 01:30 pm | [M107] |
| **D1: Access Routes - Residential - Prompt List:** | **Y** | **HTn** | **23/02/2022 02:44 pm** | |
| *D1 - Residential:1. D1.3.1: Does the proposal demonstrate that access routes will enable people to: (a) Safely and easily approach the main entrance of buildings from the apron or construction edge of a building,(b) Enter buildings, (c) Move into spaces within buildings by such means as corridors, doors, stairs, ramps and lifts,(d) Manoeuvre and park cars, (e) Manoeuvre and park delivery vehicles required to use the loading space?* | Y | HTn | 23/02/2022 02:44 pm | The proposal demonstrates compliance with D1.3.1 provisions (a - e). Checked site plan and drainage plan and cross section A12 :<br>(a) approach to main entrance from boundary/construction edge driveway and path to front door as per D/As1 table 2 slip resistant surface and falls to sumps and front step achievable for A.1.2.0.2 use<br>(b) Front step height achievable and access route width, no obstructions as per D1/AS1 figure 4 and 2.2.1 width with no obstructions on first floor landing depicted 1.0m clear width shown.<br>(c) checked floor plan and no obstructions in corridors and stairs and width as per as per D1/AS1 table 6 and landing provided as per 4.3,<br>c) graspable handrails 900 mm from nosing complies with D/AS1 6.0.6<br>no lifts, no balconies within design |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *2. D1.3.3: Does the proposal demonstrate that access routes: (a) Have adequate activity space,(b) Are free from dangerous obstructions and from any projections likely to cause an obstruction, (c) Have a safe cross fall, and safe slope in the direction of travel, (d) Have adequate slip-resistant walking surfaces under all conditions of normal use, (e) Include stairs to allow access to upper floors irrespective of whether an escalator or lift has been provided, (f) Have stair treads, and ladder treads or rungs which: (i) provide adequate footing, and (ii) have uniform rise within each flight and for consecutive flights, (g) Have stair treads with a leading edge that can be easily seen, (h) Have stair treads which prevent children from falling through or becoming held fast between treads, where open risers are used, (i) Have smooth, reachable, and graspable handrails to provide support and to assist with movement along a stair or ladder, LoA - Clause (i) does not apply to isolated steps. (j) Have handrails of adequate strength and rigidity as required by Clause B1 "Structure", (k) Have landings of appropriate dimensions and at appropriate intervals along a stair or ramp to prevent undue fatigue, (l) Have landings of appropriate dimensions where a door opens from or onto a stair, ramp or ladder so that the door does not create a hazard, and (m) Have any automatically controlled doors constructed to avoid the risk of people becoming caught or being struck by moving parts?* | Y | HTn | 23/02/2022 02:44 pm | The proposal demonstrates compliance with D1.3.3 provisions (a - m).-<br>Site plan shows driveway from construction edge to garage and front door, concrete driveway with falls to sumps.<br>- Internal stairs notes below and above, complies with D1/AS1 figure 12 and handrail as per 6.0.6, 900mm above nosing<br>- Space in driveway for 2 cars and 2 car garage dimensions. No obstructions at construction edge for viewing footpath or oncoming vehicles as per section 10 AS1 (GIS and asbuilts referred to )<br>- stars as per private secondary stair D1/AS1 table 6 with closed risers and walls either side - no balustrade within design |
| *3. D1.3.5: Does the proposal demonstrate vehicle spaces and circulation routes will have: (a) Dimensions appropriate to the intended use, (b) Appropriate cross-fall, and slope in the direction of travel, (c) Adequate queuing and circulation space, and, (d) Adequate sight distances?* | Y | HTn | 23/02/2022 02:44 pm | The proposal demonstrates compliance with D1.3.5 provisions (a - d).<br>The proposal demonstrates compliance with these provisions - driveway measurements provided on the site plan and suitable for 2 cars, driveway shown from construction edge to garage entrance with cross falls and slope in the direction of travel. |
| *4. Miscellaneous:* | N/A | HTn | 23/02/2022 02:44 pm | There are no miscellaneous matters that require consideration. |
| D1: Access Routes - Commercial: Does the proposal comply with Functional Requirements D1.2.1 & D1.2.2? ( i.e. the buildings will have reasonable and adequate access to enable safe and easy access by people; and where loading or parking is provided, these spaces permit safe and easy unloading and movement of vehicles and avoid conflict between vehicles and pedestrians?) Please check limit on applications (LoA) for each question. Add inspections and inspections questions as required. | | | | |
| **D1: Access Routes - Commercial - Prompt List:** | **N/A** | **HTn** | **06/01/2022 09:13 am** | [M107] This question does not apply to this application. |
| *D1 - Commercial:1. D1.3.1: Does the proposal demonstrate that access routes enable people to: (a) Safely and easily approach the main entrance of buildings from the apron or construction edge of a building,(b) Enter buildings, (c) Move into spaces within buildings by such means as corridors, doors, stairs, ramps and lifts, (d) Manoeuvre and park cars, (e) Manoeuvre and park delivery vehicles required to use the loading space?* | | | | |
| *2. D1.3.2: Does the proposal demonstrate that at least one access route has features to enable people with disabilities to: (a) Approach the buildings from the street boundary or, where required to be provided, the building car park, (b) Have access to the internal space served by the principal access, (c) Have access to and within those spaces where they may be expected to work or visit, or which contain facilities for personal hygiene as required by Clause G1 "Personal Hygiene?" LoA - Does not apply to Housing, Outbuildings, Back Country Huts, Ancillary Buildings and Industrial buildings where no more than 10 people are employed.* | | | | |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *3. D1.3.3: Does the proposal demonstrate that access routes: (a) Have adequate activity space,(b) Are free from dangerous obstructions and from any projections likely to cause an obstruction, (c) Have a safe cross fall, and safe slope in the direction of travel, (d) Have adequate slip-resistant walking surfaces under all conditions of normal use, (e) Include stairs to allow access to upper floors irrespective of whether and escalator or lift has been provided, (f) Have stair treads, and ladder treads or rungs which: (i) provide adequate footing, and (ii) have uniform rise within each flight and for consecutive flights, (g) Have stair treads with a leading edge that can be easily seen, (h) Have stair treads which prevent children from falling through or becoming held fast between treads, where open risers are used, LoA - Clause (h) does not apply to Outbuildings, Ancillary Buildings and Industrial buildings.(i) Do not contain isolated steps, LoA - Clause (i) does not apply to Detached Dwellings or within House-hold units of Multi-unit Dwellings, or Outbuildings or Outbuildings or Ancillary buildings.(j) Have smooth, reachable, and graspable handrails to provide support and to assist with movement along a stair or ladder,LoA - Clause (j) does not apply to isolated steps.(k) Have handrails of adequate strength and rigidity as required by Clause B1 "Structure," (l) Have landings of appropriate dimensions and at appropriate intervals along a stair or ramp to prevent undue fatigue, (m) Have landings of appropriate dimensions where a door opens from or onto a stair, ramp or ladder so that the door does not create a hazard, and (n) Have any automatically controlled doors constructed to avoid the risk of people becoming caught or being struck by moving parts?* | | | | |
| *4. D1.3.4: Does the proposal demonstrate that the accessible route: (a) Is easy to find, as required by Clause F8 "Signs", (b) Has adequate activity space to enable a person in a wheelchair to negotiate the route while permitting an ambulant person to pass,(c) Includes a lift complying with Clause D2 "Mechanical Installations for Access" to upper floors where: (i) buildings are four or more storeys high, (ii) buildings are three storeys high and have a total design occupancy of 50 or more persons on the two upper floors, (iii) buildings are two storeys high and have a total design occupancy of 40 or more persons on the upper floor, or, (iv) an upper floor, irrespective of design occupancy, is to be used for the purposes of public reception areas of banks, central, regional and local government offices and facilities, hospitals, medical and dental surgeries, and medical, paramedical and primary health care centers, (d) Contains no thresholds or up stands forming a barrier to an unaided wheelchair user, (e) Has means to prevent the wheel of a wheelchair dropping over the side of the accessible route, (f) Has doors and related hardware which are easily used, (g) Does not include spiral stairs, or stairs having open risers, (h) Has stair treads with leading edge which is rounded, (i) Has handrails on both sides of the accessible route when the slope of the route exceeds 1 in 20. The handrails shall be continuous along both sides of the stair, ramp and landing except where the handrail is interrupted by a doorway?* | | | | |
| *5. D1.3.5: Does the proposal demonstrate vehicle spaces and circulation routes will have: (a) Dimensions appropriate to the intended use, (b) Appropriate cross-fall, and slope in the direction of travel, (c) Adequate queuing and circulation space, and, (d) Adequate sight distances?* | | | | |
| *6. D1.3.6: Does the proposal demonstrate vehicle spaces for use by people with disabilities, in addition to the requirements of Clause D1.3.5: (a) Are provided in sufficient numbers, (b) Are located to avoid conflict between vehicles and people using or moving to and from the space and, (c) Are easy to find as required by Clause F8 "Signs"?* | | | | |
| *7. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 06/01/2022 09:13 am | residential dwelling A2.0.2 use |
| **D2: Mech Installations for Access** | | AMn | 11/02/2022 12:46 pm | Code Clause Disabled: [M107] Not applicable for this project. |
| **E: MOISTURE** | | | | |
| **E1: Surface Water** | | | | |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| E1: Surface Water: Does the proposal comply with Functional Requirement E1.2 and demonstrate that buildings and site work will be constructed in a way that protects people and other property from the adverse effects of surface water? Review inspections and add / delete / modify inspection questions as required. | | | | |
| **E1: Surface Water - Prompt List:** | | **HTn** | **06/01/2022 09:49 am** | |
| *E1 - Surface Water:1. E1.3.1: Does the proposal confirm that surface water, resulting from an event having a 10% probability of occurring annually and which is collected or concentrated by buildings or sitework, will be disposed of in a way that avoids the likelihood of damage or nuisance to other property?* | Y | HTn | 06/01/2022 09:49 am | [M107] |
| *2. E1.3.2: Does the proposal confirm that surface water, resulting from an event having a 2% probability of occurring annually, will not enter buildings? LoA - only applies to Housing, Communal Residential and Communal Non-Residential buildings.* | Y | HTn | 06/01/2022 09:49 am | [M107] |
| *3. E1.3.3: Does the proposal confirm that drainage systems for the disposal of surface water will be constructed to: (a) Convey surface water to an appropriate outfall using gravity flow where possible, (b) Avoid the likelihood of blockages, (c) Avoid the likelihood of leakage, penetration by roots, or the entry of ground water where pipes or lined channels are used, (d) Provide reasonable access for maintenance and clearing blockages, (e) Avoid the likelihood of damage to any outfall, in a manner acceptable to the network utility operator, and(f) Avoid the likelihood of damage from superimposed loads or normal ground movements?* | Y | HTn | 06/01/2022 09:49 am | [M107] |
| *4. Miscellaneous:* | | HTn | 06/01/2022 09:49 am | [M107] |
| **E1: Surface Water - Prompt List:** | | **HTn** | **10/01/2022 07:41 am** | |
| *E1 - Surface Water:1. E1.3.1: Does the proposal confirm that surface water, resulting from an event having a 10% probability of occurring annually and which is collected or concentrated by buildings or sitework, will be disposed of in a way that avoids the likelihood of damage or nuisance to other property?* | Y | HTn | 10/01/2022 07:41 am | [M107] |
| *2. E1.3.2: Does the proposal confirm that surface water, resulting from an event having a 2% probability of occurring annually, will not enter buildings? LoA - only applies to Housing, Communal Residential and Communal Non-Residential buildings.* | Y | HTn | 10/01/2022 07:41 am | [M107] |
| *3. E1.3.3: Does the proposal confirm that drainage systems for the disposal of surface water will be constructed to: (a) Convey surface water to an appropriate outfall using gravity flow where possible, (b) Avoid the likelihood of blockages, (c) Avoid the likelihood of leakage, penetration by roots, or the entry of ground water where pipes or lined channels are used, (d) Provide reasonable access for maintenance and clearing blockages, (e) Avoid the likelihood of damage to any outfall, in a manner acceptable to the network utility operator, and(f) Avoid the likelihood of damage from superimposed loads or normal ground movements?* | Y | HTn | 10/01/2022 07:41 am | [M107] |
| *4. Miscellaneous:* | | HTn | 10/01/2022 07:41 am | [M107] |
| **E1: Surface Water - Prompt List:** | **Y** | **HTn** | **23/02/2022 02:44 pm** | |
| *E1 - Surface Water:1. E1.3.1: Does the proposal confirm that surface water, resulting from an event having a 10% probability of occurring annually and which is collected or concentrated by buildings or sitework, will be disposed of in a way that avoids the likelihood of damage or nuisance to other property?* | Y | HTn | 23/02/2022 02:44 pm | Compliance with E1.3.1 is demonstrated. 10% rainfall intensity applied as per E1/AS1 amendment 11, Appendix A 77mm/hr for Nelson. Stormwater connection available to town services, via stormwater drain connecting to lateral shown in the street. Roof surface water is proposed to be collected via 5 x80mm downpipes to lower level to 2xDP upper level, downpipe calculation provided on drainage plan and roof plan sheet A08 . roof pitch mixed 35 degrees , 14 degrees and 7.14 degrees each roof area calculated and for 35 degrees no greater than 70m2 per DP. and for less than 25 degrees no greater than 85m2 for each DP capacity. I am satisfied that compliance of e1/AS1 table 5 has been achieved.<br>1x sump to patio area, type 1 sump as per E1/AS1 3.2.2 and 3.6.2 calculation patio area 15.6m2 correct for type 1 sump and complies with fig 3 |


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| *2. E1.3.2: Does the proposal confirm that surface water, resulting from an event having a 2% probability of occurring annually, will not enter buildings? LoA - only applies to Housing, Communal Residential and Communal Non-Residential buildings.* | Y | HTn | 23/02/2022 02:44 pm | Compliance with E1.3.2 is demonstrated. Kahikatea way multiproof therefore have checked the crown of road for each site from asbuilts stage 6 and 7 and GIS system and the slab height and it is fair and reasonable that from stormwater manhole lid levels that FFL depicted on A11-14 can achieve the min 225mm above ground level and any hardstand or handfill will be contoured falling away from building. for Lots 363-367 FFL is more than 150mm above crown of road, as per E1/AS1 fig 1. and section 2.0.1(a) SORGed compliance of E1/AS1 section 1 and 2 has been achieved within the design.<br>Compliance with E1.3.2 is demonstrated. No overland flow paths identified on GIS or geotechnical report SD sheet 50-706 for stages 6 and 7 of the meadows subdivision |
| *3. E1.3.3: Does the proposal confirm that drainage systems for the disposal of surface water will be constructed to: (a) Convey surface water to an appropriate outfall using gravity flow where possible, (b) Avoid the likelihood of blockages, (c) Avoid the likelihood of leakage, penetration by roots, or the entry of ground water where pipes or lined channels are used, (d) Provide reasonable access for maintenance and clearing blockages, (e) Avoid the likelihood of damage to any outfall, in a manner acceptable to the network utility operator, and(f) Avoid the likelihood of damage from superimposed loads or normal ground movements?* | Y | HTn | 23/02/2022 02:44 pm | Compliance with E1.3.3 (a - f) is demonstrated. Checked drainage plan A01 and roof plan A08 and asbuilts for kahikatea way GT's provided and length of pipe depicted to establish correct gradients will be achieved onsite. Downpipes discharging to 100mm stormwater drain before connecting to council stormwater drain within street. Stormwater drains indicated as 100mm drain pipe at 1:100 gradient - complies with E1/AS1 table 2. refer to Miscellaneous for sump for onsite construction. Stormwater drain also indicates IP points at changes in direction greater than 45 degrees and junctions with other drains as per E1/AS1 section 3.7.3 Proximity of trench to building to comply in general with Fig 14 and section 3.9.7 of E1/AS1 and SED foundation design.<br>- 1x sump to patio area, type 1 sump as per E1/AS1 3.2.2 and 3.6.2 calculation patio area 15.6m2 correct for type 1 sump and complies with fig 3<br>- see below for driveway sump to be arranged |
| *4. Miscellaneous:* | Y | HTn | 23/02/2022 02:44 pm | 1x type 1 sump has been identified within the driveway, driveway area has been checked and is 39.02m2 (1xtype 1 sump suitable for area) as per paragraph E1/AS1 3.2.2 (10% annual prob ref Appendix A) and 3.6.2 calculation (0.01xAx1=XX, and 4500/l 58m2 catchment areas from E1/AS1 fig 3) |
| E1/VM 1: Drainage: Does the proposal demonstrate compliance with Verification Method E1/VM 1? | | | | |
| **E1/VM 1: Drainage - Prompt List:** | **N/A** | **HTn** | **06/01/2022 09:49 am** | [M107] This question does not apply to this application. |
| *E1 - VM1:1. Run-off: Has the estimation of surface water run-off been correctly calculated?* | | | | |
| *2. Sizing: Is the sizing of the surface water system in accordance with E1/VM1?* | | | | |
| *3. Secondary Flow Paths: Does the design demonstrate that the effects of secondary flow paths have been correctly considered?* | | | | |
| *4. Energy Loss: Does the design provide for energy loss through the drain structure?* | | | | |
| *5. Flow Velocity: Does the design demonstrate that the drain shall satisfy minimum flow velocity as required by E1/VM1?* | | | | |
| *6. Outflow Protection: Is compliance with outflow protection satisfied as required by E1/VM1?* | | | | |
| *7. Drain Leak Test: Does the design identify the need for a drain leak test to occur?* | | | | |
| *8. Soak Pit: Is evidence provided to demonstrate that the design for disposal to a soak pit satisfies the requirements of E1/VM1 Para 9.0?* | | | | |
| *9. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 06/01/2022 09:49 am | NUO at boundary no soakpit within scope |
| **E2: External Moisture** | | | | |
| **E2: Roof Cladding** | | | | |


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|---|---|---|---|---|
| E2: Roof Cladding - General: Is compliance with the following confirmed: [Please use the E2 - Alternative Solution Checklist for alternative solution cladding systems]. | | | | |
| **E2: Roof Cladding - General - Prompt List:** | **N** | **HTn** | **06/01/2022 10:08 am** | |
| *E2 - Roof Cladding General:1. Scope: Is the proposed roof cladding system within the scope and limitations of the nominated compliance path(s)? [Please identify the roof cladding system and nominate the compliance path - i.e. VM / AS / SED].* | Y | HTn | 06/01/2022 10:08 am | [M107] |
| *2. Imposed Loads: Do design documents demonstrate that the roof cladding system will support the imposed loads that the building will be subject to during construction and for the life of the building? [Loads include wind, snow, earthquake, plant].* | Y | HTn | 06/01/2022 10:08 am | [M107] |
| *3. Durability: Will the proposed cladding system materials satisfy the durability requirements of NZBC B2, be suitable for their end use, location and for the as-built environment; and will they be compatible with adjoining materials? [Ensure that effects of run-off have been evaluated].* | Y | HTn | 06/01/2022 10:08 am | [M107] |
| *4. Specification: Are complying specifications provided that identify the proposed roofing system materials? [Consider profile, thickness, grade, treatment, colour, installation and fixing details].* | Y | HTn | 06/01/2022 10:08 am | [M107] |
| *5. Underlay: Are the underlay system details compliant? [Consider suitability and compatibility, manufacturer requirements, support, lap, provision for anti-ponding boards (where applicable)].* | N | HTn | 06/01/2022 10:08 am | [M107] |
| *6. Miscellaneous:* | | HTn | 06/01/2022 10:08 am | [M107] |
| **E2: Roof Cladding - General - Prompt List:** | **Y** | **HTn** | **10/01/2022 12:53 pm** | |
| *E2 - Roof Cladding General:1. Scope: Is the proposed roof cladding system within the scope and limitations of the nominated compliance path(s)? [Please identify the roof cladding system and nominate the compliance path - i.e. VM / AS / SED].* | Y | HTn | 10/01/2022 12:53 pm | [M107] |
| *2. Imposed Loads: Do design documents demonstrate that the roof cladding system will support the imposed loads that the building will be subject to during construction and for the life of the building? [Loads include wind, snow, earthquake, plant].* | Y | HTn | 10/01/2022 12:53 pm | [M107] |
| *3. Durability: Will the proposed cladding system materials satisfy the durability requirements of NZBC B2, be suitable for their end use, location and for the as-built environment; and will they be compatible with adjoining materials? [Ensure that effects of run-off have been evaluated].* | Y | HTn | 10/01/2022 12:53 pm | [M107] |
| *4. Specification: Are complying specifications provided that identify the proposed roofing system materials? [Consider profile, thickness, grade, treatment, colour, installation and fixing details].* | Y | HTn | 10/01/2022 12:53 pm | [M107] |
| *5. Underlay: Are the underlay system details compliant? [Consider suitability and compatibility, manufacturer requirements, support, lap, provision for anti-ponding boards (where applicable)].* | Y | HTn | 10/01/2022 12:53 pm | [M107] |
| *6. Miscellaneous:* | N/A | HTn | 10/01/2022 12:53 pm | [M107] |
| E2: Roof Cladding - Roof Water Management: Does the design solution for water catchment from each area of the roof cladding system and its disposal to approved outfalls demonstrate compliance with the nominated compliance path? | | | | |
| **E2: Roof Cladding - Roof Water Management - Prompt List:** | **Y** | **HTn** | **06/01/2022 10:36 am** | |
| *E2 - Roof Water Management:1. Catchment: Is sufficient capacity for roof water catchment provided for each area of the roof?* | Y | HTn | 06/01/2022 10:36 am | [M107] |
| *2. Gutters: Do the proposed details for gutter sizes, gradients and support comply?* | Y | HTn | 06/01/2022 10:36 am | [M107] |
| *3. Overflow: Do the provisions for thermal movement and overflow comply?* | Y | HTn | 06/01/2022 10:36 am | [M107] |
| *4. Outlets / Down pipes: Does the location, size and support of outlets and down pipes comply?* | Y | HTn | 06/01/2022 10:36 am | [M107] |
| *5. Outfalls: Does the proposal for the discharge of roof water to an approved outfall comply?* | Y | HTn | 06/01/2022 10:36 am | [M107] |
| *6. Miscellaneous:* | N/A | HTn | 06/01/2022 10:36 am | [M107] |
| E2: Roof Cladding: Will compliance be achieved if the roof cladding system is installed in accordance with the design documents? Note: As there is no specific method for verifying compliance of skillion roof systems so these systems will be either subject to specific design or should be assessed using the E2 Alternative Solution checklist. | | | | |
| **E2: Roof Cladding - Prompt List:** | **Y** | **HTn** | **06/01/2022 11:27 am** | |


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| *E2 - Roof Cladding:1. Pitch: Is the roof pitch suitable for the proposed roof cladding system(s)?* | Y | HTn | 06/01/2022 11:27 am | [M107] |
| *2. Substrate and substructure: Is the detail for the substrate and its support compliant? [Check grade, treatment and fixings satisfy manufacturer requirements and Code provisions and check compatibility of adhesives and any proposed membrane system].* | Y | HTn | 06/01/2022 11:27 am | [M107] |
| *3. Enclosed spaces: Is there adequate ventilation provided to the roof space to prevent the accumulation of moisture, and sufficient separation provided between the insulation and the underside of the roof cladding, substrate or underlay to prevent transfer of moisture?* | Y | HTn | 06/01/2022 11:27 am | [M107] |
| *4. Membrane system: Does documentation demonstrate compliance and have provision to prevent damage where the cladding membrane may be subject to foot traffic or wear? [Information should include product and installation details].* | N/A | HTn | 06/01/2022 11:27 am | [M107] |
| *5. Junctions, transitions: Are complying details provided showing how the junctions and transitions with the roof cladding system are to be constructed?* | Y | HTn | 06/01/2022 11:27 am | [M107] |
| *6. Flashing: Are complying details provided showing how penetrations are to be flashed and sealed? [Check - cover, provision for movement control, laps & seals at joins, capillary breaks, fixing, use of sealants, compatibility with surrounding materials, effects of snow melt, construction sequencing, and maintenance implications].* | Y | HTn | 06/01/2022 11:27 am | [M107] |
| *7. Specific design: Is reasoning for approving the specific design solution for the roof cladding clearly articulated and does the documentation demonstrate compliance with NZBC E2?* | N/A | HTn | 06/01/2022 11:27 am | [M107] |
| *8. Miscellaneous:* | N/A | HTn | 06/01/2022 11:27 am | [M107] |
| **E2: Roof Cladding - Prompt List:** | **Y** | **HTn** | **11/01/2022 01:45 pm** | |
| *E2 - Roof Cladding:1. Pitch: Is the roof pitch suitable for the proposed roof cladding system(s)?* | Y | HTn | 11/01/2022 01:45 pm | [M107] |
| *2. Substrate and substructure: Is the detail for the substrate and its support compliant? [Check grade, treatment and fixings satisfy manufacturer requirements and Code provisions and check compatibility of adhesives and any proposed membrane system].* | Y | HTn | 11/01/2022 01:45 pm | [M107] |
| *3. Enclosed spaces: Is there adequate ventilation provided to the roof space to prevent the accumulation of moisture, and sufficient separation provided between the insulation and the underside of the roof cladding, substrate or underlay to prevent transfer of moisture?* | Y | HTn | 11/01/2022 01:45 pm | [M107] |
| *4. Membrane system: Does documentation demonstrate compliance and have provision to prevent damage where the cladding membrane may be subject to foot traffic or wear? [Information should include product and installation details].* | N/A | HTn | 11/01/2022 01:45 pm | [M107] |
| *5. Junctions, transitions: Are complying details provided showing how the junctions and transitions with the roof cladding system are to be constructed?* | Y | HTn | 11/01/2022 01:45 pm | [M107] |
| *6. Flashing: Are complying details provided showing how penetrations are to be flashed and sealed? [Check - cover, provision for movement control, laps & seals at joins, capillary breaks, fixing, use of sealants, compatibility with surrounding materials, effects of snow melt, construction sequencing, and maintenance implications].* | Y | HTn | 11/01/2022 01:45 pm | [M107] |
| *7. Specific design: Is reasoning for approving the specific design solution for the roof cladding clearly articulated and does the documentation demonstrate compliance with NZBC E2?* | N/A | HTn | 11/01/2022 01:45 pm | [M107] |
| *8. Miscellaneous:* | N/A | HTn | 11/01/2022 01:45 pm | [M107] |
| **E2: Wall Cladding** | | | | |
| E2: Wall Cladding - General: Does the wall cladding comply with the following: [Please use the E2 - Alternative Solution Checklist for alternative solution cladding systems]. | | | | |
| **E2: Wall Cladding - General - Prompt List:** | **Y** | **HTn** | **06/01/2022 11:47 am** | |
| *1. Scope: Is the proposed wall cladding system within the scope and limitations of the nominated compliance path(s)? [Please identify the wall cladding system and nominate the compliance path - i.e. VM / AS / SED].* | Y | HTn | 06/01/2022 11:47 am | [M107] |
| *2. Risk Score: Has the weathertight risk score been correctly assessed and is the cladding system suitable for this site?* | Y | HTn | 06/01/2022 11:47 am | [M107] |


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| *3. Imposed Loads: Do design documents demonstrate that the wall cladding system will support the imposed loads that the building will be subject to during construction and for the life of the building? [loads include wind, snow, earthquake, plant].* | Y | HTn | 06/01/2022 11:47 am | [M107] |
| *4. Specification: Are complying specifications provided that identify the proposed wall cladding system materials? [consider profile, thickness, grade, treatment, colour, installation and fixing details].* | Y | HTn | 06/01/2022 11:47 am | [M107] |
| *5. Durability: Will the proposed cladding system materials satisfy the durability requirements of NZBC B2, be suitable for their end use, location and for the as-built environment; and will they be compatible with adjoining materials?* | Y | HTn | 06/01/2022 11:47 am | [M107] |
| *6. Air Barrier: Is a complying wall wrap / air barrier (flexible / rigid) system detailing provided?* | Y | HTn | 06/01/2022 11:47 am | [M107] |
| *7. Miscellaneous:* | N/A | HTn | 06/01/2022 11:47 am | [M107] |
| E2: Wall Cladding Systems: Do design documents demonstrate that the wall cladding system will satisfy the provisions of the building code if it is constructed in accordance with the design documents? [Please review inspections and turn off any that do not apply]. | | | | |
| **E2: Wall Cladding Systems - Prompt List:** | **Y** | **HTn** | **06/01/2022 02:07 pm** | |
| *1. Direct fix system: Are details for the construction, installation and finish of the direct fix system complying?* | N/A | HTn | 06/01/2022 02:07 pm | [M107] |
| *2. Cavity system: Is the proposed cavity system detailing compliant and have sufficient provision for drainage and drying to prevent accumulation and transfer of moisture?* | Y | HTn | 06/01/2022 02:07 pm | [M107] |
| *3. Mass concrete, tilt panel systems: Does the design demonstrate that the system will: a) have sufficient capacity to absorb all rainwater that is not drained from its surface and is able to hold that water until it eventually evaporates OR b) have adequate weather seal or coating to prevent moisture penetrating the interior of the structure?* | N/A | HTn | 06/01/2022 02:07 pm | [M107] |
| *4. Ground clearance: Is adequate separation provided between the base of the cladding systems and finished ground?* | Y | HTn | 06/01/2022 02:07 pm | [M107] |
| *5. Movement control: Is a complying solution provided for management of movement control?* | Y | HTn | 06/01/2022 02:07 pm | [M107] |
| *6. Junctions, transitions: Are complying details provided for all cladding junctions and transitions?* | Y | HTn | 06/01/2022 02:07 pm | [M107] |
| *7. Flashing: Are complying details provided showing how penetrations are to be flashed and sealed? [Considerations include flashing cover, laps, joins, capillary breaks, fixing, use of sealants, compatibility with surrounding materials, construction sequencing, and maintenance implications].* | Y | HTn | 06/01/2022 02:07 pm | [M107] |
| *8. Coating systems, finishes: Are complying details provided for the finishes to the wall cladding system(s)?* | Y | HTn | 06/01/2022 02:07 pm | [M107] |
| *9. SED and construction monitoring: Does the specific design detailing demonstrate compliance and have construction monitoring requirements been entered into the system?* | N/A | HTn | 06/01/2022 02:07 pm | [M107] |
| *10. Miscellaneous:* | N/A | HTn | 06/01/2022 02:07 pm | [M107] |
| E2: Veneer Wall Cladding (Masonry, Brick): Do the design documents demonstrate that the masonry veneer wall cladding system complies with the nominated compliance path and that it will satisfy the provisions of the building code if constructed accordingly? | | | | |
| **E2: Veneer Wall Cladding (Masonry, Brick) - Prompt List:** | **N/A** | **HTn** | **06/01/2022 11:28 am** | [M107] This question does not apply to this application. |
| *1. Design: Is the scope of the masonry veneer construction and height and size of panels complying?* | | | | |
| *2. Flashing: Is flashing detailing compliant? [Refer E2/AS1 Para 9.2.4].* | | | | |
| *3. Foundation support and damp proofing: Is complying construction detailing provided for the foundation, rebate and damp proofing? [Check - size, ground and floor level clearances, and method of sealing the rebate].* | | | | |
| *4. Cavity: Is the cavity detailing compliant? [Check - cavity size (40 - 70 mm), cavity is clear of services, drainage and venting].* | | | | |
| *5. Wall ties: Is proposed wall tie length, spacing and treatment specified and compliant? [Refer E2/AS1 Para 9.2.7 and Table 18A and 18 C].* | | | | |
| *6. Control joints: Is the proposed location and placement of control joints compliant?* | | | | |


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| *7. Lintel bars: Is the detailing for lintel bars and steel angle support over openings complying?* | | | | |
| *8. Openings: Is the head, sill, jamb flashing and air seal detailing for windows, doors and openings compliant?* | | | | |
| *9. Surface coating: Are surface coatings correctly specified?* | | | | |
| *10. SED & construction monitoring: Does the specific design detail demonstrate compliance and have construction monitoring requirements been entered into the system?* | | | | |
| *11. Miscellaneous:* | | | | |
| E2: Parapets: Do the design documents demonstrate that the parapet construction and cladding system complies with the nominated compliance path and that it will satisfy the provisions of the building code if constructed accordingly? | | | | |
| **E2: Parapets - Prompt List:** | **N/A** | **HTn** | **06/01/2022 11:28 am** | [M107] This question does not apply to this application. |
| *1. Durability: Does the treatment of framing, battens, packers and fixings satisfy provisions of B2?* | | | | |
| *2. Underlay: Is framing enclosed with a complying underlay system?* | | | | |
| *3. Cavity: Is the cladding installed over a complying cavity?* | | | | |
| *4. Flashing and Capping: Are flashing and capping details complying?* | | | | |
| *5. Junctions: Is parapet to roof / wall junction detailing complying?* | | | | |
| *6. Drainage: Does the design provide complying details for managing overflow and discharge of external moisture from enclosed spaces to approved outfalls? [Check falls, construction and flashing of junctions and penetrations, construction sequencing, finishes].* | | | | |
| *7. SED & construction monitoring: Does the specific design detail demonstrate compliance and have construction monitoring requirements been entered into the system?* | | | | |
| *8. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 06/01/2022 11:28 am | not within scope |
| E2: Decks, Pergolas and Enclosed Balustrades: Do the design documents demonstrate that deck / pergola / enclosed balustrade systems comply with the nominated compliance path and that they will satisfy the provisions of the building code if constructed accordingly? | | | | |
| **E2: Decks, Pergolas and Enclosed Balustrades - Prompt List:** | **N/A** | **HTn** | **06/01/2022 11:28 am** | [M107] This question does not apply to this application. |
| *1. Durability: Does the timber and fixings that is to be used to construct the deck/ enclosed balustrade/ pergola comply with B2? [Note: waterproof deck surfaces providing access to a building are required to meet D1/ AS1 slip resistance provisions]* | | | | |
| *2. Thresholds / Separation: Are deck / enclosed balustrade and threshold details complying?* | | | | |
| *3. Junctions: Is the junction detailing between deck / pergola / enclosed balustrade and wall cladding complying?* | | | | |
| *4. Drainage: Is the provision for managing drainage and overflow from the deck / enclosed balcony complying? [Check falls, flashing of junctions and penetrations, provision of outlets and overflow, construction sequencing, finishes].* | | | | |
| *5. Ventilation: Is the provision for ventilation to sub-floor and closed-in construction spaces under the deck / enclosed balcony membranes complying?* | | | | |
| *6. Penetrations: Is the detailing of penetrations and flashing of deck / enclosed balustrade complying?* | | | | |
| *7. Clearance: Is detailing of clearances between the base of cladding and deck complying?* | | | | |
| *8. Maintenance: Is there adequate separation between the wall cladding and adjacent elements to allow drainage and drying to occur and to enable maintenance (painting) of surfaces behind or below these elements?* | | | | |


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| *9. SED & construction monitoring: Does the specific design detail demonstrate compliance and have construction monitoring requirements been entered into the system? [Any fixing of posts into membrane clad decks, or any details that are at variance or that are not included in the acceptable solution require specific design].* | | | | |
| *10. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 06/01/2022 11:28 am | not within scope |
| E2: E2.3.4 - Drainage and Tanking: Are building elements that are susceptible to damage protected from the adverse effect of moisture entering the space below suspended floors? | | | | |
| **E2: E2.3.4 - Drainage and Tanking - Prompt List:** | **N/A** | **HTn** | **06/01/2022 11:29 am** | [M107] This question does not apply to this application. |
| *1. Tanking Installation: Does installation information confirm that the tanking system and substrate are compatible, that the tanking system will be protected to prevent damage or rupture during and after installation, that it will be well adhered to the substrate, that it will be watertight for its durable life, and it will be finished above ground level?* | | | | |
| *2. Ground levels and Drainage: Does information demonstrate that finished ground levels will fall away from the tanking system and that there is sufficient provision for drainage to an approved outfall?* | | | | |
| *3 Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 06/01/2022 11:29 am | not within scope |
| **E2: External Moisture re: Alt Solutions** | | | | |
| E2: External Moisture: Does the proposal comply with Functional Requirement E2.2 and demonstrate that buildings and sitework will be constructed to provide adequate resistance to penetration and accumulation of moisture from the outside? Review inspections and add / delete / modify inspection questions as required. | | | | |
| **E2: External Moisture - Prompt List:** | **N/A** | **HTn** | **06/01/2022 02:08 pm** | [M107] This question does not apply to this application. |
| *E2 - Roof and Wall Cladding Performance:1. E2.3.1: Does the proposal demonstrate that roofs will shed precipitated moisture? [In locations subject to snowfalls, roofs must also shed melted snow].* | | | | |
| *2. E2.3.2: Does the proposal demonstrate that roofs and exterior walls will prevent the penetration of water that could cause undue dampness, damage to building elements, or both?* | | | | |
| *3. E2.3.3: Does the proposal demonstrate that walls, floors, and structural elements in contact with, or in close proximity to, the ground will not absorb or transmit moisture in quantities that could cause undue dampness, damage to building elements, or both?* | | | | |
| *4. E2.3.4: Does the proposal demonstrate that building elements susceptible to damage will be protected from the adverse effects of moisture entering the space below suspended floors?* | | | | |
| *5. E2.3.5: Does the proposal demonstrate that concealed spaces and cavities in buildings will be constructed in a way that prevents external moisture being accumulated or transferred and causing condensation, fungal growth, or the degradation of building elements?* | | | | |
| *6. E2.3.6: Does the proposal demonstrate that excess moisture present at the completion of construction is capable of being dissipated without permanent damage to building elements?* | | | | |
| *7. E2.3.7: Does the proposal demonstrate that building elements will be constructed in a way that makes due allowance for the following: (a) The consequences of failure, (b) The effects of uncertainties resulting from construction or from the sequence in which different aspects of construction occur, (c) Variation in the properties of materials and in the characteristics of the site?* | | | | |
| *8. Construction monitoring: Have requirements been entered into the system?* | | | | |
| *9. Miscellaneous: Please select the cross if you wish to raise an RFI for an item that may not clearly fit into any other category.* | | | | |


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| *10. Alternative Solution: Please document your reasoning for determining that the alternative solution provided will satisfy the performance criteria of E2: External Moisture. [Please add or remove inspection questions as necessary].* | | | | |
| **Supplementary Processing Notes:** | | HTn | 06/01/2022 02:08 pm | AS1 checklists, no alternatives to AS1 manufacturer specs included |
| **E3: Internal Moisture** | | | | |
| E3: Internal Moisture: Does the proposal comply with Functional Requirement E3.2 and demonstrate that buildings are constructed to avoid the likelihood of (a) Fungal growth or accumulation of contaminants on linings and other building elements; and (b) Free water overflow penetrating to an adjoining house hold unit; and (c) Damage to building elements being caused by the presence of moisture?<br>Review inspections and add / delete / modify inspection questions as required. | | | | |
| **E3: Internal Moisture - Prompt List:** | **Y** | **HTn** | **06/01/2022 02:57 pm** | |
| *E3 - Internal Moisture:1. E3.3.1: Does the design demonstrate that an adequate combination of thermal resistance, ventilation and space temperature is provided to all habitable spaces, bathrooms, laundry and other spaces where moisture is generated or may accumulate? LoA - does not apply to Communal Non-residential, Commercial, Industrial, Outbuildings or Ancillary buildings.* | Y | HTn | 06/01/2022 02:57 pm | [M107] |
| *2. E3.3.2: Is freewater from accidental overflow from sanitary fixtures or sanitary appliances disposed of in a way that avoids loss of amenity or damage to household units or other property?* | Y | HTn | 06/01/2022 02:57 pm | [M107] |
| *3. E3.3.3: Are floor surfaces of spaces containing sanitary fixtures or sanitary appliances impervious and easily cleaned?* | Y | HTn | 06/01/2022 02:57 pm | [M107] |
| *4. E3.3.4: Are wall surfaces adjacent to sanitary fixtures or sanitary appliances impervious and easily cleaned?* | Y | HTn | 06/01/2022 02:57 pm | [M107] |
| *5. E3.3.5: Are surfaces of building elements that are likely to be splashed or become contaminated in the course of the intended use of the building, impervious and easily cleaned?* | Y | HTn | 06/01/2022 02:57 pm | [M107] |
| *6. E3.3.6: Are surfaces of building elements that are likely to be splashed constructed in a way that prevents water splash from penetrating behind linings or into concealed spaces? Please give careful consideration to tile showers and membrane systems.* | Y | HTn | 06/01/2022 02:57 pm | [M107] |
| *7. Miscellaneous:* | N/A | HTn | 06/01/2022 02:57 pm | [M107] |
| **F: SAFETY OF USERS** | | | | |
| **F1: Hazardous Agents on Site** | | | | |
| F1: Hazardous Agents On Site: Does the proposal comply with Functional Requirement F1.2 and demonstrate that the building is constructed to avoid likelihood of people within being adversely affected by hazardous agents or contaminants on the site? Review inspections and add / delete / modify inspection questions as required. | | | | |
| **F1: Hazardous Agents On Site - Prompt List:** | **N/A** | **HTn** | **06/01/2022 03:00 pm** | [M107] This question does not apply to this application. |
| *1. F1.3.1.: (Assessment) - Is evidence provided confirming that the site has been assessed to determine the presence & potential threat of any hazardous agents or contaminants? Form PLG1 completed?* | | | | |
| *2. F1.3.2.: If hazardous agents or contaminants are present on site; then has the likely effects of these on people been determined taking account of:a) the intended use of building?b) the nature, potency or toxicity of hazardous agents or contaminants,c) the protection afforded by the building envelope & building systems?* | | | | |
| *3. Remediation / Construction Monitoring: Have satisfactory remediation procedures and Construction Monitoring procedures been agreed and entered into the system?* | | | | |
| *4. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 06/01/2022 03:00 pm | Checked earthworks report sd sheet 51- and SD 412- and checked GIS syetm no hazardous agents encountrered and assessed at subdivision stage |
| **F2: Hazardous Building Materials** | | | | |


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| F2: Hazardous Building Materials: Does the proposal comply with F2.2 and demonstrate that building materials which are potentially hazardous will be used in ways that avoid undue risk to people? Review inspections and add / delete / modify inspection questions as required. | | | | |
| **F2: Hazardous Building Materials - Prompt List:** | **Y** | **HTn** | **06/01/2022 03:08 pm** | |
| *1. F2.3.1: (Harmful Concentrations) - Does the proposal confirm that the quantities of gas, liquid, radiation or solid particles emitted by materials used in the construction of buildings, will not give rise to harmful concentrations at the surface of the material where the material is exposed, or in the atmosphere of any space?* | N/A | HTn | 06/01/2022 03:08 pm | [M107] |
| *2. F2.3.2: (Manifestation) - Does the proposal verify that transparent panels capable of being mistaken for an unimpeded path of travel are marked to make them visible? LoA - This provision does not apply to Housing.* | N/A | HTn | 06/01/2022 03:08 pm | [M107] |
| *3. F2.3.3: (Impact) - Does the proposal confirm that glass or other brittle materials with which people are likely to come into contact will: (a) If broken on impact, break in a way that is unlikely to cause injury, or (b) Resist a reasonably foreseeable impact without breaking, or (c) Be protected from impact?* | Y | HTn | 06/01/2022 03:08 pm | [M107] |
| *4. Structural Glass Barriers: Do structural glass barriers satisfy provisions of NZBC Clause B1 7.0. See Reference Notes.* | N/A | HTn | 06/01/2022 03:08 pm | [M107] |
| *5. Asbestos: Is the presence and location of asbestos identified; and if so, are safety procedures for working with the product provided? If there is no asbestos hazard then please turn off the requirement for a pre-construction meeting inspection and the requirement for an Asbestos Assessment Report (under Required Documents).* | N/A | HTn | 06/01/2022 03:08 pm | [M107] |
| *6. Miscellaneous:* | N/A | HTn | 06/01/2022 03:08 pm | [M107] |
| **F3: Hazardous substances and processes** | | **HTn** | **11/02/2022 12:46 pm** | Code Clause Disabled: [M107] Not applicable for this project. |
| **F4: Safety from Falling** | | | | |
| F4: Safety from Falling: Does the proposal comply with Functional Requirement F4.2 and demonstrate that the building work will be constructed to reduce the likelihood of accidental fall? Review inspections and add / delete / modify inspection questions as required. | | | | |
| **F4: Safety from Falling - Prompt List:** | **Y** | **HTn** | **06/01/2022 03:33 pm** | |
| *1. F4.3.1: Does the proposal demonstrate that a barrier will be provided where: (a) People could fall 1 metre or more from an opening in the external envelope, or floor of a building, or (b) From a sudden change of level within or associated with a building? LoA - does not apply where the barrier is incompatible with intended use, or to temporary barriers on construction sites where the fall is less than 3 m, or to buildings providing pedestrian access in remote locations where the route served presents similar natural hazards.* | Y | HTn | 06/01/2022 03:33 pm | [M107] |
| *2. F4.3.2: Does the proposal demonstrate that roofs with permanent roof access will have barriers?* | N/A | HTn | 06/01/2022 03:33 pm | [M107] |
| *3. F4.3.4: Does the proposal demonstrate that barriers will: (a) Be continuous and extend for the full extent of the hazard, (b) Be of appropriate height, (c) Be constructed with adequate rigidity - (satisfies B1 & B2), (d) Be of adequate strength to withstand the foreseeable impact of people and, where appropriate, the static pressure of people pressing against them,(e) Be constructed to prevent people from falling through them - (ref. F4/AS1 1. 2), (g) Restrict the passage of children under 6 years of age when provided to guard a change of level in areas likely to be frequented by them, and (h) Be constructed so that they are not readily able to be used as seats?LoA - does not apply to housing.* | Y | HTn | 06/01/2022 03:33 pm | [M107] |
| *4. Miscellaneous:* | N/A | HTn | 06/01/2022 03:33 pm | [M107] |
| **F5: Construction and Demolition Hazards** | | | | |
| F5: Construction and Demolition Hazards: Does the proposal comply with Functional Requirement F5.2 and demonstrate that construction and demolition work on buildings will be performed in a manner that avoids the likelihood of objects falling on people or property on or off the site; Other hazards arising on the site affecting people off the site and other property; and unauthorised entry of children to hazards on the site. Selecting the Tick will apply Advice Note AN01 which advises the owner of their on-site obligations under F5. | | | | |


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| **F5: Construction and Demolition Hazards - Prompt List:** | **Y** | **HTn** | **06/01/2022 03:35 pm** | |
| *1. F5.3.1: (Construction Methods) - Does the proposal demonstrate that suitable construction methods will be used to avoid the likelihood of tools or materials falling onto places where people might be present?* | Y | HTn | 06/01/2022 03:35 pm | [M107] |
| *2. F5.3.2: (Barriers) - Does the proposal demonstrate that where construction or demolition work presents a hazard in places to which the public has access, barriers will be provided and: (a) Be of appropriate height and construction to prevent site hazards from harming traffic or passersby, (b) Be difficult to climb, (c) Have no openings other than those approved by the territorial authority for access and viewing, (d) Have no gates or doors which project beyond the site when opened, (e) Contain no projection that would be a hazard to traffic or people, and (f) Be clearly marked where the barrier itself may otherwise present a hazard to traffic or passersby?* | N/A | HTn | 06/01/2022 03:35 pm | [M107] |
| *3. F5.3.3: (Restrict Children) - Does the proposal demonstrate that where a construction or demolition site contains any hazard which might be expected to attract the unauthorised entry of children, the hazard shall be enclosed to restrict access by children?* | Y | HTn | 06/01/2022 03:35 pm | [M107] |
| *4. F5.3.4: (Falling Hazards) - Does the proposal demonstrate that suitable barriers will be constructed to provide a safe route for people where lifting equipment creates a risk of accident from objects falling on a place of public access, or where a similar risk results from the height at which construction or demolition work is being carried out?* | N/A | HTn | 06/01/2022 03:35 pm | [M107] |
| *5. Miscellaneous:* | N/A | HTn | 06/01/2022 03:35 pm | [M107] |
| **F6: Visibility in Escape Routes** | | **HTn** | **11/02/2022 12:46 pm** | Code Clause Disabled: [M107] Not applicable for this project. |
| **F7: Warning System** | | | | |
| F7: Warning System: Does the proposal comply with Functional Requirement F7.2 and demonstrate that the building will be provided with appropriate means of warning people to escape to a safe place in an emergency? Read these Questions in Conjunction with C/AS1 or C/AS2 Para 2.2. Note: The Inspection requirements for these systems are driven from the C-Fire Safety section processing checklist. | | | | |
| **F7: Warning System - Prompt List:** | **Y** | **HTn** | **06/01/2022 03:37 pm** | |
| *1. F7.3.1: Does the proposal demonstrate that the means of warning will alert people to the emergency in adequate time for them to reach a safe place?* | Y | HTn | 06/01/2022 03:37 pm | [M107] |
| *2. F7.3.2: Is appropriate means of detection and warning provided within each household unit?* | N/A | HTn | 06/01/2022 03:37 pm | [M107] |
| *3. F7.3.3: Is appropriate means of warning for fire and other emergencies provided in the buildings as necessary to satisfy the other performance requirements of this code?* | Y | HTn | 06/01/2022 03:37 pm | [M107] |
| *4. Installation: Is adequate information provided to enable onsite compliance of the system to be determined? If the proposal incorporates a Type 5 system ensure that mechanical ventilation in the kitchen of household units or suites complies with G4/AS1. Please record any arrangement for review of system design or shop drawings that may be likely to occur after consent is granted.* | Y | HTn | 06/01/2022 03:37 pm | [M107] |
| *5. Miscellaneous:* | N/A | HTn | 06/01/2022 03:37 pm | [M107] |
| **F8: Signs** | | **AMn** | **11/02/2022 12:46 pm** | Code Clause Disabled: [M107] Not applicable for this project. |
| **F9: Restricting Access to Residential Pools** | | **AMn** | **11/02/2022 12:46 pm** | Code Clause Disabled: [M107] Not applicable for this project. |
| **G: SERVICES** | | | | |
| **G1 Personal Hygiene, G2 Laundering, G3 Food Preparation & Prevention of Contamination** | | | | |
| G1, G2, G3: Personal Hygiene, Laundering, Food Preparation: Does the proposal satisfy the provisions of Functional Requirement G1.2, G2.2 and G3.2.1 and are the design details for personal hygiene, laundering, and food preparation areas compliant? | | | | |
| **G1, G2, G3: Personal Hygiene, Laundering, Food Preparation - Prompt List:** | **Y** | **HTn** | **06/01/2022 04:18 pm** | |
| *PERSONAL HYGIENE:G1.3.1 & G1.3.3: Are facilities provided in convenient locations with sufficient numbers of sanitary fixtures that are appropriate for the people who are intended to use them?* | Y | HTn | 06/01/2022 04:18 pm | [M107] |


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| *G1.3.2: Are sanitary fixtures located to:(a) Facilitate sanitation, (b) Avoid risk of food contamination, (c) Avoid harbouring dirt or germs, (d) Provide appropriate privacy, (e) Avoid affecting occupants of adjacent spaces from unpleasant odours, accumulation of offensive matter, or other source of annoyance, (f) Allow effective cleaning, (g) Discharge to a plumbing and drainage system as required by Clause G13 when water-borne disposal is used, and (h) Provide a healthy safe disposal system when non-water-borne disposal is used?* | Y | HTn | 06/01/2022 04:18 pm | [M107] |
| *G1.3.4 Are the facilities that are provided for people with disabilities accessible? LoA G1.3.4 does not apply to Housing, Outbuildings, Back country huts, Ancillary buildings, and Industrial buildings where no more than 10 people are employed.* | N/A | HTn | 06/01/2022 04:18 pm | [M107] |
| *LAUNDERING: G2.2: Are buildings provided with adequate space and facilities for laundering?[Check - Laundry location and spacial dimensions; Tub size and capacity; Space for washing machine; Service connections]. LoA G2.2 only applies to Housing, Old Peoples Homes, Camping Grounds and Work Camps.* | Y | HTn | 06/01/2022 04:18 pm | [M107] |
| *G2.3.4: (Accessibility) - Are accessible facilities provided for people with disabilities? LoA G2.3.4 only applies to Camping Grounds.* | N/A | HTn | 06/01/2022 04:18 pm | [M107] |
| *FOOD PREPARATION AND PREVENTION OF CONTAMINATION:G3.2.1 & G3.3.4: Is the building provided with spaces & facilities for hygienic storage, preparation & cooking of food that are conveniently located and adequate for the intended use of the building? LoA - This provision only applies to Housing, Work Camps, Old People's Homes and Early Childhood Centres and where appropriate Commercial and Industrial buildings whose intended use includes the manufacture, preparation, packaging or storage of food.* | Y | HTn | 06/01/2022 04:18 pm | [M107] |
| *G3.2.2: Are the building/s that are used for storage, manufacture or processing of food, including animal products, constructed in a manner that safeguards contents from contamination?* | N/A | HTn | 06/01/2022 04:18 pm | [M107] |
| *G3.2.3: Are the building/s that are used for the medical treatment of humans or animals, or the reception of dead bodies, constructed to avoid the spread of contamination from the building contents?* | N/A | HTn | 06/01/2022 04:18 pm | [M107] |
| *G3.3.1: Are the food preparation facilities hygienic & include: (a) Space for a refrigerator, or perishable food storage area capable of being cooled & protected from vermin or insects, LoA This provision only applies to Housing, Work Camps, Old People's Homes and Early Childhood Centres, and Commercial and Industrial buildings whose intended use includes the handling of perishable food. (b) Means for food rinsing, utensil washing & waste water disposal, LoA This provision only applies to Housing, Work Camps, Old People's Homes and Early Childhood Centres, and Commercial and Industrial buildings whose intended use includes the handling of perishable food.(c) Means for cooking food,and LoA This provision only applies to Housing, Work Camps, Old Peoples Homes, Early Childhood Centres. (d) Space and a surface for food preparation? LoA This provision only applies to Housing, Work Camps, Old Peoples Homes, Early Childhood Centers.* | Y | HTn | 06/01/2022 04:18 pm | [M107] |
| *G3.3.2: Do spaces used for food preparation and utensil washing have: (a) Interior linings and work surfaces that are impervious and easily cleaned, (b) All building elements constructed with materials which are free from hazardous substances which could cause contamination to the building contents, and LoA only applies to Housing, Work Camps, Old People's Homes and Early Childhood Centres and where appropriate Commercial and Industrial buildings whose intended use includes the manufacture, preparation, packaging or storage of food. (c) Exposed building elements located & shaped to avoid accumulation of dirt? LoA does not apply to Housing.* | Y | HTn | 06/01/2022 04:18 pm | [M107] |
| *G3.3.3: Is an adequate energy supply provided and is it appropriately located for use by cooking and refrigeration appliances?* | Y | HTn | 06/01/2022 04:18 pm | [M107] |
| *G3.3.5: (Accessibility) - Are accessible facilities provided for people with disabilities?LoA only applies to Camping Grounds and Accessible accommodation units in Communal Residential buildings.* | N/A | HTn | 06/01/2022 04:18 pm | [M107] |


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| *G3.3.6: Are spaces protected from the likelihood of contamination or vermin entering areas used for storage, processing or preparation of food, and do these have means of preventing contamination spreading from these areas to other spaces? LoA only applies to Commercial and Industrial buildings whose intended use includes handling of perishable foods, medical treatment of humans or animals, slaughter of animals or reception of dead bodies.* | N/A | HTn | 06/01/2022 04:18 pm | [M107] |
| *Miscellaneous:* | N/A | HTn | 06/01/2022 04:18 pm | [M107] |
| **G4: Ventilation** | | | | |
| G4: Ventilation: Does the proposal comply with Functional Requirement G4. 2 and demonstrate that spaces within buildings will be provided with adequate ventilation consistent with their maximum occupancy, and intended use? Record any arrangement for review of system design or shop drawings that may occur after consent is granted. | | | | |
| **G4: Ventilation - Prompt List:** | **Y** | **HTn** | **06/01/2022 04:25 pm** | |
| *1. G4.3.1: (Air Changes) - Do internal spaces have a means of ventilation with outdoor air that will provide adequate air changes to maintain air purity?* | Y | HTn | 06/01/2022 04:25 pm | [M107] |
| *2. G4.3.2: (Mechanical) - Does the proposal demonstrate that mechanical air-handling systems (if required) will be constructed and maintained in a manner that prevents harmful bacteria, pathogens and allergens from multiplying within them?* | Y | HTn | 06/01/2022 04:25 pm | [M107] |
| *3. G4.3.3: (Extract) - Does the building have a means of collecting or otherwise removing the following products from the spaces in which they are generated: (a) Cooking fumes and odours, (b) Moisture from laundering, utensil washing, bathing and showering, (c) Odours from sanitary and waste storage spaces, (d) Gaseous by-products and excessive moisture from commercial or industrial processes, (e) Poisonous fumes and gases, (f) Flammable fumes and gases, (g) Airborne particles, (h) Bacteria, viruses or other pathogens, or (i) Products of combustion?* | Y | HTn | 06/01/2022 04:25 pm | [M107] |
| *4. G4.3.4: (Dispersal) - Will contaminated air will be disposed of in a way which avoids creating a nuisance or hazard to people and other property?* | Y | HTn | 06/01/2022 04:25 pm | [M107] |
| *5. G4.3.5: (Combustion) - Will the quantities of air supplied for ventilation meet the additional demands of any fixed combustion appliances?* | N/A | HTn | 06/01/2022 04:25 pm | [M107] |
| *6. Windows: Does the proposal confirm that the window design will comply with provisions of NZBC B1, B2, E2, F4 and G4? [B1 - check that the windows are suitable for site specific structural design actions (dead load, live load, wind, snow, earthquake, rain etc); E2 - check weathertightness and flashing details comply; F2 - check glazing size, thickness, safety glass locations and aspect ratios; F4 - check for restrictors and manifestation; G4 - check sashes provide adequate ventilation with the exterior].* | Y | HTn | 06/01/2022 04:25 pm | [M107] |
| *7. Maintenance: Are the maintenance, inspection and reporting procedures for mechanical systems specified?[Does not apply to residential dwellings]* | N/A | HTn | 06/01/2022 04:25 pm | [M107] |
| *8. Construction monitoring, required documents: Has this information been determined and entered into the system?* | N/A | HTn | 06/01/2022 04:25 pm | [M107] |
| *9. Miscellaneous:* | N/A | HTn | 06/01/2022 04:25 pm | [M107] |
| **G5 Interior Environment, G6 Airborne & Impact Sound** | | | | |
| G5: Interior Environment : Does the proposal demonstrate compliance with Functional Requirement G5.2.1 and G5.2.2 and demonstrate that the building will be constructed to provide: (a) adequate controlled interior temperature, (b) adequate activity space for the intended use, (c) accessible spaces and facilities; and that heating appliances will be installed in a way that reduces likelihood of injury. Attention: If this is a residential application then Go To Inspection Questions list and please turn off G5 inspections under Preline and Building Final. | | | | |
| **G5: Interior Environment - Prompt List:** | **N/A** | **HTn** | **06/01/2022 04:26 pm** | [M107] This question does not apply to this application. |
| *G5: INTERIOR ENVIRONMENT:G5.2.1 (a): Are the habitable spaces, bathrooms and recreation areas in Old People Homes and Early Childhood Centres provided with adequate, controlled interior temperature? LoA - G5.2. 1 (a) only applies to habitable spaces, bathrooms and recreation rooms in old peoples homes and early childhood centres.* | | | | |
| *(b): Is adequate activity space provided within the Old Peoples Home for the intended use? LoA - G5.2.1 (b) only applies to old peoples homes.* | | | | |


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| *(c): Are accessible spaces and facilities provided and do they comply with NZS 4121? LoA - G5.2.1 (c) only applies to Communal Residential, Communal Non Residential and Commercial buildings.* | | | | |
| *G5.2.2 & G5.3.2: Does the proposal confirm that heating appliances in the building(s) will be installed in a way that reduces likelihood of injury and any attached cables, pipes or other fittings will be securely fixed in place? [Obtaining an energy works certificate for heating appliances may provide evidence of compliance]. LoA - G5.3.2 only applies to old people's homes and early childhood centres.* | | | | |
| *G5.3.1: Does the proposal demonstrate that habitable spaces, bathrooms and recreation rooms in Old Peoples Homes and Early Childhood Centres have provision for maintaining the internal temperature at no less that 16 degrees Celsius when measured at 750 mm above floor level, while the space is adequately ventilated?* | | | | |
| *G5.3.3: Does the proposal demonstrate that habitable spaces in Old People Homes will have sufficient space for activity, furniture, and sanitary and mobility aids?* | | | | |
| *G5.3.4: Does the proposal demonstrate that where reception counters or desks are provided in Communal Residential, Communal Non-Residential and Commercial Buildings for public use, then at least one counter or desk will be accessible? LoA - G5.3.4 only applies to Communal Residential, Communal Non Residential and Commercial buildings.* | | | | |
| *G5.3.5: Does the proposal demonstrate that the buildings are provided with listening systems which enable enhance hearing by people with hearing aids? LoA - G5.3.5 only applies to (a) Communal Non-Residential assembly spaces occupied by more than 250 people; (b) any Theatre, Cinema, or Public Hall; (c) Assembly spaces in Old Peoples Homes occupied by more than 20 people.* | | | | |
| *G5.3.6: Does the proposal demonstrate that enhanced listening systems will be identified by signs complying the Clause F8 Signs?* | | | | |
| *Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 06/01/2022 04:26 pm | A2.0.2 use inspectio`ns added |
| G6: Airborne Impact and Sound: Does the proposal demonstrate compliance with Functional Requirement G6.2 and demonstrate that that the Sound Transmission Class of walls, floors and ceilings; and the Impact Insulation Class of floors from other occupancies or common spaces to the habitable spaces of household units will be no less than 55?. | N/A | HTn | 06/01/2022 04:28 pm | [M107] Limits on application apply - noise insulation as part of consent notices refer to mechanical ventilation G4 considerations with SD sheet 398-411 acoustic report and SIMx system |
| **G7 Natural Light, G8 Artificial Light, G9 Electricity** | | | | |
| G7, G8, G9: Light and Electricity: Does the proposal comply with Functional Requirements G7.2, G8.2 and G9.2? [i.e. G7.2 - habitable spaces provide adequate openings for natural light and visual awareness of the outside environment; G8.2 - buildings are provided with adequate artificial lighting; G9.2 - Electrical installations are safe for their intended use]. | | | | |
| **G7, G8, G9: Light and Electricity - Prompt List:** | **Y** | **HTn** | **06/01/2022 04:31 pm** | |
| *G7: NATURAL LIGHT:G7.2: Are the habitable spaces within Housing, Old Peoples Homes and Early Childhood Centres provided with adequate openings for natural light and for a visual awareness of the outside environment? [Check - a) that natural light will provide an illuminance of no less than 30 lux at floor level for 75% of the standard year and (b) openings to give awareness of the outside are transparent and are provided in suitable locations? LoA - G7.2 only applies to Housing, old peoples homes and early childhood centres.* | Y | HTn | 06/01/2022 04:31 pm | [M107] |


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| *G8: ARTIFICIAL LIGHT:G8.2: Does the proposal demonstrate that spaces within buildings used by people are provided with adequate artificial lighting (min. 20 lux at floor level) which when activated in the absence of sufficient natural light, will enable safe movement? [Check the location of lights and switches at top and bottom of stairs, exit ways and common spaces]. LoA - G8.2 applies to:All exitways in Multi-unit and Group Dwellings, Communal and Non Communal Residential, Commercial and Industrial buildings. All access routes except those in Outbuildings, Ancillary buildings and Back Country huts.All common spaces within Multi-unit and Group Dwellings, Communal and Non Communal Residential buildings. Note: The LoA on G8. 3 removes the requirement to provide 20 lux at floor level when Clause F6 applies.* | Y | HTn | 06/01/2022 04:31 pm | [M107] |
| *G9: ELECTRICITY: G9.3.1: Does the proposal demonstrate that the electrical installation shall incorporate systems to: (a) Protect people from contact with parts of the installation which are live during normal operation, and to prevent parts of the installation or other building elements becoming live during fault conditions, (b) Permit the safe isolation of the installation and of electrical fittings and appliances, (c) Safeguard people from excessive temperatures resulting from either normal operation of electrical equipment, or from currents which could exceed the installation rating, (d) Safeguard people from injury which may result from electromechanical stress in electrical components caused by currents in excess of the installation rating, (e) Protect building elements from risk of ignition, impairment of their physical or mechanical properties, or function, due to temperature increases resulting from heat transfer or electric arc, (f) Operate safely in its intended environment, and (g) Safeguard against ignition of the surrounding atmosphere where it is potentially flammable or explosive?* | Y | HTn | 06/01/2022 04:31 pm | [M107] |
| *G9.3.2: Does the proposal demonstrate that an electrical installation supplying an essential service shall: (a) Maintain the supply for a time appropriate to that service, and (b) Be capable of being isolated from the supply system, independently of the remainder of the installation?* | Y | HTn | 06/01/2022 04:31 pm | [M107] |
| *G9.3.3: Does the proposal demonstrate that an electrical installation connected to an electrical supply system, shall contain safeguards which protect the safety features of the external supply?* | Y | HTn | 06/01/2022 04:31 pm | [M107] |
| *G9.3.4: Does the proposal demonstrate that in buildings intended for use by people with disabilities, light switches and plug socket outlets shall be accessible and usable? LoA - G9.3.4 does not apply to Housing, Outbuildings, Ancillary buildings and Industrial buildings where no more than 10 people are employed.* | N/A | HTn | 06/01/2022 04:31 pm | [M107] |
| *Miscellaneous:* | N/A | HTn | 06/01/2022 04:31 pm | [M107] |
| **G10 Piped Services, G11 Gas As An Energy Source** | | **HTn** | **11/02/2022 12:46 pm** | Code Clause Disabled: [M107] Not applicable for this project. |
| **G12: Water Supplies** | | | | |
| G12: Water Supply: Does the proposal comply with Functional Requirement G12. and demonstrate that buildings provided with water outlets, sanitary fixtures or sanitary appliances have safe and adequate water supplies? | | | | |
| **G12: Water Supply - Prompt List:** | **Y** | **HTn** | **06/01/2022 04:35 pm** | |
| *G12.3.1 & G12.3.2: (Potable water) - Does the proposal demonstrate that water intended for human consumption, food preparation, utensil washing or oral hygiene is potable and that the system will be: (a) Protected from contamination, (b) Installed in a manner which avoids the likelihood of contamination within the system and the water main, and (c) Installed using components that will not contaminate the water? Apply an Advice note advising that certification of the potable water supply will be required if the water supply is not provided by a NUO (network utility operator).* | Y | HTn | 06/01/2022 04:35 pm | [M107] |
| *G12.3.3: & G12.3.4: (Non-potable water) - Does the proposal demonstrate that a non-potable water supply system used for personal hygiene will be installed in a manner that avoids the likelihood of illness or injury being caused by the system and that water pipes and outlets provided with non-potable water are clearly identified?* | N/A | HTn | 06/01/2022 04:35 pm | [M107] |


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| *G12.3.5 & G12.3.6: (Hot water) - Does the proposal demonstrate that sanitary fixtures and sanitary appliances will be provided with hot water when intended to be used for: (a) utensil washing; and (b) personal washing, showering or bathing; and that the hot water will be delivered at a temperature that prevents scalding? LoA - G12.3.5 (b) only applies to Housing, Retirement homes, Early Childhood Centres - Therefore; buildings that are not classified as housing, retirement homes or early childhood centres still require hot water if utensil washing will occur.* | Y | HTn | 06/01/2022 04:35 pm | [M107] |
| *G12.3.7: (Water supply system) - Does the proposal demonstrate that water supply systems will be installed in a manner that: (a) Pipes water to sanitary fixtures and sanitary appliances at flow rates adequate for the correct functioning of those fixtures and appliances under normal conditions, (b) Avoids the likelihood of leakage, (c) Allows reasonable access to components likely to need maintenance, and (d) Allows the system and any back flow prevention devices to be isolated for testing and maintenance?* | Y | HTn | 06/01/2022 04:35 pm | [M107] |
| *G12.3.8: (Pressure relief) - Does the proposal demonstrate that vessels used for producing or storing hot water are provided with safety devices that: (a) Relieve excessive pressure during both normal and abnormal conditions, and (b) limit temperatures to avoid the likelihood of flash steam production in the event of rupture? tick N/A if the proposal uses a califont system i.e. Infinity Gas Water Heater.* | Y | HTn | 06/01/2022 04:35 pm | [M107] |
| *G12.3.9: (Legionella) - Does the proposal demonstrate that a hot water system must be capable of being controlled to prevent the growth of legionella bacteria? tick N/A if the proposal uses a califont system i.e. Infinity Gas Water Heater.* | Y | HTn | 06/01/2022 04:35 pm | [M107] |
| *G12.3.10: (Accessibility) - Does the proposal demonstrate that water supply taps are accessible and usable for people with disabilities? LoA - only applies to buildings identified under section 47 A of the Act.* | N/A | HTn | 06/01/2022 04:35 pm | [M107] |
| *Miscellaneous:* | N/A | HTn | 06/01/2022 04:35 pm | [M107] |
| G12: Wet back / Water Booster: Does the proposal for the installation of the wet back / water booster system demonstrate compliance with G12 & H1. 2b)? | | | | |
| **G12: Wet back / Water Booster - Prompt List:** | **N/A** | **HTn** | **06/01/2022 04:36 pm** | [M107] This question does not apply to this application. |
| *1. Design: Does the design and schematic demonstrate compliance with provisions of building code clauses G12 & H1?* | | | | |
| *2. Specification: Do these identify: a) complying materials, b) open vented cylinder, c) copper pipework, d) that the storage vessel is of appropriate size, e) pipe work is correctly sized, f) length of runs comply, g) provision for expansion to non-vented systems without discharge of hot water, h) insulation of pipe runs, i) sufficient support for the system and comply seismic restraint?* | | | | |
| *3. Venting: Is venting compliant?* | | | | |
| *4. Temperature control: Is the proposal for temperature control compliant and does it identify that the temperature is sufficient to avoid growth of legionella bacteria and to avoid scalding?* | | | | |
| *5. Drainage & pressure relief: Is a compliant solution provided to satisfy drainage and pressure relief provisions?* | | | | |
| *6. B2: Does the proposal demonstrate compliance with durability provisions and is sufficient access available to enable service and maintenance?* | | | | |
| *7. Protection: Does the proposal satisfy building code provisions for protection of the water supply?* | | | | |
| *8. H1 - Energy: Will the proposal facilitate the efficient use of hot water, and limit heat loss?* | | | | |
| **Supplementary Processing Notes:** | | HTn | 06/01/2022 04:36 pm | HWC considered in previous checklist no booster within scope |
| **G13: Foul Water** | | | | |


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| G13: Foul Water: Does the proposal comply with G13.2 and demonstrate that buildings in which sanitary fixtures and sanitary appliances using water-borne waste disposal are installed will be provided with: (a) an adequate plumbing and draining system to carry foul water to appropriate outfalls, and (b) if no sewer is available, an adequate system for the storage, treatment, and disposal of foul water? | | | | |
| **G13: Foul Water - Prompt List:** | | **HTn** | **06/01/2022 04:45 pm** | |
| *1. G13.3.1: (Above ground plumbing system) - Does the proposal demonstrate that the system will be constructed to: (a) Convey foul water from buildings to a drainage system, (b) Avoid the likelihood of blockage and leakage, (c) Avoid the likelihood of foul air and gases entering buildings, and (d) provide reasonable access for maintenance and clearing blockages? Select N/A if there is no above ground plumbing system associated with this project.* | Y | HTn | 06/01/2022 04:45 pm | [M107] |
| *2. G13.3.2: (Foul water drainage system) - Does the proposal demonstrate that the system will: (a) Convey foul water to an appropriate outfall, (b) Be constructed to avoid the likelihood of blockage, (c) Be supported, jointed and protected in a way that will avoid the likelihood of penetration of roots or the entry of ground water, (d) Be provided with reasonable access for maintenance and clearing blockages, (e) Be ventilated to avoid the likelihood of foul air and gases accumulating in the drainage system and sewer, and (f) Be constructed to avoid the likelihood of damage from superimposed loads or normal ground movement? Select N/A if there is no foul water drainage system associated with this project.* | Y | HTn | 06/01/2022 04:45 pm | [M107] |
| *3. G13.3.3: (Sewer connection - available) - Does the proposal demonstrate that the connection will be made in a manner that avoids damage to the sewer and to the approval of the network utility operator? Select N/A if this proposal does not include connection to a sewer and does not require the approval of the NUO.* | Y | HTn | 06/01/2022 04:45 pm | [M107] |
| *4. G13.3.4: (Sewer connection - unavailable) - Does the proposal demonstrate that facilities for the storage, treatment, and disposal of foul water will be constructed: (a) With adequate capacity for the volume of foul water and the frequency of disposal, (b) With adequate vehicle access for collection if required, (c) To avoid the likelihood of contamination of any potable water supplies in compliance with Clause G12 Water Supplies, (d) To avoid the likelihood of contamination of soils, ground water, and waterways except as permitted under the Resource Management Act 1991, (e) From materials that are impervious both to the foul water for which disposal is required, and to water, (f) To avoid the likelihood of blockage and leakage, (g) To avoid the likelihood of foul air and gases accumulating within or entering into buildings, (h) To avoid the likelihood of unauthorised access by people, (i) To permit easy cleaning and maintenance, (j) To avoid the likelihood of damage from superimposed loads or normal ground movement, and (k) If those facilities are buried underground, to resist hydro static uplift pressures? SDC - If this question is ticked please add advice note AN 15a to Form 5. Select N/A if this proposal is for connection into a NUO system.* | N/A | HTn | 06/01/2022 04:45 pm | [M107] |
| *5. Existing drains: Are any existing drains being connected into or being built over and if so, are these in sound condition? Select N/A if there is not a connection into existing drains.* | | HTn | 06/01/2022 04:45 pm | [M107] |
| *6. Redundant drains or septic tanks: Are there any drains or septic tanks on site that will become redundant as a result of the proposed building work and if so, is this documented? Select N/A if this proposal does not involve making any existing systems redundant.* | | HTn | 06/01/2022 04:45 pm | [M107] |
| *7. Miscellaneous:* | | HTn | 06/01/2022 04:45 pm | [M107] |
| **G13: Foul Water - Prompt List:** | | **HTn** | **10/01/2022 11:22 am** | |
| *1. G13.3.1: (Above ground plumbing system) - Does the proposal demonstrate that the system will be constructed to: (a) Convey foul water from buildings to a drainage system, (b) Avoid the likelihood of blockage and leakage, (c) Avoid the likelihood of foul air and gases entering buildings, and (d) provide reasonable access for maintenance and clearing blockages? Select N/A if there is no above ground plumbing system associated with this project.* | Y | HTn | 10/01/2022 11:22 am | [M107] |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *2. G13.3.2: (Foul water drainage system) - Does the proposal demonstrate that the system will: (a) Convey foul water to an appropriate outfall, (b) Be constructed to avoid the likelihood of blockage, (c) Be supported, jointed and protected in a way that will avoid the likelihood of penetration of roots or the entry of ground water, (d) Be provided with reasonable access for maintenance and clearing blockages, (e) Be ventilated to avoid the likelihood of foul air and gases accumulating in the drainage system and sewer, and (f) Be constructed to avoid the likelihood of damage from superimposed loads or normal ground movement? Select N/A if there is no foul water drainage system associated with this project.* | Y | HTn | 10/01/2022 11:22 am | [M107] |
| *3. G13.3.3: (Sewer connection - available) - Does the proposal demonstrate that the connection will be made in a manner that avoids damage to the sewer and to the approval of the network utility operator? Select N/A if this proposal does not include connection to a sewer and does not require the approval of the NUO.* | Y | HTn | 10/01/2022 11:22 am | [M107] |
| *4. G13.3.4: (Sewer connection - unavailable) - Does the proposal demonstrate that facilities for the storage, treatment, and disposal of foul water will be constructed: (a) With adequate capacity for the volume of foul water and the frequency of disposal, (b) With adequate vehicle access for collection if required, (c) To avoid the likelihood of contamination of any potable water supplies in compliance with Clause G12 Water Supplies, (d) To avoid the likelihood of contamination of soils, ground water, and waterways except as permitted under the Resource Management Act 1991, (e) From materials that are impervious both to the foul water for which disposal is required, and to water, (f) To avoid the likelihood of blockage and leakage, (g) To avoid the likelihood of foul air and gases accumulating within or entering into buildings, (h) To avoid the likelihood of unauthorised access by people, (i) To permit easy cleaning and maintenance, (j) To avoid the likelihood of damage from superimposed loads or normal ground movement, and (k) If those facilities are buried underground, to resist hydro static uplift pressures? SDC - If this question is ticked please add advice note AN 15a to Form 5. Select N/A if this proposal is for connection into a NUO system.* | N/A | HTn | 10/01/2022 11:22 am | [M107] |
| *5. Existing drains: Are any existing drains being connected into or being built over and if so, are these in sound condition? Select N/A if there is not a connection into existing drains.* | | HTn | 10/01/2022 11:22 am | [M107] |
| *6. Redundant drains or septic tanks: Are there any drains or septic tanks on site that will become redundant as a result of the proposed building work and if so, is this documented? Select N/A if this proposal does not involve making any existing systems redundant.* | N/A | HTn | 10/01/2022 11:22 am | [M107] |
| *7. Miscellaneous:* | | HTn | 10/01/2022 11:22 am | [M107] |
| **G13: Foul Water - Prompt List:** | **Y** | **HTn** | **23/02/2022 02:33 pm** | |
| *1. G13.3.1: (Above ground plumbing system) - Does the proposal demonstrate that the system will be constructed to: (a) Convey foul water from buildings to a drainage system, (b) Avoid the likelihood of blockage and leakage, (c) Avoid the likelihood of foul air and gases entering buildings, and (d) provide reasonable access for maintenance and clearing blockages? Select N/A if there is no above ground plumbing system associated with this project.* | Y | HTn | 23/02/2022 02:33 pm | Compliance with G13.3.1 is satisfied - documentation demonstrates that the above ground plumbing system will be constructed in a complying manner.<br>FFL depicted to be 225mm above GL (ground level) and lateral IL head of drain to lateral approx distance I am satisfied that 1:100 can be achieved onsite.<br>Compliance with G13.3.1 is satisfied - the system is correctly constructed. Size & gradient: drainage plan shows shower and basin to have 40mm waste, kitchen and laundry to have 50mm waste, dispersing to a gully trap via 1:40 gradient. Toilet waste 100mm @ 1:60 to main branch; compliance of G13/AS1 table 2 & 4 established. Sanitary Sewer Connection, E-one wastewater pump system TBA with easement on each intended site, GT shown on drainage plan. BI to check removal lid for overflow relief onsite.<br>Drainage plan shows terminal vent for head of each drain at head of main drains.<br>Stack vent as per vented arrangement A02 as per G13/As1 figure 7 vertical stack |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *2. G13.3.2: (Foul water drainage system) - Does the proposal demonstrate that the system will: (a) Convey foul water to an appropriate outfall, (b) Be constructed to avoid the likelihood of blockage, (c) Be supported, jointed and protected in a way that will avoid the likelihood of penetration of roots or the entry of ground water, (d) Be provided with reasonable access for maintenance and clearing blockages, (e) Be ventilated to avoid the likelihood of foul air and gases accumulating in the drainage system and sewer, and (f) Be constructed to avoid the likelihood of damage from superimposed loads or normal ground movement? Select N/A if there is no foul water drainage system associated with this project.* | Y | HTn | 23/02/2022 02:33 pm | G13.3.2: Compliance with G13.3.2 is satisfied checked G13/AS2 for compliance pathway:<br>- Checked drainage plan, and specification plumbing and drainlaying sections specification p. 19-22 it is fair and reasonable to expect the proposal to demonstrate that buildings in which sanitary fixtures and sanitary appliances using water-borne waste disposal are installed will be provided with:<br>(a) an adequate plumbing and draining system to carry foul water to appropriate outfalls, drainage plan shows compliance with G13/AS2 table 2. Invert levels and outfalls shown on plans for gully traps and Sewer system later at boundary.<br>(b) constructed to avoid blockage, registered plumber and reference to Inspection points at SS junctions and changes in direction of over 45 degrees. BI to check on site<br>(c) jointed and protected from likelihood of root penetration, registered plumber/drainalayer BI to check on site<br>(d) Inspection points at changes in direction on plan xx BI to check on site<br>(e) terminal vents provided TV at head of SS drain as per G13/AS2 table 3, AAVs to kitchen sink BI to check on site<br>(f) drainlayer qualified to lay pipe at appropriate depth with appropriate falls and in appropriate locations as shown on drainage plan. Sanitary sewer drain as per perimeter for cupolex slab, measured on drawing, LBP builder and am satisfied drainlayer will work outwith the perimeter required for raft slab. OR as per G13/AS2 fig 8 perimeter and angle between foundation/slab and drainage channel |
| *3. G13.3.3: (Sewer connection - available) - Does the proposal demonstrate that the connection will be made in a manner that avoids damage to the sewer and to the approval of the network utility operator? Select N/A if this proposal does not include connection to a sewer and does not require the approval of the NUO.* | Y | HTn | 23/02/2022 02:33 pm | Compliance with G13.3.3 is satisfied - the connection can occur without damage. Connection is available to NUO via a pump station. - easement for each pump station however check asbuilts and work clear of easements, RoT for these see unfinished question below regarding existing drains for easement considerations |
| *4. G13.3.4: (Sewer connection - unavailable) - Does the proposal demonstrate that facilities for the storage, treatment, and disposal of foul water will be constructed: (a) With adequate capacity for the volume of foul water and the frequency of disposal, (b) With adequate vehicle access for collection if required, (c) To avoid the likelihood of contamination of any potable water supplies in compliance with Clause G12 Water Supplies, (d) To avoid the likelihood of contamination of soils, ground water, and waterways except as permitted under the Resource Management Act 1991, (e) From materials that are impervious both to the foul water for which disposal is required, and to water, (f) To avoid the likelihood of blockage and leakage, (g) To avoid the likelihood of foul air and gases accumulating within or entering into buildings, (h) To avoid the likelihood of unauthorised access by people, (i) To permit easy cleaning and maintenance, (j) To avoid the likelihood of damage from superimposed loads or normal ground movement, and (k) If those facilities are buried underground, to resist hydro static uplift pressures? SDC - If this question is ticked please add advice note AN 15a to Form 5. Select N/A if this proposal is for connection into a NUO system.* | N/A | HTn | 23/02/2022 02:33 pm | This question does not apply to this Project. |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *5. Existing drains: Are any existing drains being connected into or being built over and if so, are these in sound condition? Select N/A if there is not a connection into existing drains.* | Y | HTn | 23/02/2022 02:33 pm | A32 site plan with drainage submitted with BC for M107 multiproof template application - invert for pump station W easement given and it is fair and reasonable that from FGL 8.25 GT (with invert 400mm below ground) that outfalls to pump station can be achieved for 6.88m inv . TVs depicted appropriately in M107 drainage plan, no changes<br>-<br>Existing drains are to be checked for sound condition. It is proposed that the drainage will connect into the existing line and that the existing drain will be checked at this time by the plumber/drainlayer who will replace any defective materials he encounters. The new and existing drains will be tested and signed off by the plumber/drainlayer at completion. IP has been indicated where the connection of the new drain to the existing is to take place.<br>Checked engineering filenote and advice note added |
| *6. Redundant drains or septic tanks: Are there any drains or septic tanks on site that will become redundant as a result of the proposed building work and if so, is this documented? Select N/A if this proposal does not involve making any existing systems redundant.* | N/A | HTn | 23/02/2022 02:33 pm | There are not any drains or septic tanks on site that will become redundant as a result of the proposed work associated with this application. |
| *7. Miscellaneous:* | N/A | HTn | 23/02/2022 02:33 pm | There are no miscellaneous matters that require consideration. |
| G13 / VM4 Foul Water: Onsite Wastewater Disposal - Tasman: Does the proposal demonstrate compliance with G13.2 and G13/VM 4 Foul Water: Onsite Disposal? Note: VM 4 provides for onsite disposal designs for the treatment of foul water for flow rates up to a maximum of 14,000 liters/ week from a population equivalent of up to 10 persons (A dwelling unit accommodating more than 10 persons is subject to Specific Engineer Design and is outside of VM 4). | | | | |
| **G13 / VM4 Foul Water: Onsite Wastewater Disposal - Tasman - Prompt List:** | **N/A** | **HTn** | **06/01/2022 04:45 pm** | [M107] This question does not apply to this application. |
| *1. Scope: Is the solution within the scope of G13/ VM4 and is the design flow volume nominated? Note: VM 4 provides for onsite disposal designs for the treatment of foul water for flow rates up to a maximum of 14,000 liters/ week from a population equivalent of up to 10 persons (A dwelling unit accommodating more than 10 persons is subject to Specific Engineer Design and is outside of VM 4).* | | | | |
| *2. Section 75: Is the on-site disposal system contained and constructed within a single allotment?* | | | | |
| *3. Plans: Are all components of the wastewater system located on the the site plan and floor plans and shown to scale and dimensioned? (ensure that the plans show the floor plans of all buildings serviced by the proposed waste water system and reserve fields).* | | | | |
| *4. Design Verification: Is the design accompanied by a Statement of Design from a suitably qualified person confirming compliance with AS/NZS 1547: 2012? (PS1 from CPEng or IPENZ)* | | | | |
| *5. Design Flow Allowances: Have the correct design flow allowances been applied for the proposed water source (see AS/NZS 1547:2012 Table H3 or H4 - onsite / tanks/ reticulated / bore water)?* | | | | |
| *6. Tank Construction: Is the type of tank construction identified and does it satisfy provisions of AS/NZS 1546.1?* | | | | |
| *7. System Dispersal: Is a comply description of the system provided? (Primary / secondary / tertiary, disposal system bed/ trench / pressure compensated drip irrigation or mound)* | | | | |
| *8. System Treatment: Does the system demonstrate compliance with AS/NZS 1547:2012 para 1.2.1.1? (OSET or EU or EPA)* | | | | |
| *9. Primary System - Tank Size: Does the tank size comply with NZS AS/NZS 1547: 2012 Appendix J Tables?* | | | | |
| *10. Secondary System - Method: Is the method of producing secondary quality effluent identified? (e.g. peat, sand, wetland, AWTS)* | | | | |
| *11. Tertiary System: It the type of tertiary system nominated and complying?* | | | | |
| *12. Disinfection: Is the type of disinfection system nominated and complying?* | | | | |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *13. Dispersal System: Does the dispersal system comply with the appropriate reference in Appendix L of AS/NZS 1547:2012? (Trenches and Beds - AS/NZS 1547:2012 Figures L 1-5, ETA/ ETS Figures L6 and L7, Irrigation systems M1-M3, Mounds N1)* | | | | |
| *14. Operational and Management Plan: Does the plan demonstrate compliance? (refer AS/NZS 1547:2012 Tables J 1-3)* | | | | |
| *15. Water Conservation: Do the water reduction fixtures comply with AS/NZS 1547:2012 Table H3, Note 3?* | | | | |
| *16. Soil and Site Evaluation: Does the evaluation demonstrate compliance with AS/NZS 1547:2012 Fig B1 and para D3.1.1 and is this supported with photographs?* | | | | |
| *17. Separation from Water Sources: Does the solution demonstrate compliance with AS/NZS 1547:2012 Tables R1 & R2?* | | | | |
| *18. Design Loading Rate / Design Irrigation Rate: Do these demonstrate compliance with AS/NZS 1547:2012 Tables L1, M1 and N1?* | | | | |
| *19. Slope / Levels: Do these demonstrate compliance with AS/NZS 1547: 2012 Tables M2?* | | | | |
| *20. Protection: Is protection of the effluent field compliant with AS/NZS 1547: 2012 section 5.5.3.7?* | | | | |
| *21. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 06/01/2022 04:45 pm | NUO at boundary and pump station |
| **G14: Industrial Liquid Waste, G15 Solid Waste** | | **AMn** | **11/02/2022 12:46 pm** | Code Clause Disabled: [M107] Not applicable for this project. |
| **H: ENERGY EFFICIENCY** | | | | |
| H1: Energy Source: Is the energy for this building sourced from a network operator or a depletable energy resource? If yes, select the tick and proceed to Functional Requirement below. If NO then select N/A and apply N/A to Functional Requirement question below. | Y | HTn | 06/01/2022 04:46 pm | [M107] The energy for this building is sourced from a network operator or a depletable energy resource. Sorged from plans and RoT that energy for this building is sourced from a network operator or a depletable energy resource. |
| H1: Energy Efficiency: Does the proposal comply with Functional Requirement H1.2 and demonstrate that the building will be constructed to achieve an adequate degree of energy efficiency when that energy is used for: (a) Modifying temperature, modifying humidity, providing ventilation, or doing all or any of these things; OR (b) Providing hot water to sanitary fixtures or sanitary appliances, or both; OR (c) Providing artificial lighting? | | | | |
| **H1: Energy Efficiency - Prompt List:** | **Y** | **HTn** | **06/01/2022 04:50 pm** | |
| *1. H1.3.1 - Thermal Resistance: Does the proposal demonstrate that the building envelope enclosing spaces where the temperature or humidity (or both) are modified, are constructed to provide adequate thermal resistance; and limit uncontrollable airflow? LoA - does not apply to Assembly service, Industrial, Outbuildings or Ancillary buildings.* | Y | HTn | 06/01/2022 04:50 pm | [M107] |
| *2. H1.3.2 - BPI: Does the proposal demonstrate that the building is constructed to ensure that the building performance index (BPI) does not exceed 1.55? LoA - applies to Housing only.* | Y | HTn | 06/01/2022 04:50 pm | [M107] |
| *3. H1.3.3 - Parameters: Does the proposal demonstrate that account is taken of physical conditions likely to affect energy performance, including: (a) The thermal mass of building elements; AND (b) The building orientation and shape; AND (c) The air tightness of the building envelope; AND (d) The heat gains from services, processes and occupants; AND (e) The local climate; AND (f) Heat gains from solar radiation?* | Y | HTn | 06/01/2022 04:50 pm | [M107] |
| *4. H1.3.4 - Hot Water: Does the proposal demonstrate that systems for the heating, storage, or distribution of hot water to and from sanitary fixtures or sanitary appliances; having regard to the energy source used: (a) Limit the energy lost in the heating process; AND (b) Are constructed to limit heat losses from storage vessels and from distribution systems; AND (c) Are constructed to facilitate the efficient use of hot water? LoA - (b) does not apply to individual storage vessels with greater than than 700 litre capacity, (c) only applies to housing.* | Y | HTn | 06/01/2022 04:50 pm | [M107] |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *5. H1.3.5 - Artificial Lighting: (G8) - Does the proposal demonstrate that artificial lighting fixtures will: (a) Be located and sized to limit energy use, consistent with the intended use of space; AND (b) Be fitted with a means to enable light intensities to be reduced, consistent with reduced activity in the space? LoA - only applies to Commercial and Communal non-residential with floor area greater than 300 m? and does not apply to lighting provided solely to meet requirements of F6.* | N/A | HTn | 06/01/2022 04:50 pm | [M107] |
| *6. H1.3.6 - HVAC: Does the proposal demonstrate that HVAC systems will be located, constructed, and installed to: (a) Limit energy use, consistent with the intended use of space; AND (b) Enable them to be maintained to ensure their use of energy remains limited, consistent with the intended use of space? LoA - Commercial buildings only.* | Y | HTn | 06/01/2022 04:50 pm | [M107] |
| *7. Miscellaneous:* | N/A | HTn | 06/01/2022 04:50 pm | [M107] |
| **DETACHED GARAGE NO SERVICES** | | AMn | 11/02/2022 12:46 pm | Code Clause Disabled: [M107] Not applicable for this project. |
| **DETACHED GARAGE with SERVICES** | | AMn | 11/02/2022 12:46 pm | Code Clause Disabled: [M107] Not applicable for this project. |
| **Retaining Walls** | | AMn | 11/02/2022 12:46 pm | Code Clause Disabled: [M107] Not applicable for this project. |
| **HEATING APPLIANCES** | | AMn | 11/02/2022 12:46 pm | Code Clause Disabled: [M107] Not applicable for this project. |
| **Solid Fuel Burner** | | AMn | 11/02/2022 12:46 pm | Code Clause Disabled: [M107] Not applicable for this project. |
| **Gas - Liquid Fuel Burning Appliances** | | AMn | 11/02/2022 12:46 pm | Code Clause Disabled: [M107] Not applicable for this project. |
| **Radiators** | | AMn | 11/02/2022 12:46 pm | Code Clause Disabled: [M107] Not applicable for this project. |
| **Swimming Pools** | | AMn | 11/02/2022 12:46 pm | Code Clause Disabled: [M107] Not applicable for this project. |
| **Solar Water Heater** | | AMn | 11/02/2022 12:46 pm | Code Clause Disabled: [M107] Not applicable for this project. |

BC FINAL


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Code Clause Management History | | | |
|---|---|---|---|
| **Code Clause** | **Initials** | **Date** | **Reason/Notes** |
| B1: Foundations, Piles, Floors | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. Refer SED elements for slab and foundations. |
| | HTn | 11/02/2022 12:46 pm | [M107] B1: Foundations, Piles, Floors has been turned back ON. |
| B1: Sub-floor, Mid-floor, Deck | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| | HTn | 11/02/2022 12:46 pm | [M107] B1: Sub-floor, Mid-floor, Deck has been turned back ON. |
| C: Alt Sol / VM2 | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| New C/AS2 | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| D2: Mech Installations for Access | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| F3: Hazardous substances and processes | HTn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| F6: Visibility in Escape Routes | HTn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| F8: Signs | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| F9: Restricting Access to Residential Pools | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| G10 Piped Services, G11 Gas As An Energy Source | HTn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| G14: Industrial Liquid Waste, G15 Solid Waste | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| DETACHED GARAGE NO SERVICES | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| DETACHED GARAGE with SERVICES | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| Retaining Walls | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| HEATING APPLIANCES | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| Solid Fuel Burner | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| Gas - Liquid Fuel Burning Appliances | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| Radiators | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| Swimming Pools | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |
| Solar Water Heater | AMn | 11/02/2022 12:46 pm | [M107] Not applicable for this project. |

BC FINAL


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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| **BUILDING ACT** | | | | |
| BC Complexity / Competence (Reg 10 & 18 of BCA Regs 2006): Has the correct building complexity and classified use been allocated to this project and is it within the scope of your assessed competence? Do not select X or N/A. If complexity is incorrect please rectify by selecting the correct checklist (under Manage Buildings). If processing of this project is to be undertaken under supervision then ensure that this is recorded in the file notes.. | Y | HTn | 14/03/2022 04:43 pm | Complexity is correctly assigned, I have the requisite level of competence to undertake this task.<br>Complexity is correctly assigned, R3. I Hazel Thelin have the requisite level of competence to undertake this task.<br>Checked form 2 and accompanying plans and specifications and supporting documents |
| Section 28: Warning and Bans: Can the building consent authority exercise its powers under BA s28 and issue building consent for the building work relating to this building consent? Please do not select N/A for this question. | Y | HTn | 24/03/2022 09:07 am | There are no warnings or bans posted on the Ministry's Warnings and Bans register that pertain to methods or building products used in this consent. In terms of section 28, the building consent authority may exercise its powers to issue building consent for the building work relating to this building consent.<br>Section 28: Checked documents, specifications and plans and the MBIE website, to the best of my knowledge there are no warnings or bans posted on the Ministry's Warnings and Bans register that pertain to methods or building products used in this consent. Therefore in terms of section 28 of the Building Act; the building consent authority may exercise its powers to issue building consent for the building work relating to this building consent. |
| Section 36: Development Contribution: Has a Development Contribution Notice been attached to the PIM? Please select N/A if a Development Contribution Notice is not required to be issued. | N/A | HTn | 24/03/2022 09:07 am | There is no development contribution required for this project.<br>Section 36: Development contribution issued during subdivision. |
| Section 37: Resource Consent: Has a Resource Consent Certificate (Form 4) been attached to the PIM and have all conditions that affect issue of this building consent been satisfied?<br>Please select N/A if Resource Consent is not required. | N/A | HTn | 24/03/2022 10:04 am | The TA has not advised that a resource consent is required for this project. refer to main building notes - amendment only considered no changes to RMA set backs or consent notices |
| Section 45: Consent Documents: Is Form 2 correctly completed and accompanied by the requisite information required by Section 45? | N | HTn | 14/03/2022 04:43 pm | Section 45: consent documents: please provide the following further information so that processing of the application can proceed. Processing of your application will be suspended until this information is received.<br><br>As discussed please provide the updated floor slab PS1 plans to accompany structural changes included with amendment documents.<br><br>Processing will continue once these are received |
| | RFI | HTn | 14/03/2022 04:43 pm | Section 45: consent documents: please provide the following further information so that processing of the application can proceed. Processing of your application will be suspended until this information is received.<br><br>As discussed please provide the updated floor slab PS1 plans to accompany structural changes included with amendment documents.<br><br>Processing will continue once these are received |


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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| | Y | HTn | 24/03/2022 09:06 am | RFI Response: RFI received 23/03/22 - PS1 cupolex foundation PS1, Calcs and drawing S-01-01 to S-01-05 resubmitted and merged into plans and SD working set amendment to original BC, includes some layout changes with walls oriented and dimensioned differently, some bracing walls requiring handibrac slab thickenings, PS1 for slab amended and resubmitted to be relavent and project specific with changes proposed. Further changes are undertile (ontop of cured slab) heating, specific HWC specifications, Hyjoists 240x90 amended under tiled upper level shower only with packing depicted and PS1 updated, H3.2 plywood under tiles. Proprietary shower detail removed<br><br>Means of compliance is correctly completed and indicated on the application form 2 attached.<br>Applicable Code clause indicated and AS1 used for all, some alternative solutions proposed within the application which i have assessed to the requirements of the NZBC, refer to the body of the processing record |
| Section 48(3): Fire and Emergency NZ (FENZ): Has regard been given to a memorandum provided by Fire and Emergency NZ under section 48 (3)(a) of the Building Act? Please select N/A if there is not a requirement under Section 48 for referral. | N/A | HTn | 24/03/2022 10:04 am | This project does not require Fire and Emergency NZ input. not within scope of amendment |
| Section 67 - 70: Waiver / Modifications: Is adequate reasoning for request for waiver / modification provided, and have associated legal obligations been satisfied? Please select N/A if Waiver or Modification is not required. | N/A | HTn | 24/03/2022 10:04 am | There is no request for waiver or modification associated with this building consent application. not within scope of amendment |
| Section 71 - 74: Natural Hazards: Is the building on land subject to natural hazards: Please select N/A if the hazard risk is already mitigated and/ or if the title is already endorsed to reflect the presence of hazard/s. | | | | |
| **Section 71 - 74: Natural Hazards - Prompt List:** | **N/A** | **HTn** | **24/03/2022 10:04 am** | This question does not apply to this application. |
| *1. Deterioration: Is the building work unlikely to accelerate, worsen, or result in a natural hazard on the land or any other property?* | | | | |
| *2. Protection: Where natural hazard/s exist; has adequate provision been made to protect land, building work, or other property from the hazard/s?* | | | | |
| *3. Restoration: Where natural hazard/s exist; does consent documentation demonstrate adequate provision has or will be made to restore any damage to the land or other property as a result of the building work?* | | | | |
| *4. Conditions: Where building consent is to be issued under section 72; have all conditions required under section 73 been initiated and have all parties been notified, and where required, provided with a copy of the PIM that has been issued and that relates to this project accompany such notification?* | | | | |
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 10:04 am | Checked File Notes for Natural Hazards input and stated no natural hazards, any issues were dealt with during the subdivision development process |
| Section 75 - 83: More than 1 Allotment: Is the building constructed on more than one allotment, and if so, have the provisions of sections 75 - 83 been satisfied? Please select N/A if building work is only on one allotment. | N/A | HTn | 24/03/2022 10:04 am | The building is located on a single allotment therefore this question is not applicable. not within scope of amendment single allotment distances to boundaries in plans |

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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
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| Section 84 - 89: Restricted Building Work: Has the applicable restricted building work been properly identified, and have the names of owner-builders, and/or licensed building practitioners that are supervising or carrying out such work been notified to the BCA? Ticking this question will automatically add an advice note requesting Form 6A. Please edit this advice note accordingly. | | | | |
| **Section 84 - 89: Restricted Building Work - Prompt List:** | **Y** | **HTn** | **24/03/2022 10:09 am** | |
| *1. Design Certificate: Is the design certificate/s correctly completed and is the scope of each practitioners work clearly identified?* | Y | HTn | 24/03/2022 10:09 am | Design Certificate: the design certificate/s is correctly completed and the scope of each practitioners work is identified<br>Jeremy Richie LBP designer #110013 design 2 class active and approved by resister<br>CGW Consulting Engineers Producer Statement provided for Cupolex Foundation Audrey Farreyre CPENG 1009889 checked ENZ Cpeng register active and structural class, signed and dated<br>please refer to main building notes for all other RBWM practitioners info. Placemakers are providing midloor instead of carters however truss Design Statement CPENG same and Futurebuild LVL CHC provided under Jeremy Richie supervision |
| *2. License: Do the applicable LBP's that are nominated or involved in the project hold current and correct classes of license?* | Y | HTn | 24/03/2022 10:09 am | License: the nominated LBP's hold current licenses and the class of license is correct. see above notes and main building notes for further considerations |
| *3. Statutory Declaration: If restricted work is intended to be carried out by the Owner/Builder, then has the statutory declaration as to Owner/Builder status been provided?* | N/A | HTn | 24/03/2022 10:09 am | Statutory Declaration: section 87A does not apply to this project. |
| *4. Fire Safety Systems: If the building work relates to fire safety systems of small to medium apartments then does the designer have the appropriate design license class for this work?* | N/A | HTn | 24/03/2022 10:09 am | Fire Safety Systems: this question does not apply to this project. |
| Section 96: COA or Other Incompleted Building Consents: Are there any COA's or incomplete building consents associated with this project? | N/A | HTn | 24/03/2022 10:09 am | not within scope of amendment |
| Section 100 - 104: Compliance Schedule: If project contains specified systems, then have each of these been correctly described and specified with complying performance standards and with the inspection, maintenance are reporting procedures, AND with the location of each specified system clearly identified on the plans? Ensure that any arrangement for review of system design and shop drawings that are to occur after consent issue is clearly identified under Construction Monitoring. Please select N/A if the application does not involve the issue or update of a compliance schedule. | | | | |
| **Section 100 - 104: Compliance Schedule - Prompt List:** | **N/A** | **HTn** | **24/03/2022 10:09 am** | This question does not apply to this application. |
| *SS 1. Automatic systems for fire suppression Record any arrangement for review of system design or shop drawings that may occur after consent is granted.* | | | | |
| *SS 2. Automatic or manual emergency warning systems for fire or other dangers Record any arrangement for review of system design or shop drawings that may occur after consent is granted.* | | | | |
| *SS 3. Electromagnetic or automatic doors or windows* | | | | |
| *SS 4. Emergency lighting systems Record any arrangement for review of system design or shop drawings that may occur after consent is granted.* | | | | |
| *SS 5. Escape route pressurisation systems* | | | | |
| *SS 6. Riser mains for use by fire services* | | | | |
| *SS 7. Automatic back-flow preventers connected to a potable water supply* | | | | |

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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *SS 8. Lifts, escalators, travellators, or other systems for moving people or goods within buildings* | | | | |
| *SS 9. Mechanical ventilation or air conditioning systems Record any arrangement for review of system design or shop drawings that may occur after consent is granted.* | | | | |
| *SS 10. Building maintenance units providing access to exterior or interior walls of buildings* | | | | |
| *SS 11. Laboratory fume cupboards* | | | | |
| *SS 12. Audio loops or other assistive listening systems* | | | | |
| *SS 13. Smoke control systems* | | | | |
| *SS 14. Emergency power systems for, or signs relating to, a system or feature specified in any of SS to SS 13 above* | | | | |
| *SS 15. Other fire safety systems or features (systems for communicating information intended to facilitate evacuation, final exits, fire separations, signs.* | | | | |
| *SS 14/2 & SS 15/4. Signs* | | | | |
| *SS 16. Cable Cars* | | | | |
| *Misc:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 10:09 am | not within scope of amendment |
| Section 112 (1): Alterations to Buildings: If the proposal involves alteration to an existing building, then does the solution demonstrate on reasonable grounds that after alteration the building will comply, as nearly as is reasonably practicable with provisions that relate to:<br>Select N/A if the proposal is not an alteration to an existing building. | | | | |
| **Section 112 (1): Alterations to Buildings - Prompt List:** | **N/A** | **HTn** | **24/03/2022 10:09 am** | This question does not apply to this application. |
| *(i) Means of escape from fire* | | | | |
| *(ii) Access & facilities for people with disabilities: (if required by Section 118)?* | | | | |
| *(iii) Continue to comply with the other provisions of the building code to at least the same extent as before the alteration?* | | | | |
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 10:09 am | new building not within scope of amendment |
| Section 112 (2): Alterations to Buildings - TA Function: Have the provisions of section 112 (2) been satisfied? Select N/A if the Territorial Authority does not need to consider section 112 (2). | N/A | HTn | 24/03/2022 10:09 am | This question does not apply to this project as TA input is not required new building not within scope of amendment |
| Section 112 (3): TA Function - Buildings subject to EPB Notice: Is the alteration to an existing building that is subject to an EPB Notice, and if so have provisions of section 133AT been satisfied? Select N/A if the building is not an alteration to an existing building that is subject to an EPB Notice. | N/A | HTn | 24/03/2022 10:10 am | The building is not an alteration that is subject to an EPB Notice so this question does not apply to this project. new building not within scope of amendment |
| Section 113: Specified Intended Life: Is the specified intended life of the building less than fifty years? Please select N/A if the specified intended life is fifty years or more. | N/A | HTn | 24/03/2022 10:10 am | The intended life of the building is fifty or more years. Checked application form and specified for 50 years |
| Section 115: Change of Use: Does the proposal provide adequate evidence to enable the TERRITORIAL AUTHORITY to be satisfied, on reasonable grounds that:<br>Please select N/A if there is no change of use occurring. | | | | |
| **Section 115: Change of Use - Prompt List:** | **N/A** | **HTn** | **24/03/2022 10:10 am** | This question does not apply to this application. |


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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
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| *(a) Where the change involves the incorporation in the building of 1 or more household units where household units did not exist before; that the building, in its new use, will comply, as nearly as is reasonably practicable, with the building code in all respects?* | | | | |
| *(b) In other cases; the building will comply, as nearly as is reasonably practicable, with every provision of the building code that relate to either or both of the following: A (i) Means of escape from fire, (ii) Protection of other property, (iii) Sanitary facilities, (iv) Structural performance, and (v) Fire rating performance. B (i) Access and facilities for people with disabilities (if required under BA Sec. 118) and (ii) Continues to comply with the other provisions of the building code to at least the same extent as before the change of use?* | | | | |
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 10:10 am | A1 2.0.2 use |
| Section 116: Extension of Life: Does the proposal demonstrate compliance with provisions of Section 116? Please select N/A if the application does not apply to a building that currently has a specified intended life. | N/A | HTn | 24/03/2022 10:10 am | This question does not apply to this application.<br>This is a new building on a new subdivision<br>Checked application no extension of life proposed |
| Section 116A: Subdivision: Is the proposal accompanied by a Certificate issued by The TERRITORIAL AUTHORITY under Section 224 (f) of the Resource Management Act 1991 giving effect to the proposed subdivision affecting the building or part of the building?<br>Please select N/A if the application does not apply to a building that is currently undergoing subdivision. | N/A | HTn | 24/03/2022 10:10 am | This question does not apply to this application.<br>checked consent notices and no further subdivision intended |
| Section 116B: Unsafe/ Insanitary or Inadequate means of escape from fire: Is the building safe and sanitary for its intended use and does it have adequate means of escape from fire? Please select N/A if this is an application for a new building. | N/A | HTn | 24/03/2022 10:10 am | This question does not apply to this project. not within scope of amendment new building proposed |
| Section 118 - 120: Accessibility: Does the proposal demonstrate compliance with provisions of Section 118 - 120? LoA: Section 118 only applies to certain buildings - refer to Schedule 2 hyperlink under reference notes. | N/A | HTn | 24/03/2022 10:11 am | This question does not apply to this application.<br>checked BA04 s.118-120 and schedule 2 and building not listed. This is a single household dwelling - |
| Section 268 - 272: Product Certificates: If the proposal includes a product certificate issued by an accredited product certification body under BA sec. 261; then is the certificate current and the proposal within the scope of the product certificate? Please check MBIE register and record the product Authorization Number; or select N/A if there no certified building methods or products. | N/A | HTn | 24/03/2022 10:11 am | This question does not apply to this application. not within scope of amendment |
| Section 363: Certificate of Public Use: Please tick if there is likelihood that a CPU will be required i.e. if the building work will result in members of the public using the premises (or part thereof) prior to the issue of a Code Compliance Certificate. Please select N/A if a Certificate of Public Use is not required. | N/A | HTn | 24/03/2022 10:11 am | There is little likelihood that the building work will trigger need for application for a Certificate of Public Use. not within scope of amendment SH use |
| **PRELIMINARY** | | | | |
| Required Docs: Please tick if there are any required documents or construction monitoring records required for this project. Select N/A if there are no required documents or construction monitoring records required. Please do not apply a cross to this question. | Y | HTn | 24/03/2022 10:11 am | Required documents and construction monitoring records will be required before CCC is issued.<br>Please refer to body of processing considerations for further details. |
| Site Considerations: Have the following matters been checked and confirmed to be compliant: | | | | |
| **Site Considerations - Prompt List:** | **Y** | **HTn** | **24/03/2022 10:17 am** | |


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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
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| *Site Considerations:1. Siting: Is sufficient information provided to ensure building work will be correctly sited?* | Y | HTn | 24/03/2022 10:17 am | Sufficient information is provided to ensure building work will be correctly sited<br>Plans sheets A01, A32, 33 and FFL throughout application provide relevant and suitable FFL and original consent provides distances to boundaries . All other details below are not within the scope of amendment and refer to considerations in main building notes |
| *2. Wind, earthquake, corrosion zones: Have the wind, earthquake and corrosion zones for this site been correctly assessed?* | N/A | HTn | 24/03/2022 10:17 am | This is an application for an internal alteration so this question has no bearing on this project. |
| *3. Liquefaction susceptibility: If the land on which the building work is to occur is deemed susceptible to liquefaction, then please confirm whether a geotechnical report been provided?* | N/A | HTn | 24/03/2022 10:17 am | The land on which the building work is to occur is not deemed susceptible to liquefaction so this question is not applicable to this project. |
| *4. Easement: Is an easement required for drains or for access that may affect other properties?* | N/A | HTn | 24/03/2022 10:17 am | There is no requirement for an easement for drainage or access that may affect other properties. |
| *5. Services: Have the effects of building work on existing services been properly considered?* | N/A | HTn | 24/03/2022 10:17 am | Services: there are no existing services on this site. |
| *6. Slope suitability and overland flow paths: Have the effects of sloping ground in relation to building stability and the effects of overland flow paths been properly considered?* | N/A | HTn | 24/03/2022 10:17 am | The site is level and is not effected by overland flow paths. |
| *7. Ground bearing: Is evidence provided to confirm that ground bearing capacity is adequate to support imposed loads? [ensure construction monitoring / site verification requirements been applied and apply advice note if required].* | N/A | HTn | 24/03/2022 10:17 am | The proposal does not require consideration of imposed loads and ground bearing capacity. |
| *8. Demolition, excavation, construction, sediment control: Have the effects that these activities may have on people or other properties been properly considered and / or mitigated?* | N/A | HTn | 24/03/2022 10:17 am | |
| *9. Finished floor levels: Has compliance with code provisions for finished floor levels in relation to finished ground demonstrated?* | Y | HTn | 24/03/2022 10:17 am | Compliance with code provisions for finished floor levels in relation to finished ground levels is demonstrated. FFL 8550mm which was within original BC notes and this is depicted within PS1 and arhitectural slab drawings |
| *10. Misc.:* | N/A | HTn | 24/03/2022 10:17 am | There are no miscellaneous matters associated with this question. |
| Preconstruction Meeting: Is a pre-construction meeting required? Please select N/A if a Pre-construction meeting is not required. | N/A | HTn | 24/03/2022 10:17 am | A pre-construction meeting is not required. |
| Miscellaneous - Other: Please select the cross if you wish to raise an RFI for an item that may not clearly fit into any other category. | N/A | HTn | 24/03/2022 10:17 am | Not required |
| **B1: STRUCTURE** | | | | |
| **B1 - Structure** | | | | |
| **B1: Foundations, Piles, Floors** | | | | |
| B1: Pile: Does the pile design comply with the nominated compliance path and with B1 & B2? | | | | |
| **B1: Pile - Prompt List:** | **N/A** | **HTn** | **24/03/2022 10:18 am** | This question does not apply to this application. |
| *Pile:1. Pile layout, treatment, type, footing, height: Is compliance demonstrated?* | | | | |
| *2. Bracing: Is pile bracing demand satisfied?* | | | | |
| *3. Load paths: Are the piles correctly located to support imposed loads?* | | | | |
| *4. Pile fixings: Are pile fixing assembly and durability details compliant and appropriate for the pile type?* | | | | |
| *5. Sub-floor access / ventilation: Is sub-floor access and ventilation compliant?* | | | | |

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| *6. SED, driven piles: Does specific engineer design information demonstrate compliance, and have construction monitoring requirements been entered into the system? Please review inspections and add further inspections as required to suit method of construction.* | | | | |
| *7. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 10:18 am | Cupolex floor slab design therefore not within scope of work |
| B1: Footings, Foundations (In-situ, masonry, SED): Does the design comply with that of the nominated compliance path and satisfy the requirements for B1 Structure and B2 Durability? Note: Please assess compliance of all footing and foundations (including those of SED elements) under this question. | | | | |
| **B1: Footings, Foundations (In-situ, masonry, SED) - Prompt List:** | **N/A** | **HTn** | **24/03/2022 10:18 am** | This question does not apply to this application. |
| *Footings and Foundations:1. Footings, foundations, foundation walls: Is the footing, foundation wall, reinforcing detailing compliant? [Check - Footing and foundation sizes, Reinforcing - grade, size, lap, support; Check concrete cover and concrete strength is appropriate for the environment and corrosion zone].* | | | | |
| *2. SED footings and foundations (includes those for posts, columns, tilt panels, portal frames): Does the specific design demonstrate compliance and have construction monitoring requirements been determined and entered into the system? [Check that information addresses design actions, loading, uplift, and connections and ensure detailing is compliant]. Please review inspections and add further inspections as required to suit method of construction.* | | | | |
| *3. Sub-floor access and ventilation: Is the detailing for sub-floor access and sub-floor ventilation compliant?* | | | | |
| *4. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 10:18 am | no change to main building notes - refer to amended wall and bracing layout changes within new PS1 cupolex CGW docs and drawings and floor slab notes |
| B1: Floor Slab: Does floor slab detailing demonstrate compliance with the nominated compliance path and with NZBC B1 & B2?<br>Note: Please assess compliance of SED floor slab proposals under this question. | | | | |
| **B1: Floor Slab - Prompt List:** | **Y** | **HTn** | **24/03/2022 10:38 am** | |
| *Floor Slab:1. Floor level and ground bearing: Select N/A as this should have been checked under Preliminary > Site Considerations.* | Y | HTn | 24/03/2022 10:38 am | FFL as main building consent but the FFL has been carried throughout the amended drawings and docs with project specific references. Construction monitoring ground bearing check provided as main buildin gnotes and original form 5 |
| *2. Foundation details: Do details demonstrate compliance with the compliance path nominated?* | Y | HTn | 24/03/2022 10:38 am | Foundation details demonstrate compliance with the compliance path nominated. as per original form 5 specifications however S-01-01 through to S-01-05 and point loading calculations have been amended and resubmitted as notes below |


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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *3. Pod layout, hard fill, blinding, DPM, insulation: Are details complying? [Check that specifications identify requirements for compaction, hard fill, DPM grade and installation].* | Y | HTn | 24/03/2022 10:38 am | Pod layout, hard fill, blinding, DPM, insulation details are complying. Specifications identify requirements for compaction, hard fill, DPM grade and installation. depicted project specific resubmitted drawings and calcs and PS1 of S-01-01 through to S-01-05 and point loading calculations have been amended and resubmitted as notes below to align with wall layout cahnges and handibrac requirements of slab thickenings |
| *4. Reinforcing: Is reinforcing grade, size, lap, support, cover and location of supplementary bars complying?* | Y | HTn | 24/03/2022 10:38 am | Refer to main building notes regarding unchanged reinforcing grade, size, lap, support, cover and location of supplementary bars is complying.<br>- project specific resubmitted drawings and calcs and PS1 of S-01-01 through to S-01-05 and point loading calculations have been amended and resubmitted as notes below to align with wall layout changes and handibrac requirements of slab thickenings |
| *5. Point loads: Are the location of point loads correctly identified and is thickening detailing complying? [Check load path support details from roof through to ground level].* | Y | HTn | 24/03/2022 10:38 am | Point load and thickening detailing is compliant. refer to SD sheet 45 with amended point loading calculations for slight changes to floor plans for lower and upper story and newly submitted Wilton Joubert bracing which is aligning with PL sheet A07 with slab thickening correctly resubmitted for depth of Bowmac screw required |
| *6. Control Joints: Is detailing of control joints complying?* | Y | HTn | 24/03/2022 10:38 am | Detailing of control joints is complying. as per original main dwelling notes - control joints specified compliance stands |
| *7. Concrete strength: Is concrete strength and cover appropriate for the environment and corrosion zone?* | Y | HTn | 24/03/2022 10:38 am | Concrete strength and cover is appropriate for the environment and corrosion zone. As per original specifications and compliance |
| *8. SED floor slab: Does the floor slab design demonstrate compliance with B1 & B2? [Check - confirmation of suitable ground bearing; ensure construction monitoring requirements are recorded]. Please review inspections and add further inspections as required to suit method of construction.* | Y | HTn | 24/03/2022 10:38 am | The design demonstrates compliance with B1 & B2, confirmation of suitable ground bearing is provided, construction monitoring requirements are recorded. B2 durability provisions align with B2/AS1 3.0 requirements and refer to main building notes for further considerations and SD sheet 27 within PS1 |
| *9. Miscellaneous:* | N/A | HTn | 24/03/2022 10:38 am | There are no miscellaneous matters that require consideration. |
| B1: Suspended Mid-floor Slab: Does mid-floor, suspended floor slab design and detailing demonstrate compliance with the nominated design solution and with NZBC B1 & B2? | | | | |
| **B1: Suspended Mid-floor Slab - Prompt List:** | **N/A** | **HTn** | **24/03/2022 10:39 am** | This question does not apply to this application. |
| *Mid-Floor Slab:1. Design: Does slab thickness, concrete strength and reinforcing detailing and concrete cover comply? See reference notes.* | | | | |
| *2. Methodology: Does methodology indicate that slab will be properly supported prior to pouring and properly cured afterwards?* | | | | |
| *3. Point loads: Is point loads & thickenings detailing compliant?* | | | | |
| *4. Shrinkage: Is shrinkage control & supplementary bar detailing compliant?* | | | | |
| *5. Services: Is detailing for the installation of services below and through the slab compliant?* | | | | |
| *6. SED: Does the Specific Engineer Design information demonstrate compliance and have construction monitoring requirements been entered into the system? Please review inspections and add further inspections as required to suit method of construction.* | | | | |
| *7. Miscellaneous:* | | | | |


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| **Supplementary Processing Notes:** | | HTn | 24/03/2022 10:39 am | Not within scope of amendment, checked plans and form 2 application and other supporting documents |
| Producer Statement: Does the statement provide sufficient information and evidence to demonstrate reasonable grounds for its acceptance? | | | | |
| **Producer Statement - Prompt List:** | **Y** | **HTn** | **24/03/2022 10:48 am** | |
| *Producer Statement:1. Scope: Is the scope and extent of work accurately and clearly identified?* | Y | HTn | 24/03/2022 10:48 am | The scope and extent of work is accurately and clearly identified Sd 20-58 includes PS1 design, calcs and drawings with amendment statement - compliance with B1/VM1/VM4 and alternative solution testing statement SD sheet 25 complies with NZS1170 part 1 loading requirements |
| *2. ID: Is the site address & legal description correctly identified?* | Y | HTn | 24/03/2022 10:48 am | The Building Consent Authority is identified as the recipient TDC |
| *3. Recipient: Is the Building Consent Authority identified as the recipient?* | Y | | | |
| *4. Author: Is adequate information is provided? [author name, qualification, registration number, professional affiliation, company name].* | Y | HTn | 24/03/2022 10:48 am | Adequate information is provided on behalf of CGW signed and dated<br>Audrey Farreyre CPENG 1009889 active and structural class competent, checked ENZ website |
| *5. Competence: Is work within the author's scope of approval / competence?* | Y | HTn | 24/03/2022 10:48 am | Work within the author's scope of approval / competence see above |
| *6. Means of compliance: Is the correct code clauses and means of compliance identified and include B2 - Durability?* | Y | HTn | 24/03/2022 10:48 am | Means of compliance is correctly identified. Sd sheet 27 p. 5 of PS1 provides compliance for B2 inherently within Alt solution to B1/VM1/VM4 design with concrete strength, cover laps and reo grades as per B2/AS1 section 3 |
| *7. References: Are references to plans or consent documents correct?* | Y | HTn | 24/03/2022 10:48 am | References to Plans and consent documents is correct. S-01-01 through to S-01-05 all resubmitted with project specific FFL and slabthickenings and wall layouts with recalced point loading within calcs. Satisfied referenced dwgs are project specific and amended |
| *8. Conditions: If conditions apply then are these clear and practicable?* | Y | HTn | 24/03/2022 10:48 am | Conditions apply and these are clear and practicable. |
| *9. Construction verification: If on-site construction verification is required then is construction monitoring action completed?* | Y | HTn | 24/03/2022 10:48 am | Construction monitoring actions are recorded. refer to main building notes - original form 5 still applies con mon |
| **B1: Sub-floor, Mid-floor, Deck** | | | | |
| B1: Sub-floor structure and flooring: Does the design for the sub-floor structure and flooring comply with the design solution nominated and with NZBC B1 and B2: | | | | |
| **B1: Sub-floor structure and flooring - Prompt List:** | **N/A** | **HTn** | **24/03/2022 10:49 am** | This question does not apply to this application. |
| *Sub-floor Structure and Flooring:1. Sub-floor wall framing: Is compliance demonstrated? Check - framing size, treatment, bracing, fixings and ensure that DPC is detailed between framing and concrete].* | | | | |
| *2. Bearers, stringers, joists: Is compliance demonstrated? [Check - support for floor loads, load bearing walls and point loads; treatment, size, span, spacing and layout of members; support and bracing; DPC; fixings and treatment].* | | | | |
| *3. Services: Is the setout for the subfloor structure and services compatible? [Check - that falls for services pipework will fit within the floor cavity and check that if pipework is to pass through framing members structural integrity will not be compromised].* | | | | |
| *4. Sub-floor bracing: Is detailing compliant? [Check - size and treatment of brace elements; check earthquake and wind demand complies, check bracing values and distribution of elements; check diaphragm ratio; check fixing details].* | | | | |


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|---|---|---|---|---|
| *5. Clearances, ventilation: Is clearance between ground and structural elements complying and is adequate subfloor ventilation available? [Check - that the required clearances are provided between ground and underside of the structure and flooring; that threshold clearances comply; that required clearance is provided between the base of wall cladding and decks or finished ground; that subfloor ventilation provisions are satisfied]* | | | | |
| *6. Sub-floor insulation: Is this compliant?* | | | | |
| *7. Internal flooring: Is the flooring system compliant? [Check - treatment, grade, thickness, support, fixings and finish].* | | | | |
| *8. SED: Does the solution demonstrate compliance with the design solution nominated and has construction monitoring requirements been recorded?* | | | | |
| *9. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 10:49 am | not within scope of work; Cupolex Floor Slab nominated |
| B1: Deck Structure and Decking: Does the proposal for the deck structure and decking comply with the nominated compliance path and with NZBC B1 & B2? | | | | |
| **B1: Deck Structure and Decking - Prompt List:** | **N/A** | **HTn** | **24/03/2022 10:49 am** | This question does not apply to this application. |
| *Deck Structure and Decking:1. Structure: Is the proposed structural detailing compliant? [Check - size, treatment, grade, span and fixing of deck framing and deck bracing elements].* | | | | |
| *2. Decking: Is the decking design compliant? [Check - treatment, grade, thickness, support, fixings, finish; Provision for drainage and maintenance; Ensure decks do not prevent access or visibility of gully traps or impede subfloor ventilation].* | | | | |
| *3. SED:(includes deck barriers): Does the SED solution demonstrate compliance and have compliance monitoring requirements been entered into the system? [NOTE: there are no verification methods or acceptable solutions for the design of deck barriers so these will be subject to specific engineering design].* | | | | |
| *4. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 10:49 am | not within scope of amendment |
| B1: Mid-floor Structure and Flooring: Does the design for the mid-floor structure and flooring / decking comply with the design solution nominated and with NZBC B1 and B2: | | | | |
| **B1: Mid-floor Structure and Flooring - Prompt List:** | **Y** | **HTn** | **24/03/2022 10:56 am** | |
| *1. Mid-floor Structure: Mid-floor structure: Is compliance demonstrated? [Check - Floor loads; Stringer and Joists - size, grade, span, spacing, fixing and treatment; Lateral support / blocking; Point loads; Trimmer sizes; Cantilever joist size and projections; Build-ability - check subfloor services, falls and joist layout; Bracing].* | Y | HTn | 24/03/2022 10:56 am | Compliance is demonstrated. Considerations include checking size, treatment, setout, bracing and fixing of supporting elements. Carters no onger specifier and placemakers drawings submitted. Tiled upper floor shower required using LVL CHC software design as per previous BC notes with correct criteria applied. A05 plan updated to reflect changes, all SED engineered midfloor areas unchanged but PS1 design updated to be project specific and reflect the amended changes |
| *2. Flooring, decking: Is the flooring, decking treatment, grade, size, spans and fixing correctly specified and suitable for the imposed loads and for the environmental conditions?* | Y | HTn | 24/03/2022 10:56 am | Compliance is demonstrated. Considerations include checking floor loads are correctly identified; checking treatment, size, span, spacing, layout, bracing and fixing of structural members. H3 for wet areas specified correctly as per NZS3602 |

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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *3. SED: Does the solution demonstrate compliance with the design solution nominated and has construction monitoring requirements been recorded?* | Y | HTn | 24/03/2022 10:56 am | Compliance is demonstrated. The flooring, decking treatment, grade, size, spans and fixing is correctly specified and suitable for the imposed loads and for the environmental conditions. The Wilton Joubert PS1 has been updated to be project specific and bracing and wall ayouts amended however the steel beams and midlfoor SED design remains unchanged - however the non-SED LVL joists under the tiled shower are decreased in depth and packed as per Placemakers drawing resubmitted. Carters were original BC specifier however placemakers drawings resubmitted and I have siperseded non-project specific details |
| *4. Miscellaneous:* | N/A | HTn | 24/03/2022 10:56 am | There are no miscellaneous matters associated with this question |
| **B1: Walls, Roof, Linings** | | | | |
| B1: Walls, Wall bracing, Posts, Beams: Does the design for the wall structure, posts and beams comply with the design solution nominated and with NZBC B1 and B2? Disable the pre-pour inspection for post footings if these are to be poured in conjunction with the floor slab. | | | | |
| **B1: Walls, Wall bracing, Posts, Beams - Prompt List:** | **Y** | **HTn** | **24/03/2022 11:01 am** | |
| *Walls, Wall bracing, Posts, Beams:1. Wall framing: Is the wall framing construction detail complying? [Check - Framing treatment, grade, size, support, setout, separation between concrete and framing, and fixing of plates, studs, trimmers, lintels and sills].* | Y | HTn | 24/03/2022 11:01 am | Wall framing construction detail complies. Considerations include checking treatment, grade, size, support, setout, and fixing of plates, studs, trimmers, lintels and sills. changes to wall dimensions and orientations and bracing. All drawings and SED drawings updated adequatly to reflect changes and resubmission fo floor slab in RFI response for slab thickenings required for bracing elements. No changes to compliance pathways for walls in either storey - original main building compliance notes still apply |
| *2. Wall bracing: Does the wall bracing design comply? [Check - Complying bracing methodology is applied; Brace demand complies; Brace line layout and distribution of brace elements; Brace element construction and fixing; Allowances applied for wall height variances; Brace elements are clear of wet areas].* | Y | HTn | 24/03/2022 11:01 am | Wall bracing design demonstrates compliance. Considerations include checking correct bracing methodology has been applied; brace demand complies; brace line layout and distribution of bracing elements complies; brace element construction and fixing details comply, correct allowances applied for wall height variances; brace elements are clear of wet areas.Wall bracing: the wall bracing design demonstrates compliance. Please provide the following additional information. Resubmitted floor slab with project specific wall dimensions and orientations and slab thickeings required by H Bracing units requiring handibracs and screw depths as per ENZ and GIB bracing specification guidance. All new details merged into plans set and all approved plans and docs pages non-project specific superseded as per Promap dept policy guidance |
| *3. Posts, beams: Does the post / beam design demonstrate compliance? [Check - durability of materials; Post / footings / connections; Post size, grade, spacing; beam size, grade, span; post beam connections].* | N/A | HTn | 24/03/2022 11:01 am | Posts, Beams: no changes within amendment |

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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| *4. SED (structural elements): Does the solution demonstrate compliance with the compliance pathway nominated and have construction monitoring and any inspection requirements been recorded? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS4; Review inspection requirements].* | N/A | HTn | 24/03/2022 11:01 am | SED: there are no SED components that require consideration. no changes within amendment |
| *5. Miscellaneous:* | N/A | HTn | 24/03/2022 11:01 am | There are no miscellaneous matters requiring consideration. |
| Roof Structure: Does the roof structure design comply with the design solution nominated and with NZBC B1 and B2? | | | | |
| **Roof Structure - Prompt List:** | **N/A** | **HTn** | **24/03/2022 11:02 am** | This question does not apply to this application. |
| *Roof Structure (light construction):1. Imposed loads: Is the roof structure adequate to support imposed loads? [Check - wind, snow, earthquake].* | | | | |
| *2. Roof truss certification, layout and bracing: Is a complying and site specific truss design provided along with the layout, a producer statement, a design statement and a manufacturer statement? [Lintels may be considered here or under wall framing].* | | | | |
| *3. Timber roof frame elements: Is the detailing for roof frame elements complying? [Check - grade, size, spacing, span, treatment and fixings for roof frame members - rafters, ridge boards, ridge beams, ceiling joists, ceiling runners, valley boards, underpurlins, underpurlin struts, strutting beams, veranda beams, collar ties and cleats, eaves, gable verges, purlins and tile battens].* | | | | |
| *4. Bracing: Is roof bracing complying? [Check - Sarking; Location, distribution, size, spacing, grade and fixing of roof plane and roof space braces; Consider bottom chord restraint and distribution of gable end braces].* | | | | |
| *5. Purlins, Tile battens, Ceiling battens: Does the purlin, tile batten, ceiling batten type, size, grade, spacing, span, fixing and durability comply?* | | | | |
| *6. Insulation: Have roof space insulation requirements been considered? [Consider - depth of rafters and thickness of insulation; Clearance between insulation and roof frame at exterior wall junctions and clearance with roof underlay].* | | | | |
| *7. SED: Does the SED solution demonstrate compliance and have compliance monitoring requirements been entered into the system? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS4; Review inspection requirements].* | | | | |
| *8. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 11:02 am | not within scope of amendment refer main building notes |
| B1: Wall & Ceiling Linings: Are wall and ceiling linings fit for purpose and are specifications adequate to ensure complying installation? Consider ceiling diaphragms - Rectangular, Length (L) shall not exceed 2 x width (W); Check sheet specifications and fixing; Protrusions (see NZS 3604:2011 13.5) | N/A | HTn | 24/03/2022 11:22 am | B1: Wall & ceiling lining construction: this question does not apply to this project. not within scope of amendment refer main building notes |
| B1: Small Chimney: Does the chimney design comply with the design solution nominated, and with NZBC B1 & B2? This question does not address compliance with NZBC C1 - C6. Please GO TO C - FIRE SAFETY Para 7.5 after completing these questions. Please process chimney foundations and footings under B1: Foundations, Piles, Floors. | | | | |
| **B1: Small Chimney - Prompt List:** | **N/A** | **HTn** | **24/03/2022 11:22 am** | This question does not apply to this application. |


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| *Small Chimney1. Ground bearing: Is evidence provided to confirm that the chimney will be founded on good ground?* | | | | |
| *2. Limitations: Have design limitations been checked and confirmed as complying?* | | | | |
| *3. Foundations: Does detailing demonstrate compliance? [Check - reinforcing, size, grade, placement, concrete strength].* | | | | |
| *4. Hearth: Are hearth construction requirements and limitations satisfied?* | | | | |
| *5. Connections: Is detailing of connections and supports compliant?* | | | | |
| *6. Brace demand: Is bracing demand compliant?* | | | | |
| *7. B2: Is compliance with durability provisions satisfied? [Check impact on materials in relation to environment, and access & maintenance risk].* | | | | |
| *8. E2: (Weather-tightness) - Is flashing detailing compliant?* | | | | |
| *9. SED: Does the design demonstrate compliance and have construction monitoring requirements been entered into the system? Please review inspections and add further inspections as required to suit method of construction.* | | | | |
| *10. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 11:22 am | not within scope of amendment refer main building notes |
| B1: Masonry Construction (SED, NZS 4229, NZS 4230): Does the masonry design proposal demonstrate compliance with the design solution nominated and with NZBC B1 and B2? Please process the footings and foundations under B1: Foundations, Piles, Floors. Please process external tanking of blockwork under E2 - E2.3.4 - Drainage and Tanking. Please review inspections and modify as required. | | | | |
| **B1: Masonry Construction (SED, NZS 4229, NZS 4230) - Prompt List:** | **N/A** | **HTn** | **24/03/2022 11:23 am** | This question does not apply to this application. |
| *Masonry Construction:1. Scope: Is the design within scope of the nominated design solution?* | | | | |
| *2. Design principles: Do the design principles and requirements for construction comply?* | | | | |
| *3. Durability: Has the correct site classification been applied and does the design satisfy provisions of NZBC Clause B2?* | | | | |
| *4. Materials: Do the materials specified comply with the provisions of the nominated design solution?* | | | | |
| *5. Fire resistance: Do components (walls, beams, columns etc.) have the required fire resistant rating for stability, integrity and insulation?* | | | | |
| *6. Bracing demand: Are bracing demand provisions satisfied?* | | | | |
| *7. Diaphragms: Are the requirements and provisions for diaphragms satisfied?* | | | | |
| *8. Reinforcement: Is the design of reinforcement compliant?* | | | | |
| *9. Structure: Is the design of structural walls, beams, columns, beam / column joints, bond beams and lintels compliant?* | | | | |
| *10. Shrinkage, movement control: Are provisions for movement control and shrinkage satisfied?* | | | | |
| *11. SED: Does the SED solution demonstrate compliance and have compliance monitoring requirements been entered into the system? [Check - Structural calculations; Check structural drawing coordination has occurred; Identify any third party documentation that is required under construction monitoring i.e. PS4; Review inspection requirements].* | | | | |
| *12. Miscellaneous:* | | | | |

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|---|---|---|---|---|
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 11:23 am | not within scope of amendment refer main building notes |
| B1: Specific Design Elements | | HTn | 24/03/2022 11:23 am | Code Clause Disabled: Not applicable for this project. not within scope of amendment refer main building notes |
| **B2: DURABILITY** | | | | |
| B2: DURABILITY: Does the design demonstrate compliance with Functional Requirement - B2.2? Review inspections and add / delete / modify inspection questions as required. | | | | |
| **B2: DURABILITY - Prompt List:** | Y | HTn | 24/03/2022 01:42 pm | |
| *Durability:1. B2.3.1a): Will building elements (including floors, walls and fixings) that provide structural stability to the building, or elements that are difficult to access or replace, or where failure of those elements would go undetected during normal use or maintenance, with only normal maintenance continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 50 years?* | Y | HTn | 24/03/2022 01:42 pm | B2.3.1a): compliance with B2.3.1a) is satisfied.<br>- B2 ASPECTS FOR 50 YEARS refer to main building notes for further considerations. B2 statement for cupolex floor slab inherently aligns with B2/AS1 section 3 requirements, cupolex specification remain as per original BC and multiproof application with resubmitted materials and calcs and PS1 and drawings to align with new floor layout and bracing changes.<br>- H3.2 flooring under upper floor wet areas with tiled application - NZS3602 compliance of 50 years achieved<br>- Placemakers midfloor specifiers for LVL for internal use of midfloor superseded carters docs from original form 5 attachments |
| *2. B2.3.1b): Will building elements (including the building envelope, exposed plumbing in the sub-floor space, and in-built chimneys and flues) that are moderately difficult to access or replace, or where failure of those elements would go undetected during normal use of the building, but would be easily detected during normal maintenance, with only normal maintenance continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 15 years?* | Y | HTn | 24/03/2022 01:42 pm | B2.3.1b): compliance with B2.3.1b) is satisfied - 15 year durability provisions are satisfied.<br>Tiled shower applied to upper floor, 15 years for tiles and grout and WPM as per that assessed in original application, proprietary shower removed from application<br>Under tile heating included SP sheet 28-39 with adequate install and leveling compound detailing and for curing of floor slab to be achieved. Processor has highlighted some key areas such as not cross of heating wiring, electrician install and curing of slab and laying of compound ontop of slab for levelling and substrate to be adequate for tiles laid.<br>Adequate construction sequencing for 15 year minimum durability to be achieved , electrician sign off as part of CCC |
| *3. B2.3.1c): Will building elements (including services, linings, renewable protective coatings, and fixtures) that are easy to access and replace, and where failure of those elements would be easily detected during normal use of the building, continue to satisfy the performance requirements for this code for the lesser of the stated intended life of the building or for 5 years?* | Y | HTn | 24/03/2022 01:42 pm | Compliance with B2.3.1c) is satisfied - 5 year durability provisions are satisfied.<br>HWC in accessible cupboard and heat pump to extrerior which can heat the HWC when in use. Electrical supply and specifications provided SP sheet 1-27. 10 year warranty for HWC and heatpump and long in service history of this type of HWC and heatpump heating and plumber/electrician install , sorged compliance can be achieved |


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| *4. B2.3.2: Do individual building elements that are components of a building system and are difficult to access or replace have all the same durability OR are installed in a manner that permits replacement of elements of lesser durability without removing elements that have greater durability and are not specifically designed for removal and replacement?* | Y | HTn | 24/03/2022 01:42 pm | Compliance with B2.3.2 is satisfied. H3.2 floor and WPM install above midfloor with reduction in 2 x 300 deep joists to 240 deep with packers in order for falls to be achieved. the 15 year durability of tiled and WPM application complies with E3/AS2 tile application practice notes use of angles for internal corner and waterstop. E3/AS1 compliance achieved as per fig 4 and 6 detailing in A28-29 with A29 resubmitted. I am satisfied that no bracing behind this shwer area as per GIB Ezybrace manual.<br><br>Ps1 for floor slab drawings updated for different point loadings and bracing units and slab thickenings required were demonstrated on plans for depth of bowmac handibrac screw |
| *5. Miscellaneous:* | N/A | HTn | 24/03/2022 01:42 pm | There are no miscellaneous matters that require consideration. |
| **C: FIRE SAFETY** | | **HTn** | **24/03/2022 09:14 am** | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| **C/AS1: SH** | | **HTn** | **24/03/2022 09:14 am** | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| **C: Alt Sol / VM2** | | **HTn** | **24/03/2022 09:14 am** | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| **New C/AS2** | | **HTn** | **24/03/2022 09:14 am** | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |


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|---|---|---|---|---|
| D: ACCESS | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| D1: Access Routes | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| D2: Mech Installations for Access | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| **E: MOISTURE** | | | | |
| E1: Surface Water | | HTn | 24/03/2022 11:24 am | Code Clause Disabled: Not applicable for this project. |
| E2: External Moisture | | HTn | 24/03/2022 11:24 am | Code Clause Disabled: Not applicable for this project. |
| E2: Roof Cladding | | HTn | 24/03/2022 11:24 am | Code Clause Disabled: Not applicable for this project. |
| E2: Wall Cladding | | HTn | 24/03/2022 11:24 am | Code Clause Disabled: Not applicable for this project. |
| E2: External Moisture re: Alt Solutions | | HTn | 24/03/2022 11:24 am | Code Clause Disabled: Not applicable for this project. |
| **E3: Internal Moisture** | | | | |
| E3: Internal Moisture: Does the proposal comply with Functional Requirement E3.2 and demonstrate that buildings are constructed to avoid the likelihood of (a) Fungal growth or accumulation of contaminants on linings and other building elements; and (b) Free water overflow penetrating to an adjoining house hold unit; and (c) Damage to building elements being caused by the presence of moisture?<br>Review inspections and add / delete / modify inspection questions as required. | | | | |
| **E3: Internal Moisture - Prompt List:** | Y | HTn | 24/03/2022 11:52 am | |
| *E3 - Internal Moisture:1. E3.3.1: Does the design demonstrate that an adequate combination of thermal resistance, ventilation and space temperature is provided to all habitable spaces, bathrooms, laundry and other spaces where moisture is generated or may accumulate? LoA - does not apply to Communal Non-residential, Commercial, Industrial, Outbuildings or Ancillary buildings.* | Y | HTn | 24/03/2022 11:52 am | Compliance with provisions of E3.3.1 is demonstrated. refer to main building notes as compliance pathways have not changed, however proprietary shower on upper level amended to tiled shower application. Refer to notes below however ventilation complies and insulation and packers complies with H3 flooring as substrate and WPM applied as per original specification documents. |

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| *2. E3.3.2: Is freewater from accidental overflow from sanitary fixtures or sanitary appliances disposed of in a way that avoids loss of amenity or damage to household units or other property?* | Y | HTn | 24/03/2022 11:52 am | Compliance with provisions of E3.3.2 is demonstrated. tile shower specified to upper level. A29 resubmitted with and original plan superseded. compliance for overflow Compliance with provisions of E3.3.2 is demonstrated. Tiles to entry, ensuite and bathroom and kitchen areas as per E3/AS1 3.1.1b provisions. Laundry in garage with concrete floor and sealed joints. Accidental overflow aligns with E3/AS1 section 2 and containment through sealed joints and floor wastes within 1.5m of overflow appliance and silcone sealant at back of skirting to base of GIB aqualine as per 3.1.2 (c) and tiled shower walls to shower and walls to 3.1.2 (b) and E3/AS2 tiling code pf practice with steel angle to wall conrers and water stop angle to floor recess depicted , WPM and falsl to wastes. |
| *3. E3.3.3: Are floor surfaces of spaces containing sanitary fixtures or sanitary appliances impervious and easily cleaned?* | Y | HTn | 24/03/2022 11:52 am | Compliance with provisions of E3.3.3 is demonstrated. compliance as notes above complies E3/1/1(b) tiled application to upper storey |
| *4. E3.3.4: Are wall surfaces adjacent to sanitary fixtures or sanitary appliances impervious and easily cleaned?* | Y | HTn | 24/03/2022 11:52 am | Compliance with provisions of E3.3.4 is demonstrated. compliance as per main building notes achieved within amendment compliance achived with A29 amended and original compliance can be achieved to 3.1.2(c) and (B) for tiled showers, see notes below |
| *5. E3.3.5: Are surfaces of building elements that are likely to be splashed or become contaminated in the course of the intended use of the building, impervious and easily cleaned?* | Y | HTn | 24/03/2022 11:52 am | Compliance with provisions of E3.3.5 is demonstrated. Compliance of tiled application achived E3/AS1 figure 6 and figure 4 compliance with alignment to tiling code of practice as per E3/As2 guidance use of angles for wall internal corner and water stops, WPM, use of sealant and PS3 for install. Falls to waste |
| *6. E3.3.6: Are surfaces of building elements that are likely to be splashed constructed in a way that prevents water splash from penetrating behind linings or into concealed spaces? Please give careful consideration to tile showers and membrane systems.* | Y | HTn | 24/03/2022 11:52 am | Compliance with provisions of E3.3.6 is demonstrated. Construction monitoring / Warranty requirements are addressed. PS3 to be provided from the waterproofing installer - condition added to consent |
| *7. Miscellaneous:* | N/A | HTn | 24/03/2022 11:52 am | This question does not apply to this Project. |
| **F: SAFETY OF USERS** | | **HTn** | **24/03/2022 09:14 am** | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| **F1: Hazardous Agents on Site** | | **HTn** | **24/03/2022 09:14 am** | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |

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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| F2: Hazardous Building Materials | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F3: Hazardous substances and processes | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F4: Safety from Falling | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F5: Construction and Demolition Hazards | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F6: Visibility in Escape Routes | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F7: Warning System | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |

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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| F8: Signs | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F9: Restricting Access to Residential Pools | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| **G: SERVICES** | | | | |
| **G1 Personal Hygiene, G2 Laundering, G3 Food Preparation & Prevention of Contamination** | | | | |
| G1, G2, G3: Personal Hygiene, Laundering, Food Preparation: Does the proposal satisfy the provisions of Functional Requirement G1.2, G2.2 and G3.2.1 and are the design details for personal hygiene, laundering, and food preparation areas compliant? | | | | |
| **G1, G2, G3: Personal Hygiene, Laundering, Food Preparation - Prompt List:** | Y | HTn | 24/03/2022 11:55 am | |
| *PERSONAL HYGIENE:G1.3.1 & G1.3.3: Are facilities provided in convenient locations with sufficient numbers of sanitary fixtures that are appropriate for the people who are intended to use them?* | Y | HTn | 24/03/2022 11:55 am | Sanitary fixtures are provided in convenient locations with sufficient numbers and are appropriate for the people who are intended to use them. compliance achieved with resubmitted floor plan and wet areas details as per original bc compliance pathways |
| *G1.3.2: Are sanitary fixtures located to:(a) Facilitate sanitation, (b) Avoid risk of food contamination, (c) Avoid harbouring dirt or germs, (d) Provide appropriate privacy, (e) Avoid affecting occupants of adjacent spaces from unpleasant odours, accumulation of offensive matter, or other source of annoyance, (f) Allow effective cleaning, (g) Discharge to a plumbing and drainage system as required by Clause G13 when water-borne disposal is used, and (h) Provide a healthy safe disposal system when non-water-borne disposal is used?* | Y | HTn | 24/03/2022 11:55 am | compliance achieved with resubmitted floor plan and wet areas details as per original bc compliance pathways refer main building notes for further considerations<br>Sanitary fixtures are located to:<br>(a) Facilitate sanitation,<br>(b) Avoid risk of food contamination,<br>(c) Avoid harbouring dirt or germs,<br>(d) Provide appropriate privacy,<br>(e) Avoid affecting occupants of adjacent spaces from unpleasant odours, accumulation of offensive matter, or other source of annoyance,<br>(f) Allow effective cleaning,<br>(g) Discharge to a plumbing and drainage system as required by Clause G13 when water-borne disposal is used, and<br>(h) Provide a healthy safe disposal system when non-water-borne disposal is used |
| *G1.3.4 Are the facilities that are provided for people with disabilities accessible? LoA G1.3.4 does not apply to Housing, Outbuildings, Back country huts, Ancillary buildings, and Industrial buildings where no more than 10 people are employed.* | N/A | HTn | 24/03/2022 11:55 am | Limits on Application exclude this building from requiring accessible facilities. |


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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
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| *LAUNDERING: G2.2: Are buildings provided with adequate space and facilities for laundering?[Check - Laundry location and spacial dimensions; Tub size and capacity; Space for washing machine; Service connections]. LoA G2.2 only applies to Housing, Old Peoples Homes, Camping Grounds and Work Camps.* | Y | HTn | 24/03/2022 11:55 am | Buildings are provided with adequate space and facilities for laundering. Considerations include laundry location, spacial dimensions, tub size and capacity, space for washing machine, service connections. compliance achieved with resubmitted floor plan and wet areas details as per original bc compliance pathways, laundry in garage dimensions changed slightly, original compliance pathways maintained |
| *G2.3.4: (Accessibility) - Are accessible facilities provided for people with disabilities? LoA G2.3.4 only applies to Camping Grounds.* | N/A | HTn | 24/03/2022 11:55 am | This question does not apply as there are no laundering facilities associated with this project. |
| *FOOD PREPARATION AND PREVENTION OF CONTAMINATION:G3.2.1 & G3.3.4: Is the building provided with spaces & facilities for hygienic storage, preparation & cooking of food that are conveniently located and adequate for the intended use of the building? LoA - This provision only applies to Housing, Work Camps, Old People's Homes and Early Childhood Centres and where appropriate Commercial and Industrial buildings whose intended use includes the manufacture, preparation, packaging or storage of food.* | Y | HTn | 24/03/2022 11:55 am | The building is provided with spaces and facilities for hygienic storage, preparation and cooking of food that are conveniently located and adequate for the intended use of the building. compliance achieved with resubmitted floor plan and wet areas details as per original bc compliance pathways, kitchen facilities complies as original main building notes |
| *G3.2.2: Are the building/s that are used for storage, manufacture or processing of food, including animal products, constructed in a manner that safeguards contents from contamination?* | N/A | HTn | 24/03/2022 11:55 am | This question does not apply as there are no food preparation and prevention of contamination matters associated with this project. |
| *G3.2.3: Are the building/s that are used for the medical treatment of humans or animals, or the reception of dead bodies, constructed to avoid the spread of contamination from the building contents?* | N/A | HTn | 24/03/2022 11:55 am | This question does not apply as the buildings are not used for the medical treatment of humans or animals or for the reception of dead bodies. |
| *G3.3.1: Are the food preparation facilities hygienic & include: (a) Space for a refrigerator, or perishable food storage area capable of being cooled & protected from vermin or insects, LoA This provision only applies to Housing, Work Camps, Old People's Homes and Early Childhood Centres, and Commercial and Industrial buildings whose intended use includes the handling of perishable food. (b) Means for food rinsing, utensil washing & waste water disposal, LoA This provision only applies to Housing, Work Camps, Old People's Homes and Early Childhood Centres, and Commercial and Industrial buildings whose intended use includes the handling of perishable food.(c) Means for cooking food,and LoA This provision only applies to Housing, Work Camps, Old Peoples Homes, Early Childhood Centres. (d) Space and a surface for food preparation? LoA This provision only applies to Housing, Work Camps, Old Peoples Homes, Early Childhood Centers.* | Y | HTn | 24/03/2022 11:55 am | compliance achieved with resubmitted floor plan and wet areas details as per original bc compliance pathways<br>The food preparation facilities are hygienic & include:<br>a) Space for a refrigerator, or perishable food storage area capable of being cooled & protected from vermin or insects,<br><br>(b) means for food rinsing, utensil washing & waste water disposal,<br>(c) means for cooking food,and<br>(d) space and a surface for food preparation. |
| *G3.3.2: Do spaces used for food preparation and utensil washing have: (a) Interior linings and work surfaces that are impervious and easily cleaned, (b) All building elements constructed with materials which are free from hazardous substances which could cause contamination to the building contents, and LoA only applies to Housing, Work Camps, Old People's Homes and Early Childhood Centres and where appropriate Commercial and Industrial buildings whose intended use includes the manufacture, preparation, packaging or storage of food. (c) Exposed building elements located & shaped to avoid accumulation of dirt? LoA does not apply to Housing.* | Y | HTn | 24/03/2022 11:55 am | Spaces used for food preparation and utensil washing have:<br>(a) Interior linings and work surfaces that are impervious and easily cleaned,<br>b) all building elements constructed with materials which are free from hazardous substances which could cause contamination to the building contents, and<br>(c) exposed building elements located & shaped to avoid accumulation of dirt. |
| *G3.3.3: Is an adequate energy supply provided and is it appropriately located for use by cooking and refrigeration appliances?* | Y | HTn | 24/03/2022 11:55 am | compliance achieved with resubmitted floor plan and wet areas details as per original bc compliance pathways<br>An adequate energy supply is provided and is appropriately located for use by cooking and refrigeration appliances. |


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| *G3.3.5: (Accessibility) - Are accessible facilities provided for people with disabilities?LoA only applies to Camping Grounds and Accessible accommodation units in Communal Residential buildings.* | N/A | HTn | 24/03/2022 11:55 am | This question does not apply as there are no food preparation and prevention of contamination matters associated with this project. |
| *G3.3.6: Are spaces protected from the likelihood of contamination or vermin entering areas used for storage, processing or preparation of food, and do these have means of preventing contamination spreading from these areas to other spaces? LoA only applies to Commercial and Industrial buildings whose intended use includes handling of perishable foods, medical treatment of humans or animals, slaughter of animals or reception of dead bodies.* | N/A | HTn | 24/03/2022 11:55 am | This question does not apply as there are no food preparation and prevention of contamination matters associated with this project. |
| *Miscellaneous:* | N/A | HTn | 24/03/2022 11:55 am | There are no miscellaneous matters requiring consideration. |
| **G4: Ventilation** | | **HTn** | **24/03/2022 09:14 am** | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| **G5 Interior Environment, G6 Airborne & Impact Sound** | | **HTn** | **24/03/2022 09:14 am** | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| **G7 Natural Light, G8 Artificial Light, G9 Electricity** | | **HTn** | **24/03/2022 09:14 am** | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| **G10 Piped Services, G11 Gas As An Energy Source** | | **HTn** | **24/03/2022 09:14 am** | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| **G12: Water Supplies** | | | | |
| G12: Water Supply: Does the proposal comply with Functional Requirement G12. and demonstrate that buildings provided with water outlets, sanitary fixtures or sanitary appliances have safe and adequate water supplies? | | | | |
| **G12: Water Supply - Prompt List:** | **Y** | **HTn** | **24/03/2022 12:06 pm** | |


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| *G12.3.1 & G12.3.2: (Potable water) - Does the proposal demonstrate that water intended for human consumption, food preparation, utensil washing or oral hygiene is potable and that the system will be: (a) Protected from contamination, (b) Installed in a manner which avoids the likelihood of contamination within the system and the water main, and (c) Installed using components that will not contaminate the water? Apply an Advice note advising that certification of the potable water supply will be required if the water supply is not provided by a NUO (network utility operator).* | Y | HTn | 24/03/2022 12:06 pm | compliance achieved with resubmitted floor plan and wet areas details as per original bc compliance pathways NUO to boundary<br>Compliance with G12.3.1 & G12.3.2 is satisfied. The proposal confirms that the water supply is potable and fit for human consumption, and will be protected from contamination, installed in a manner that avoids contamination within the system and the water main using components that will not contaminate the water supply. |
| *G12.3.3: & G12.3.4: (Non-potable water) - Does the proposal demonstrate that a non-potable water supply system used for personal hygiene will be installed in a manner that avoids the likelihood of illness or injury being caused by the system and that water pipes and outlets provided with non-potable water are clearly identified?* | N/A | HTn | 24/03/2022 12:06 pm | There is not a non-potable water supply associated with this project. |
| *G12.3.5 & G12.3.6: (Hot water) - Does the proposal demonstrate that sanitary fixtures and sanitary appliances will be provided with hot water when intended to be used for: (a) utensil washing; and (b) personal washing, showering or bathing; and that the hot water will be delivered at a temperature that prevents scalding? LoA - G12.3.5 (b) only applies to Housing, Retirement homes, Early Childhood Centres - Therefore; buildings that are not classified as housing, retirement homes or early childhood centres still require hot water if utensil washing will occur.* | Y | HTn | 24/03/2022 12:06 pm | HWC specification provided within amendment SP sheet 1-27 Heat pump water heater installation guidance with qualified install and PS3 to be provided for CCC<br>9m maximum insulated runs applicable and achieveable onsite within design<br>300 L HWC in accessible cupboard, 50 kpa pressure required<br>Electrician to install fittings, heatpump to exterior<br>p. 15-17 of spec SP sheet 14-16 provides pressure relief which complies with original compliance pathways G12/AS1 with tempering valve and and drainage as original drainage plan. The retrofitting diagrams don't appply but the sheet 17 diagram 3 applies<br><br>SP sheet Compliance with G12.3.5 & G12.3.6 is satisfied. The proposal demonstrate that sanitary fixtures and appliances used for utensil washing, personal washing, showering or bathing will be provided with hot water that will be delivered at a temperature that prevents scalding. |
| *G12.3.7: (Water supply system) - Does the proposal demonstrate that water supply systems will be installed in a manner that: (a) Pipes water to sanitary fixtures and sanitary appliances at flow rates adequate for the correct functioning of those fixtures and appliances under normal conditions, (b) Avoids the likelihood of leakage, (c) Allows reasonable access to components likely to need maintenance, and (d) Allows the system and any back flow prevention devices to be isolated for testing and maintenance?* | Y | HTn | 24/03/2022 12:06 pm | Compliance with G12.3.7 is satisfied.<br>applicable verification of construction and AS/NZS standards identified within the specification to verify compliance of construction. HWC is to be installed in accessible cupboard to provide adequate access for maintenance. Pressure certificate to be provided by plumber prior to CCC. checked SP sheet 1-27 and econergy heatpump water heater complies |
| *G12.3.8: (Pressure relief) - Does the proposal demonstrate that vessels used for producing or storing hot water are provided with safety devices that: (a) Relieve excessive pressure during both normal and abnormal conditions, and (b) limit temperatures to avoid the likelihood of flash steam production in the event of rupture? tick N/A if the proposal uses a califont system i.e. Infinity Gas Water Heater.* | Y | HTn | 24/03/2022 12:06 pm | Compliance with G12.3.8 is satisfied - pressure relief is provided. p/15-17 of SP sheet 1-27 spec provides adequate detailing of pressure rleief, registered electrician and olumber install |
| *G12.3.9: (Legionella) - Does the proposal demonstrate that a hot water system must be capable of being controlled to prevent the growth of legionella bacteria? tick N/A if the proposal uses a califont system i.e. Infinity Gas Water Heater.* | Y | HTn | 24/03/2022 12:06 pm | Compliance with G12.3.9 is satisfied - temperature control is provided to the<br>hot water supply. tempering within sheet 17 diagram 3 |
| *G12.3.10: (Accessibility) - Does the proposal demonstrate that water supply taps are accessible and usable for people with disabilities? LoA - only applies to buildings identified under section 47 A of the Act.* | N/A | HTn | 24/03/2022 12:06 pm | There are no accessible facilities so accessible taps will not be required. |


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| *Miscellaneous:* | N/A | HTn | 24/03/2022 12:06 pm | There are no miscellaneous matters requiring consideration. |
| G12: Wet back / Water Booster: Does the proposal for the installation of the wet back / water booster system demonstrate compliance with G12 & H1. 2b)? | | | | |
| **G12: Wet back / Water Booster - Prompt List:** | **N/A** | **HTn** | **24/03/2022 12:07 pm** | This question does not apply to this application. |
| *1. Design: Does the design and schematic demonstrate compliance with provisions of building code clauses G12 & H1?* | | | | |
| *2. Specification: Do these identify: a) complying materials, b) open vented cylinder, c) copper pipework, d) that the storage vessel is of appropriate size, e) pipe work is correctly sized, f) length of runs comply, g) provision for expansion to non-vented systems without discharge of hot water, h) insulation of pipe runs, i) sufficient support for the system and comply seismic restraint?* | | | | |
| *3. Venting: Is venting compliant?* | | | | |
| *4. Temperature control: Is the proposal for temperature control compliant and does it identify that the temperature is sufficient to avoid growth of legionella bacteria and to avoid scalding?* | | | | |
| *5. Drainage & pressure relief: Is a compliant solution provided to satisfy drainage and pressure relief provisions?* | | | | |
| *6. B2: Does the proposal demonstrate compliance with durability provisions and is sufficient access available to enable service and maintenance?* | | | | |
| *7. Protection: Does the proposal satisfy building code provisions for protection of the water supply?* | | | | |
| *8. H1 - Energy: Will the proposal facilitate the efficient use of hot water, and limit heat loss?* | | | | |
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 12:07 pm | HWC with heatpump water heating |
| **G13: Foul Water** | | | | |
| G13: Foul Water: Does the proposal comply with G13.2 and demonstrate that buildings in which sanitary fixtures and sanitary appliances using water-borne waste disposal are installed will be provided with: (a) an adequate plumbing and draining system to carry foul water to appropriate outfalls, and (b) if no sewer is available, an adequate system for the storage, treatment, and disposal of foul water? | | | | |
| **G13: Foul Water - Prompt List:** | **N/A** | **HTn** | **24/03/2022 01:15 pm** | This question does not apply to this application. |
| *1. G13.3.1: (Above ground plumbing system) - Does the proposal demonstrate that the system will be constructed to: (a) Convey foul water from buildings to a drainage system, (b) Avoid the likelihood of blockage and leakage, (c) Avoid the likelihood of foul air and gases entering buildings, and (d) provide reasonable access for maintenance and clearing blockages? Select N/A if there is no above ground plumbing system associated with this project.* | | | | |


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| *2. G13.3.2: (Foul water drainage system) - Does the proposal demonstrate that the system will: (a) Convey foul water to an appropriate outfall, (b) Be constructed to avoid the likelihood of blockage, (c) Be supported, jointed and protected in a way that will avoid the likelihood of penetration of roots or the entry of ground water, (d) Be provided with reasonable access for maintenance and clearing blockages, (e) Be ventilated to avoid the likelihood of foul air and gases accumulating in the drainage system and sewer, and (f) Be constructed to avoid the likelihood of damage from superimposed loads or normal ground movement? Select N/A if there is no foul water drainage system associated with this project.* | | | | |
| *3. G13.3.3: (Sewer connection - available) - Does the proposal demonstrate that the connection will be made in a manner that avoids damage to the sewer and to the approval of the network utility operator? Select N/A if this proposal does not include connection to a sewer and does not require the approval of the NUO.* | | | | |
| *4. G13.3.4: (Sewer connection - unavailable) - Does the proposal demonstrate that facilities for the storage, treatment, and disposal of foul water will be constructed: (a) With adequate capacity for the volume of foul water and the frequency of disposal, (b) With adequate vehicle access for collection if required, (c) To avoid the likelihood of contamination of any potable water supplies in compliance with Clause G12 Water Supplies, (d) To avoid the likelihood of contamination of soils, ground water, and waterways except as permitted under the Resource Management Act 1991, (e) From materials that are impervious both to the foul water for which disposal is required, and to water, (f) To avoid the likelihood of blockage and leakage, (g) To avoid the likelihood of foul air and gases accumulating within or entering into buildings, (h) To avoid the likelihood of unauthorised access by people, (i) To permit easy cleaning and maintenance, (j) To avoid the likelihood of damage from superimposed loads or normal ground movement, and (k) If those facilities are buried underground, to resist hydro static uplift pressures? SDC - If this question is ticked please add advice note AN 15a to Form 5. Select N/A if this proposal is for connection into a NUO system.* | | | | |
| *5. Existing drains: Are any existing drains being connected into or being built over and if so, are these in sound condition? Select N/A if there is not a connection into existing drains.* | | | | |
| *6. Redundant drains or septic tanks: Are there any drains or septic tanks on site that will become redundant as a result of the proposed building work and if so, is this documented? Select N/A if this proposal does not involve making any existing systems redundant.* | | | | |
| *7. Miscellaneous:* | | | | |
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 01:15 pm | no changes to the foulwater compliance within amendment, slight changes to wet area appliances and addition of tiled shower to upper floor however original building consent notes of compliance pathways apply |
| G13 / VM4 Foul Water: Onsite Wastewater Disposal - Tasman: Does the proposal demonstrate compliance with G13.2 and G13/VM 4 Foul Water: Onsite Disposal? Note: VM 4 provides for onsite disposal designs for the treatment of foul water for flow rates up to a maximum of 14,000 liters/ week from a population equivalent of up to 10 persons (A dwelling unit accommodating more than 10 persons is subject to Specific Engineer Design and is outside of VM 4). | | | | |
| **G13 / VM4 Foul Water: Onsite Wastewater Disposal - Tasman - Prompt List:** | **N/A** | **HTn** | **24/03/2022 01:15 pm** | This question does not apply to this application. |


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| *1. Scope: Is the solution within the scope of G13/ VM4 and is the design flow volume nominated? Note: VM 4 provides for onsite disposal designs for the treatment of foul water for flow rates up to a maximum of 14,000 liters/ week from a population equivalent of up to 10 persons (A dwelling unit accommodating more than 10 persons is subject to Specific Engineer Design and is outside of VM 4).* | | | | |
| *2. Section 75: Is the on-site disposal system contained and constructed within a single allotment?* | | | | |
| *3. Plans: Are all components of the wastewater system located on the the site plan and floor plans and shown to scale and dimensioned? (ensure that the plans show the floor plans of all buildings serviced by the proposed waste water system and reserve fields).* | | | | |
| *4. Design Verification: Is the design accompanied by a Statement of Design from a suitably qualified person confirming compliance with AS/NZS 1547: 2012? (PS1 from CPEng or IPENZ)* | | | | |
| *5. Design Flow Allowances: Have the correct design flow allowances been applied for the proposed water source (see AS/NZS 1547:2012 Table H3 or H4 - onsite / tanks/ reticulated / bore water)?* | | | | |
| *6. Tank Construction: Is the type of tank construction identified and does it satisfy provisions of AS/NZS 1546.1?* | | | | |
| *7. System Dispersal: Is a comply description of the system provided? (Primary / secondary / tertiary, disposal system bed/ trench / pressure compensated drip irrigation or mound)* | | | | |
| *8. System Treatment: Does the system demonstrate compliance with AS/NZS 1547:2012 para 1.2.1.1? (OSET or EU or EPA)* | | | | |
| *9. Primary System - Tank Size: Does the tank size comply with NZS AS/NZS 1547: 2012 Appendix J Tables?* | | | | |
| *10. Secondary System - Method: Is the method of producing secondary quality effluent identified? (e.g. peat, sand, wetland, AWTS)* | | | | |
| *11. Tertiary System: It the type of tertiary system nominated and complying?* | | | | |
| *12. Disinfection: Is the type of disinfection system nominated and complying?* | | | | |
| *13. Dispersal System: Does the dispersal system comply with the appropriate reference in Appendix L of AS/NZS 1547:2012? (Trenches and Beds - AS/NZS 1547:2012 Figures L 1-5, ETA/ ETS Figures L6 and L7, Irrigation systems M1-M3, Mounds N1)* | | | | |
| *14. Operational and Management Plan: Does the plan demonstrate compliance? (refer AS/NZS 1547:2012 Tables J 1-3)* | | | | |
| *15. Water Conservation: Do the water reduction fixtures comply with AS/NZS 1547:2012 Table H3, Note 3?* | | | | |
| *16. Soil and Site Evaluation: Does the evaluation demonstrate compliance with AS/NZS 1547:2012 Fig B1 and para D3.1.1 and is this supported with photographs?* | | | | |
| *17. Separation from Water Sources: Does the solution demonstrate compliance with AS/NZS 1547:2012 Tables R1 & R2?* | | | | |
| *18. Design Loading Rate / Design Irrigation Rate: Do these demonstrate compliance with AS/NZS 1547:2012 Tables L1, M1 and N1?* | | | | |
| *19. Slope / Levels: Do these demonstrate compliance with AS/NZS 1547: 2012 Tables M2?* | | | | |
| *20. Protection: Is protection of the effluent field compliant with AS/NZS 1547: 2012 section 5.5.3.7?* | | | | |
| *21. Miscellaneous:* | | | | |

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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| **Supplementary Processing Notes:** | | HTn | 24/03/2022 01:15 pm | New dwelling in new subdivision<br>Not within scope of work, no plumbing or drains or foulwater wastewater disposal within scope of amendment |
| G14: Industrial Liquid Waste, G15 Solid Waste | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| H: ENERGY EFFICIENCY | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| DETACHED GARAGE NO SERVICES | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| DETACHED GARAGE with SERVICES | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| Retaining Walls | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |

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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Processing - AUDIT | Y/N | User | Date | Notes |
|---|---|---|---|---|
| HEATING APPLIANCES | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| Solid Fuel Burner | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| Gas - Liquid Fuel Burning Appliances | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| Radiators | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| Swimming Pools | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| Solar Water Heater | | HTn | 24/03/2022 09:14 am | Code Clause Disabled: Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |


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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Code Clause Management History | | | |
|---|---|---|---|
| **Code Clause** | **Initials** | **Date** | **Reason/Notes** |
| B1: Specific Design Elements | HTn | 24/03/2022 11:23 am | Not applicable for this project. not within scope of amendment refer main building notes |
| B2: DURABILITY | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| | HTn | 24/03/2022 01:26 pm | B2: DURABILITY has been turned back ON. |
| C: FIRE SAFETY | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| C/AS1: SH | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| C: Alt Sol / VM2 | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| New C/AS2 | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| D: ACCESS | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| D1: Access Routes | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |


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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Code Clause Management History | | | |
|---|---|---|---|
| D2: Mech Installations for Access | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| E: MOISTURE | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| | HTn | 24/03/2022 11:24 am | E: MOISTURE has been turned back ON. |
| E1: Surface Water | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| E2: External Moisture | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| E2: Roof Cladding | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| E2: Wall Cladding | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| E2: External Moisture re: Alt Solutions | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| E3: Internal Moisture | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |


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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Code Clause Management History | | | |
|---|---|---|---|
| | HTn | 24/03/2022 11:24 am | E3: Internal Moisture has been turned back ON. |
| F: SAFETY OF USERS | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F1: Hazardous Agents on Site | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F2: Hazardous Building Materials | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F3: Hazardous substances and processes | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F4: Safety from Falling | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F5: Construction and Demolition Hazards | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F6: Visibility in Escape Routes | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F7: Warning System | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |


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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Code Clause Management History | | | |
|---|---|---|---|
| F8: Signs | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| F9: Restricting Access to Residential Pools | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| G4: Ventilation | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| G5 Interior Environment, G6 Airborne & Impact Sound | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| G7 Natural Light, G8 Artificial Light, G9 Electricity | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| G10 Piped Services, G11 Gas As An Energy Source | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| G14: Industrial Liquid Waste, G15 Solid Waste | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| H: ENERGY EFFICIENCY | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |


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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Code Clause Management History | | | |
|---|---|---|---|
| DETACHED GARAGE NO SERVICES | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| DETACHED GARAGE with SERVICES | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| Retaining Walls | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| HEATING APPLIANCES | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| Solid Fuel Burner | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| Gas - Liquid Fuel Burning Appliances | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| Radiators | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |
| Swimming Pools | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |


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| AMENDMENT 1 - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Code Clause Management History | | | |
|---|---|---|---|
| Solar Water Heater | HTn | 24/03/2022 09:14 am | Not applicable for this project. This project includes wall layout and bracing changes, addition of HWC and undertile heating and change to upper story wet area removing prop shower and addition of tiled shower with specified joist design amended to allow for the rebates required for the shower, packing depicted in plans, PS1 slab resubmitted as part of RFI. Have reduced the number of checksheets for amendment specific relevance. FFL included |

Processing Time Clock Start Date:
BC220131 @ 11/02/2022 02:30 pm
BC220131.A1 @ 08/03/2022 01:13 pm

Decision To Grant:
BC220131 by Hazel Thelin @ 07/03/2022 08:07 am
BC220131.A1 by Hazel Thelin @ 24/03/2022 01:50 pm

Documentation demonstrates compliance with the Building Code and Building Act 2004. Requests for further information have been addressed and reasons for these have been recorded in each instance. Building Consent can be granted and issued on payment of the appropriate fees and levies.

BC FINAL


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# Form 5
# Building consent - BC220131

*Section 51, Building Act 2004*

## The building

| | |
|---|---|
| Street address of building: | 18 Kahikatea Way, Richmond |
| Legal description of land where building is located: | Lot 366 DP 561194 |
| Building name: | |
| Location of building within site/block number: | 18 Kahikatea Way, Richmond |
| Level/unit number: | 0 |

## The owner

| | |
|---|---|
| Name of owner: | David and Susan Ford |
| Contact person: | |
| Mailing address: | 17 Petra Way<br>Upper Moutere 7173 |
| Street address/registered office: | |
| Phone number: | Landline:  Mobile: 0272288250 |
| Daytime: | No information provided |
| After hours: | No information provided |
| Facsimile number: | No information provided |
| Email address: | sueanddaveford@gmail.com |
| Website: | No information provided |

First point of contact for communications with the building consent authority:
Stephen Vercoe (LSK Builders 2011 Limited); Mailing Address: 195 Queen Street Richmond 7020; Phone: 035439502; Email: nelson@gjgardner.co.nz

## Building work

The following building work is authorised by this building consent:
Construct new dwelling with internal access garaging

This building consent is issued under section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building). This building consent also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

## Conditions

This building consent is subject to the following conditions:

**Section 90 - Inspections by Building Consent Authorities:** (1) Every building consent is subject to the condition that agents authorised by the building consent authority for the purposes of this section are entitled, at all times during normal working hours or while building work is being done, to inspect-
(a) land on which building work is being or is proposed to be carried out; and
(b) building work that has been or is being carried out on or off the building site; and
(c) any building.

(2) The provisions (if any) that are endorsed on a building consent in relation to inspection during the carrying out of building work must be taken to include the provisions of this section.

(3) In this section, inspection means the taking of all reasonable steps to ensure that building work is being carried out in accordance with a building consent.

**Construction monitoring requirements**
Please contact the following consultants directly to arrange the construction monitoring identified which they have been engaged to carry out.

- Cameron Gibson Wells Ltd:
  1. geotechnical subgrade inspection after excavation
  2. Inspection of fill and ground bearing checked
  3. pre-pour of floor slab inspection
- Tasman Consulting Engineers Ltd on behalf of Wilton Joubert Ltd::
  Member sizes and connection after construction and prior to closing in of:
  1. 250UB31 beam (B1) over garage and supporting studs
  2. 300x90 Hy90 beam (B4) over garage and supporting studs
  3. 300x90 Hy90 beam (B5) to entry and supporting studs
  4. 300x90 Hy90 beam (B3) and 300x90 Hy90 beam (B6) to stairs and supporting studs
  5. 400x90 HyOne beam (B2) over dining/ lounge and supporting studs
  6. 400x90 HyOne beam (B2) over dining/ lounge and supporting studs

  7. Wall Bracing prior to lining check framing and hold downs
  8. Wall brace fixing prior to stopping

Copies of all site reports/records must be provided to the BCA as work proceeds for their records, please

upload these to the correct building consent via the AlphaOne portal.

**Inspections**

The following inspections are required:

- Siting and Site Scrape Inspection
- Wastepipes
- Framing / Pre-wrap
- Post Wrap / Cavity
- Preline
- Internal Membrane
- Final
- Prepour
- Floor Slab
- Concrete / Tilt panel / Steel frame
- Pre-plaster
- Post Line
- Drainage

**Documents required**

Siting and Site Scrape Inspection

- Survey certificate / Building location certificate
- B1: Ground bearing certificate

Prepour

- B1: Foundations - Construction monitoring records

Wastepipes

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

Floor Slab

- B1: Slab - Construction monitoring records

Concrete / Tilt panel / Steel frame

- B1: Mid-floor slab - Construction monitoring records

Drainage

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

Final

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

## Compliance schedule

A compliance schedule is not required for this building.

## Attachments

Copies of the following documents are attached to this building consent:

- Advice notes

***Ian McCauley***

Position: Manager Building Assurance
On behalf of: Tasman District Council
Issue Date: 08 March 2022

## Advice notes

**Section 84-88 - Restricted Building Work:** As this building work involves restricted building work, all licensed building practitioners who carry out or supervise restricted building work under this consent must, on completion of the work, provide the Owner and the Territorial Authority (Tasman District Council) with a record of work, in the prescribed form, detailing what restricted building work has been carried out or supervised.

**Ground Bearing:** Confirmation of suitability of ground bearing conditions to support imposed loads will be required at time of inspection and before commencement of pouring of any concrete.

**Building Location Certificate:** This shall be made available to the building inspector at the first inspection to confirm that the building has been placed / set-out in accordance with the approved building consent documents and district plan.

**Design Engineer:** Council reserves the right to call on the project design engineer, at any time to inspect the fabrication and construction of the structure, referenced on the design drawings, to verify that the structure meets the relevant regulatory performance requirements and publicised standards. The design engineer will, following satisfactory inspection (including remedial actions and re-inspection), provide copies of the site inspection / instruction(s) and verify that the works have been completed / installed correctly.

**Plaster Systems:** Written verification and supporting documentation to confirm the exterior plaster cladding system has been completed in accordance with the building consent should be supplied to the owner to submit with their documentation for code compliance certificate application.

**As-Built Truss Layout:** An 'as built' truss layout, showing truss and top plate connectors, along with design verification data and lintel sizes outside the scope of NZS 3604 must be available on site at the Prewrap Inspection for the Building Consent Authority officer to collect to facilitate the inspection and retain for record purposes.

**Waterproofing System Verification:** As most internal water proofing systems rely on installation of multiple coats the Building Consent Authority will not undertake inspection of these. Verification will be required from the installer of the internal tanking systems to certify that the system has been installed in accordance with the building consent and manufacturer specifications.

**Hazardous Materials:** As with any construction project there is a likelihood that some materials used may potentially emit quantities of gas, liquid, radiation or solid particles i.e. glues, paints, dust or particles from insulation etc. that could be harmful. Please ensure spaces remain well ventilated and clean to mitigate potential build-up or concentration of these.

**Site Safety:** Please ensure all appropriate site safety measures are provided throughout the contract works

to comply with NZ Building Code Clause F5 and all occupational safety and health requirements.

**Electrical Energy Works Certificate:** The Building Consent Authority places full reliance of the issue of energy work certificates to verify that the installation and completion of electrical services comply with the provisions of New Zealand Building Code Clauses G9. Code compliance certificate will not be issued unless the energy works certificates identifies compliance with this specific code clause and/or appropriate NZS/AS Standard, and confirms compliance with this building consent.

**Pressure Test Certificate:** Upon completion of the building work the plumber shall provide a pressure test certificate to the owner to submit with their documentation for code compliance certificate application.

**Pressure Waste water systems:** An installation and commissioning test certificate shall be provided to the owner to submit with their documentation for code compliance certificate application for the Pressure Wastewater System.

Under no circumstances is plumbing from the dwelling to be connected to the Pressure Wastewater System until the electrical supply is connected and system ready to be commissioned.

Please refer to the Owners and Occupiers Commissioning Manual – Pressure Wastewater Pumping System – a copy of which can be found on the Tasman District Council Web Site.
https://www.tasman.govt.nz/my-property/water/wastewater/on-site-wastewater-systems scroll to the heading Pressure Wastewater Systems.

**Section 37 - RMA:** This consent is issued subject to section 37 of the Building Act 2004. A deemed permitted boundary application to be made for infringment under the Resource Management Act 1991 for district plan non-compliance and this has not yet been obtained. Until this approval has been received from the relevant Territorial Authority no building work may proceed OR building work may only proceed to the extent stated on the Form 4 certificate.

Date Submitted: Tuesday, 08 March 2022

# Form 2
# Application for project information memorandum and/or building consent

*Section 33 or section 45, Building Act 2004*

## The building

| | |
|---|---|
| Street address of building: | 18 Kahikatea Way<br>Richmond |
| Legal description of land where building is located: | Lot 366 DP 561194 |
| Building name: | Main Building |
| Location of building within site/block number: | 18 Kahikatea Way<br>Richmond |
| Number of levels: | No information provided |
| Level/unit number: | No information provided |
| Area: | Total: 175.56 m2, Change: 175.56 m2 |
| Current, lawfully established, use: | 2.0 Housing: 2.0.2 Detached Dwelling |
| Year first constructed: | 2022 |

## The owner

| | |
|---|---|
| Name of owner: | David and Susan Ford |
| Mailing address: | 17 Petra Way<br>Upper Moutere<br>7173 |
| Street address/registered office: | No information provided |
| Phone number: | Landline: 0272288250 Mobile: 0272288250 |
| Daytime: | Landline: 0272288250 Mobile: 0272288250 |
| After hours: | Landline: 0272288250 Mobile: 0272288250 |
| Facsimile number: | No information provided |
| Email address: | sueanddaveford@gmail.com |
| Website: | No information provided |

The following evidence of ownership is attached to this application:

No files attached

**Agent**

| | | | | |
|---|---|---|---|---|
| Name of agent: | LSK Builders 2011 Limited | | | |
| Contact person: | Stephen Vercoe | | | |
| Mailing address: | 195 Queen Street<br>Richmond<br>7020 | | | |
| Street address/registered office: | N/A | | | |
| Phone number: | Landline: | 035439502 | Mobile: | N/A |
| Daytime: | Landline: | 035439502 | Mobile: | N/A |
| After hours: | Landline: | 035439502 | Mobile: | N/A |
| Facsimile number: | No information provided | | | |
| Email address: | nelson@gjgardner.co.nz | | | |
| Website: | No information provided | | | |
| Relationship to owner: | Application made on owners behalf | | | |

First point of contact for communications with the council/building consent authority:

| | |
|---|---|
| Full name: | LSK Builders 2011 Limited |
| Mailing address: | 195 Queen Street<br>Richmond 7020 |
| Phone number(s): | 035439502 |
| Facsimile number(s): | N/A |
| Email address(es): | nelson@gjgardner.co.nz |

**Application**

I request that you issue a building consent for the building work described in this application.

Signature of agent on behalf of and with the authority of the owner:

RACHEL MCLAREN

Date: 8 Mar 2022

*space for council use*

| | |
|---|---|
| Application Type | Amendment to Building Consent |
| Building Consent Number: | BC220131 |
| Reference Key: | 46698167SX |
| Name: | Premier Services Ltd |
| Application Role: | Agent |

**The project**

Description of the building work:
Reply & additional documents for rejected building consent application.

| | |
|---|---|
| Will the building work result in a change of use of the building? | No |
| Intended life of the building if less than 50 years: | 50 years |
| List building consents previously issued for this project (if any): | No information provided |
| Estimated value of the building work on which the building levy will be calculated (including goods and services tax): | No information provided |

**Restricted building work**

Will the building work include any restricted building work? Yes

If Yes, provide the following details of all licensed building practitioners who will be involved in carrying out or supervising the restricted building work:

| | |
|---|---|
| Name | Jeremy Ritchie |
| Licensing class | Design |
| Licensed building practitioner number (or registration number if treated as being licensed under section 291 of Act) | BP110013 |

**Building consent**

The following plans and specifications are attached to this application:
1. 18KahikateaWay_-_FormalAmendmentPlans.pdf (2.15M)

The building work will comply with the building code as follows:

| Main Building | |
|---|---|
| B1 - Structure | AS1 |
| B2 - Durability | AS1 |
| C1 - C6 - Protection from Fire (current) | AS1 |
| D1 - Access Routes | AS1 |
| E1 - Surface Water | AS1 |
| E2 - External Moisture | AS1 |
| E3 - Internal Moisture | AS1 |
| F2 - Hazardous Building Materials | AS1 |
| F4 - Safety from Falling | AS1 |
| F5 - Construction and Demolition Hazards | AS1 |
| F7 - Warning Systems | AS1 |

| | |
|---|---|
| G1 - Personal Hygiene | AS1 |
| G2 - Laundering | AS1 |
| G3 - Food Preparation | AS1 |
| G4 - Ventilation | AS1 |
| G5 - Interior Environment | AS1 |
| G7 - Natural Light | AS1 |
| G8 - Artificial Light | AS1 |
| G9 - Electricity | AS1 |
| G12 - Water Supplies | AS1 |
| G13 - Foul Water | AS1 |
| H1 - Energy Efficiency | AS1 |
| Waiver / Modification Required: | N/A |

**Compliance schedule**

*There are no specified systems in the building.*

**Attachments**

The following documents are attached to this application:

Plans and specifications

1. 18KahikateaWay_-_FormalAmendmentPlans.pdf (2.15M)

Supporting documents

1. 18KahikateaWay_-_ENGINEERING.pdf (3.11M)
2. 18KahikateaWay_-_FLOOR_SUITE.pdf (746.29K)
3. 18KahikateaWay_-_HWC.pdf (1.81M)

# Form 5
# Building consent - BC220131.A1

*Section 51, Building Act 2004*

## The building

| | |
|---|---|
| Street address of building: | 18 Kahikatea Way, Richmond |
| Legal description of land where building is located: | LOT 366 DP 561194 |
| Building name: | |
| Location of building within site/block number: | 18 Kahikatea Way, Richmond |
| Level/unit number: | 0 |

## The owner

| | |
|---|---|
| Name of owner: | David and Susan Ford |
| Contact person: | |
| Mailing address: | 17 Petra Way<br>Upper Moutere 7173 |
| Street address/registered office: | |
| Phone number: | Landline:  Mobile: 0272288250 |
| Daytime: | No information provided |
| After hours: | No information provided |
| Facsimile number: | No information provided |
| Email address: | sueanddaveford@gmail.com |
| Website: | No information provided |

First point of contact for communications with the building consent authority:
Stephen Vercoe (LSK Builders 2011 Limited); Mailing Address: 195 Queen Street Richmond 7020; Phone: 035439502; Email: nelson@gjgardner.co.nz

## Building work

The following building work is authorised by this building consent:
Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

This building consent is issued under section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act

relating to or affecting the building (or proposed building). This building consent also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

## Conditions

This building consent is subject to the following conditions:

**Section 90 - Inspections by Building Consent Authorities:** (1) Every building consent is subject to the condition that agents authorised by the building consent authority for the purposes of this section are entitled, at all times during normal working hours or while building work is being done, to inspect-
(a) land on which building work is being or is proposed to be carried out; and
(b) building work that has been or is being carried out on or off the building site; and
(c) any building.

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**Construction monitoring requirements**
Please contact the following consultants directly to arrange the construction monitoring identified which they have been engaged to carry out.

- Cameron Gibson Wells Ltd:
  1. geotechnical subgrade inspection after excavation
  2. Inspection of fill and ground bearing checked
  3. pre-pour of floor slab inspection
- Tasman Consulting Engineers Ltd on behalf of Wilton Joubert Ltd::
  Member sizes and connection after construction and prior to closing in of:
  1. 250UB31 beam (B1) over garage and supporting studs
  2. 300x90 Hy90 beam (B4) over garage and supporting studs
  3. 300x90 Hy90 beam (B5) to entry and supporting studs
  4. 300x90 Hy90 beam (B3) and 300x90 Hy90 beam (B6) to stairs and supporting studs
  5. 400x90 HyOne beam (B2) over dining/ lounge and supporting studs
  6. 400x90 HyOne beam (B2) over dining/ lounge and supporting studs

7. Wall Bracing prior to lining check framing and hold downs
8. Wall brace fixing prior to stopping

Copies of all site reports/records must be provided to the BCA as work proceeds for their records, please upload these to the correct building consent via the AlphaOne portal.

**Inspections**
The following inspections are required:

**Inspections generated from Main Building**

- Siting and Site Scrape Inspection
- Wastepipes
- Framing / Pre-wrap
- Post Wrap / Cavity
- Preline
- Internal Membrane
- Final
- Prepour
- Floor Slab
- Concrete / Tilt panel / Steel frame
- Pre-plaster
- Post Line
- Drainage

**Inspections generated from Amendment 1**

- Siting and Site Scrape Inspection
- Wastepipes
- Framing / Pre-wrap
- Preline
- Internal Membrane
- Prepour
- Floor Slab
- Concrete / Tilt panel / Steel frame
- Post Line
- Final

**Documents required**
**MAIN BUILDING**
Siting and Site Scrape Inspection

- Survey certificate / Building location certificate
- B1: Ground bearing certificate

Prepour

- B1: Foundations - Construction monitoring records

Wastepipes

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

Floor Slab

- B1: Slab - Construction monitoring records

Concrete / Tilt panel / Steel frame
- B1: Mid-floor slab - Construction monitoring records

Drainage
- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

Final
- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**AMENDMENT 1**

Wastepipes
- G12: Pipework pressure test documentation

Floor Slab
- B1: Slab - Construction monitoring records

Internal Membrane
- E3: Internal Waterproofing Membrane Installer PS3 certificate

Final
- G9: Energy works certificate

## Compliance schedule

A compliance schedule is not required for this building.

## Attachments

Copies of the following documents are attached to this building consent:

- Advice notes

***Ian McCauley***

Position: Manager Building Assurance
On behalf of: Tasman District Council
Issue Date: 28 March 2022

## Advice notes

**Section 84-88 - Restricted Building Work:** As this building work involves restricted building work, all licensed building practitioners who carry out or supervise restricted building work under this consent must, on completion of the work, provide the Owner and the Territorial Authority (Tasman District Council) with a record of work, in the prescribed form, detailing what restricted building work has been carried out or supervised.

**Ground Bearing:** Confirmation of suitability of ground bearing conditions to support imposed loads will be required at time of inspection and before commencement of pouring of any concrete.

**Building Location Certificate:** This shall be made available to the building inspector at the first inspection to confirm that the building has been placed / set-out in accordance with the approved building consent documents and district plan.

**Design Engineer:** Council reserves the right to call on the project design engineer, at any time to inspect the fabrication and construction of the structure, referenced on the design drawings, to verify that the structure meets the relevant regulatory performance requirements and publicised standards. The design engineer will, following satisfactory inspection (including remedial actions and re-inspection), provide copies of the site inspection / instruction(s) and verify that the works have been completed / installed correctly.

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**Waterproofing System Verification:** As most internal water proofing systems rely on installation of multiple coats the Building Consent Authority will not undertake inspection of these.  Verification will be required from the installer of the internal tanking systems to certify that the system has been installed in accordance with the building consent and manufacturer specifications.

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**Site Safety:** Please ensure all appropriate site safety measures are provided throughout the contract works

to comply with NZ Building Code Clause F5 and all occupational safety and health requirements.

**Electrical Energy Works Certificate:** The Building Consent Authority places full reliance of the issue of energy work certificates to verify that the installation and completion of electrical services comply with the provisions of New Zealand Building Code Clauses G9. Code compliance certificate will not be issued unless the energy works certificates identifies compliance with this specific code clause and/or appropriate NZS/AS Standard, and confirms compliance with this building consent.

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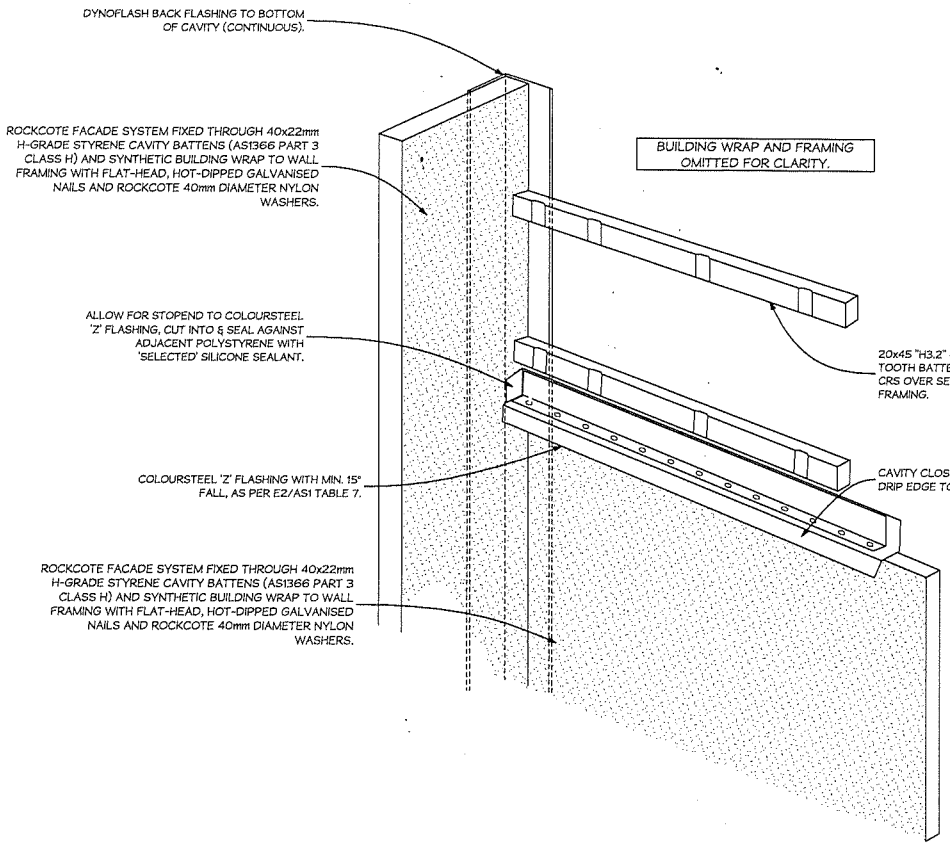
**Pressure Waste water systems:** An installation and commissioning test certificate shall be provided to the owner to submit with their documentation for code compliance certificate application for the Pressure Wastewater System.

Under no circumstances is plumbing from the dwelling to be connected to the Pressure Wastewater System until the electrical supply is connected and system ready to be commissioned.

Please refer to the Owners and Occupiers Commissioning Manual – Pressure Wastewater Pumping System – a copy of which can be found on the Tasman District Council Web Site.
https://www.tasman.govt.nz/my-property/water/wastewater/on-site-wastewater-systems scroll to the heading Pressure Wastewater Systems.

**Section 37 - RMA:** This consent is issued subject to section 37 of the Building Act 2004. A deemed permitted boundary application to be made for infringment under the Resource Management Act 1991 for district plan non-compliance and this has not yet been obtained. Until this approval has been received from the relevant Territorial Authority no building work may proceed OR building work may only proceed to the extent stated on the Form 4 certificate.

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.




125 LINEA OBLIQUE/ROCKCOTE CLADDING JUNCTION
1:5

Tasman District Council
BUILDING CONSENT AUTHORITY
Minor Variation
Date: 26-7-2022
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

| | |
|---|---|
| A34 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 13/07/2022 | DATE : |
| 1:5 | SCALE : |
| JM, CW | DRAWN : |

Job No. 145597

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

| | |
|---|---|
| ELIZABETH & TIMOTHY ADKIN. | CLIENT : |
| KAHIKATEA TOWNHOUSE | PROJECT : |
| 14 KAHIKATEA WAY, RICHMOND | LOCATION : |
| DETAILS | DRAWING : |

PREMIER SERVICES
Architectural Design Plus

All work is to be carried out in full accordance with the NZBC and Territorial Authority requirements as they apply. Any queries and discrepancies must be confirmed with the Designer before beginning any work

PREMIER SERVICES
Architectural Design Plus

# BUILDING CONSENT DRAWINGS

## KAHIKATEA TOWNHOUSE FOR DAVID & SUSAN FORD.
## AT 18 KAHIKATEA WAY, RICHMOND

Tasman District Council
BUILDING CONSENT AUTHORITY

APPROVED BUILDING CONSENT DOCUMENTATION

ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

Tasman District Council
BUILDING CONSENT AUTHORITY

SUPERSEDED

| Sheet Index | | |
|---|---|---|
| **Layout ID** | **Layout Name** | Transmittal Set ID |
| 00 | COVER SHEET | B |
| A01 | DRAINAGE PLAN | B |
| A02 | PLUMBING ISOMETRIC | A |
| A03 | SLAB PLAN | A |
| A04 | GROUND FLOOR PLAN | A |
| A05 | MID-FLOOR PLAN | A |
| A06 | FIRST FLOOR PLAN | A |
| A07 | BRACING PLANS | A |
| A08 | ROOF PLAN | A |
| A09 | ELEVATIONS | A |
| A10 | ELEVATIONS | A |
| A11 | CROSS SECTION A-A | A |
| A12 | CROSS SECTION B-B | A |
| A13 | CROSS SECTION C-C | A |
| A14 | CROSS SECTION D-D | A |
| A15 | DETAILS | A |
| A16 | DETAILS | A |
| A17 | DETAILS | A |
| A18 | DETAILS | A |
| A19 | DETAILS | A |
| A20 | DETAILS | A |
| A21 | DETAILS | A |
| A22 | JUNCTION DETAILS | A |
| A23 | JUNCTION DETAILS | A |
| A24 | JUNCTION DETAILS | A |
| A25 | OPENING DETAILS | A |
| A26 | OPENING DETAILS | A |
| A27 | OPENING DETAILS | A |
| A28 | SHOWER DETAILS | A |
| A29 | SHOWER DETAILS | A |
| A30 | BATH DETAILS | A |
| A31 | FIXTURE LAYOUT PLAN | A |
| A32 | SITE PLAN | B |
| A33 | SEDIMENT CONTROL & SETOUT PLAN | B |

## GENERAL NOTES

**DIMENSIONS NOTED ON THESE DRAWINGS ARE FROM STRUCTURAL SURFACES UNLESS OTHERWISE INDICATED. ALL DIMENSIONS ARE GIVEN IN MILLIMETERS.**

The Contractor is responsible for the correct setting out of the building on site. Boundary pegs are to be located, and setting out points are to be verified on site against information provided prior. All levels/dimensions are to be confirmed onsite before commencing any work and any discrepancies are to be brought to the attention of the Premier Services Limited.

Where available, Engineering drawings are to be read in conjunction with this documentation, any discrepancies to be reported to Premier Services Limited.

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Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

Tasman District Council
BUILDING CONSENT AUTHORITY

Erosion and sediment control required

Tasman District Council
BUILDING CONSENT AUTHORITY

Building Location Certificate Required

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

Job No. 145596

# KAHIKATEA TOWNHOUSE

## NOTES

DOWNPIPE CALCULATIONS

85m² MAXIMUM ROOF PLAN AREA PER 80Ø DOWNPIPE TO COMPLY WITH THE NEW ZEALAND BUILDING CODE ACCEPTABLE SOLUTION E1/AS1 (SURFACE WATER) FOR 0-25° ROOF PITCH

REFER TO ROOF PLAN FOR CONTRIBUTORY HOUSE PLAN ROOF AREAS.

HOT WATER CYLINDER

HOT WATER CYLINDER SHALL BE 250L ELECTRIC HOT WATER CYLINDER COMPLETE WITH PRESSURE REDUCING & RELIEF VALVES & TEMPERING VALVE 20Ø COPPER SLUDGE PIPE TO DISCHARGE OVER THE NEAREST GULLY TRAP. SECURE WITH SEISMIC RESTRAINTS AS PER ACCEPTABLE SOLUTION G12/AS1 (WATER SUPPLIES) FIGURE 14.

HOT WATER CYLINDER DISCHARGE PIPES

HWC TO HAVE 15mm COLDWATER LINE FEEDING FWG TO SAFETRAY & 15mm COPPER PIPE, CONNECTING TO 20mm COPPER PIPE AND BOTH DISCHARGING TO GT WITH 4 WAY RISER. REFER TO DETAILS FOR FURTHER GUIDANCE.

STORAGE WATER HEATER PIPE INSULATION

PIPING ASSOCIATED WITH STORAGE WATER HEATER SHALL BE THERMALLY INSULATED TO NZS4305. PROVIDE 25mm OF CLOSED CELL POLYMER (R0.6) INSULATION TO THE VENT PIPE FOR 300mm ABOVE THE STANDING WATER LEVEL AND THE FIRST 2m OF THE DISTRIBUTION PIPE.

SAFE TRAYS

FREE WATER FROM ACCIDENTAL OVERFLOW FROM SANITARY FIXTURES OR SANITARY APPLIANCES MUST BE DISPOSED OF IN A WAY THAT AVOIDS LOSS OF AMENITY OR DAMAGE TO HOUSEHOLD UNITS OR OTHER PROPERTY. AN ACCEPTABLE METHOD OF PREVENTING WATER DAMAGE IS TO LOCATE A SAFE TRAY BELOW THE WATER TANK WITH AN INCORPORATED DRAIN WITH A MINIMUM DIAMETER OF 40mm.

OVERFLOW PIPE TO DISCHARGE ANY OVERFLOW TO A VISIBLE PLACE WITHIN THE SAME PROPERTY THAT DOES NOT CREATE A NUISANCE OR DAMAGE TO BUILDING ELEMENTS.

WATER SUPPLY

ALL COLD-WATER SUPPLY PIPEWORK SHALL BE MEDIUM/HIGH-DENSITY POLYETHYLENE (MDPE/HDPE), ARRANGED AND FIXED SO THAT ALL JOINTS ARE IN A FULLY 'RELAXED' CONDITION, WITHOUT ANY STRESS OR TENSION.

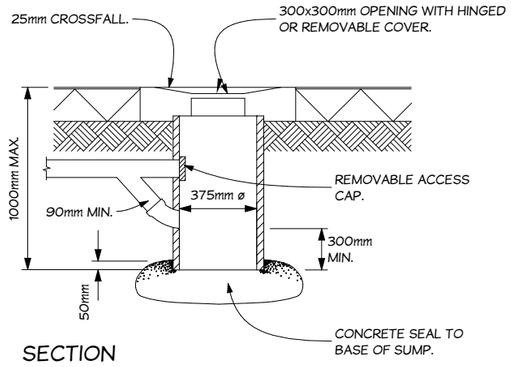
INSTALL CONVENIENTLY LOCATED ISOLATING VALVES TO TURN OFF EACH GROUP OF FITTINGS, AND INSTALL A SMALL ISOLATING VALVE ALONGSIDE EACH TOILET CISTERN NOT INTEGRALLY FITTED WITH ONE.

FOUL WATER/SANITARY PLUMBING

SANITARY DRAINAGE SYSTEM TO NEW ZEALAND BUILDING CODE CLAUSE G13/AS1 (FOUL WATER)

FIXTURE DISCHARGE PIPE SIZES AND GRADIENT

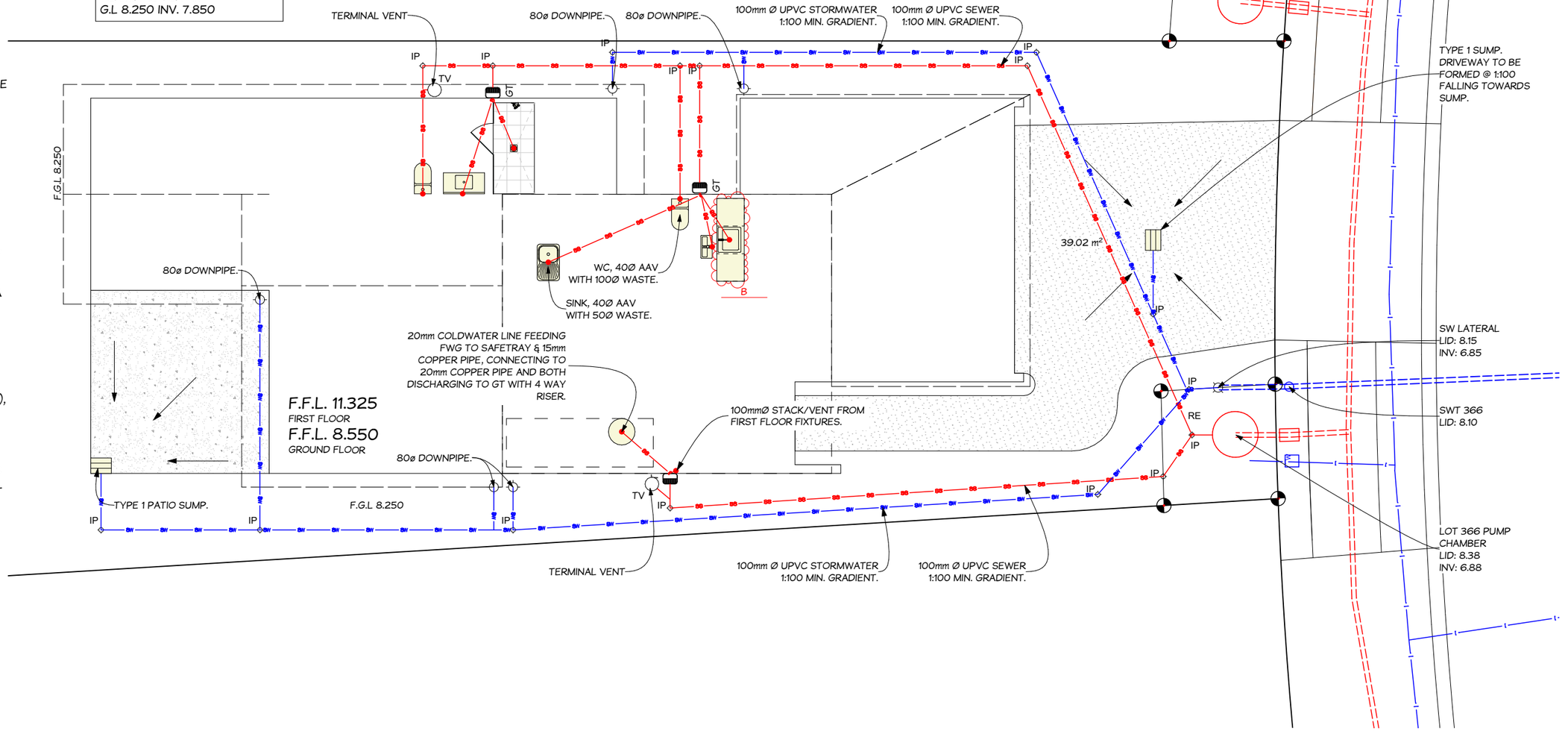
| SANITARY FIXTURE OR APPLIANCE | DISCHARGE PIPE (mm) | MINIMUM GRADIENT |
|---|---|---|
| Basin/Vanity | 40ø | 1:40 |
| Bathtub | 40ø | 1:40 |
| Shower | 40ø | 1:40 |
| Water Closet Pan | 100ø | 1:40 |
| Kitchen Sink | 50ø | 1:40 |
| Laundry Tub | 50ø | 1:40 |




SECTION

1 . TYPICAL TYPE 1 SUMP 1:10

NOTE: ALL 80ø DOWNPIPES & TERMINAL VENTS. G.L 8.250 INV. 7.850




| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | Individual Building Consent | 19/11/2021 |
| B | Individual Building Consent | | 10/02/2022 |

# DRAINAGE PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | G.J. Gardner. HOMES<br>PREMIER SERVICES Architectural Design Plus | A01 |

Copyright - This drawing remains the property of G.J. Gardner Homes | contractors are required to comply with the Building Act 2004 and the Health and Safety Act 1992. Including all amendments | all dimensions are to be checked on site before commencement of work - contractor to report any discrepancy - do not scale | all workmanship and materials shall conform to the Building Act 2004, the Building Code 1992 and its current approved documents

# KAHIKATEA TOWNHOUSE

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| B | Individual Building Consent | | 10/02/2022 |

## SITE IDENTIFICATION

| | |
|---|---|
| Legal Description: | LOT 366 DP 561194 |
| TA Zoning: | Residential |
| Topographic Class: | T1 |

Zones

| | |
|---|---|
| - Wind: | High |
| - Earthquake: | 2 |
| - Durability: | C |
| - Snow Loading: | 0.0 kPa |
| Designed to: | NZS3604:2011 |

TOWNHOUSE AS CONSENTED BY SH180022V2
APPROVED PLANS (APPENDIX A)

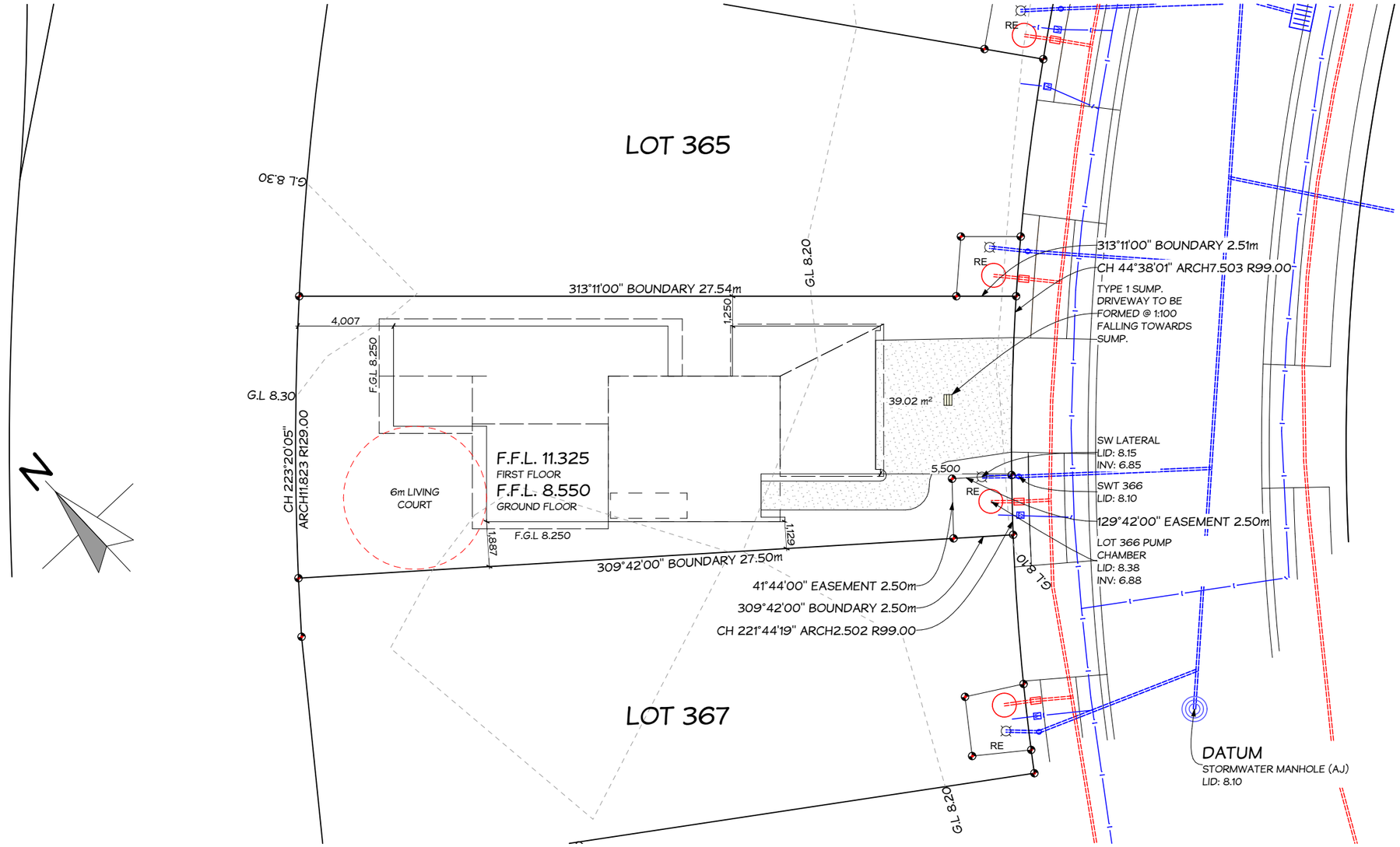
**MECHANICAL VENTILATION**

MECHANICAL VENTILATION TO BE INSTALLED AS PER THE SPECIFICATIONS IN ACCORDANCE WITH THE CONSENT NOTICE 11806549.12

## NOTES

WIND CALCULATION

| | |
|---|---|
| WIND REGION: | A |
| LEE ZONE: | NO |
| GROUND ROUGHNESS: | OPEN |
| SITE EXPOSURE: | EXPOSED |
| TOPOGRAPHIC CLASS: | T1 |




## SITE COVERAGE

| | |
|---|---|
| Site Area: | 327m² |
| Building Coverage Area: | 135.04m² |
| Building Coverage: | 41.30% |

COVERED BY RESOURCE CONSENT.

# SITE PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:200 | G.J. Gardner. HOMES<br>PREMIER SERVICES<br>Architectural Design Plus | A32 |

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# KAHIKATEA TOWNHOUSE

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

SEDIMENT CONTROL

SEDIMENT CONTROL IN ACCORDANCE WITH "BUILDING SITE GUIDE FOR EROSION AND SEDIMENT CONTROL".

MAINTENANCE OF TEMPORARY WORKS

MAINTAIN ALTER, ADAPT AND MOVE TEMPORARY WORKS AND SERVICES AS NECESSARY. CLEAR AWAY WHEN NO LONGER REQUIRED AND MAKE GOOD.

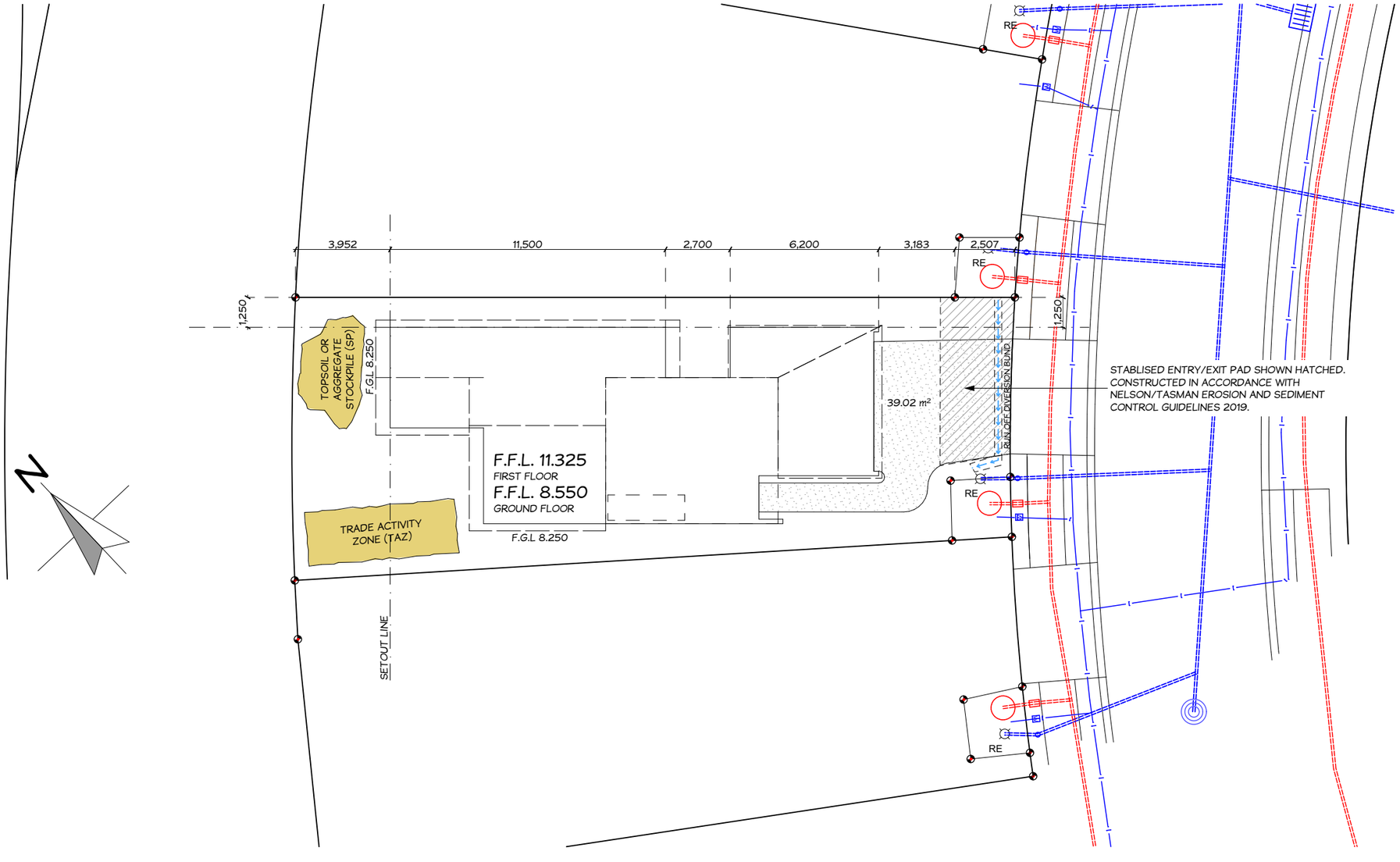
CONCRETE RUN OFF PROTECTION

PROVIDE APPROPRIATE MEASURES TO PREVENT CEMENT/CONCRETE WASHWATER OR SLURRY RUN OFF TO; DRAINS OR WATERWAYS, LANDSCAPED AREAS NEW OR REMAINING AND ADJOINING PUBLIC OR PRIVATE PROPERTIES. COMPLY WITH TERRITORIAL AND OTHER AUTHORITY REQUIREMENTS RELATING TO CEMENT / CONCRETE WASHWATER. CONTROL RUN OFF FROM:

(A) CEMENT/CONCRETE BASED MATERIAL PRODUCTION, PLACING AND FINISHING.
(B) HOSING DOWN AND CLEANING OF, TOOLS AND EQUIPMENT, FRESH MATERIAL, AND SPILT OR SURPLUS MATERIAL, PUMPS AND MIXERS ETC.
(C) WET CUTTING OR GRINDING.
(D) SLAB WATERING ETC.
(E) WATER CLEANING OF NEW CONCRETE ELEMENTS, FRESH USED FORMWORK ETC.

**ADVISORY NOTE**

PLEASE CONNECT DOWNPIPES AS SOON AS POSSIBLE OR USE TEMPORARY PIPES TO SW SYSTEM TO REDUCE WATER FLOW OVER BUILDING SITE TACKING SEDIMENT TO STORMWATER SYSTEMS. THE SEDIMENT CONTROLS SHOULD BE IN PLACE PRIOR TO ANY SITE LAND DISTURBANCE BEING UNDERTAKEN.




| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| B | Individual Building Consent | | 10/02/2022 |

## SEDIMENT CONTROL & SETOUT PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:200 | G.J. Gardner. HOMES<br>PREMIER SERVICES<br>Architectural Design Plus | A33 |

Copyright - This drawing remains the property of G.J. Gardner Homes | contractors are required to comply with the Building Act 2004 and the Health and Safety Act 1992. Including all amendments | all dimensions are to be checked on site before commencement of work - contractor to report any discrepancy - do not scale | all workmanship and materials shall conform to the Building Act 2004, the Building Code 1992 and its current approved documents

BC220131
Tasman District Council - Approved Plans
23/02/2022
Page 200 / 1401

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

FOUL WATER/SANITARY PLUMBING

SANITARY DRAINAGE SYSTEM TO NEW ZEALAND BUILDING CODE CLAUSE G13/AS1 (FOUL WATER)

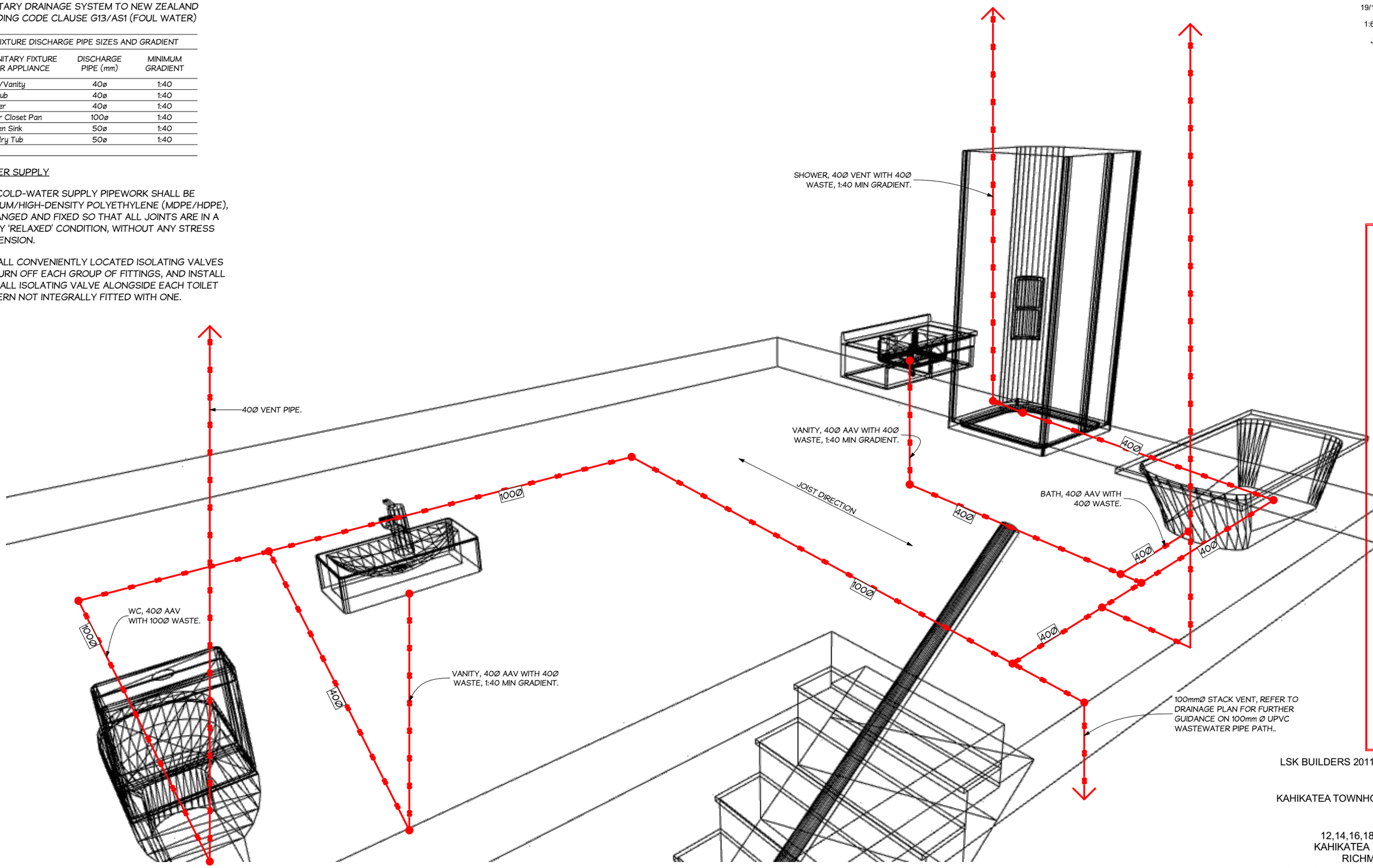
FIXTURE DISCHARGE PIPE SIZES AND GRADIENT

| SANITARY FIXTURE OR APPLIANCE | DISCHARGE PIPE (mm) | MINIMUM GRADIENT |
|---|---|---|
| Basin/Vanity | 40ø | 1:40 |
| Bathtub | 40ø | 1:40 |
| Shower | 40ø | 1:40 |
| Water Closet Pan | 100ø | 1:40 |
| Kitchen Sink | 50ø | 1:40 |
| Laundry Tub | 50ø | 1:40 |

WATER SUPPLY

ALL COLD-WATER SUPPLY PIPEWORK SHALL BE MEDIUM/HIGH-DENSITY POLYETHYLENE (MDPE/HDPE), ARRANGED AND FIXED SO THAT ALL JOINTS ARE IN A FULLY 'RELAXED' CONDITION, WITHOUT ANY STRESS OR TENSION.

INSTALL CONVENIENTLY LOCATED ISOLATING VALVES TO TURN OFF EACH GROUP OF FITTINGS, AND INSTALL A SMALL ISOLATING VALVE ALONGSIDE EACH TOILET CISTERN NOT INTEGRALLY FITTED WITH ONE.




A02 SHEET : original A3
BUILDING CONSENT REVISION :
19/11/2021 DATE :
1:66.2070 SCALE :
JM, CW DRAWN :
Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

Tasman District Council / AlphaOne Multiproof Approval – 107

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. CLIENT :

KAHIKATEA TOWNHOUSE PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :

PLUMBING ISOMETRIC DRAWING :

PREMIER SERVICES
Architectural Design Plus

BC220131

Tasman District Council - Approved Plans

23/02/2022



All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

CUPOLEX BUILDING SYSTEM

CUPOLEX FLOOR SLAB REINFORCED WITH FLETCHERS DUCTILE MESH SE62. UNLESS NOTED OTHERWISE PERIMETER FOUNDATION BEAM TO BE 300mm WIDE x 320mm DEEP REINFORCED WITH 2/HD12 TO BOTTOM & 2/HD12 TO UNDERSIDE OF DUCTILE MESH. REFER TO CUPOLEX RIBRAFT FOUNDATION LAYOUT PLAN FOR FURTHER GUIDANCE.

(A) WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.
(B) TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE PODS SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 60mm THICK TOPPING FOR THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENTS.
(C) CONCRETE TO BE 25MPa AT 28 DAYS.
(D) SLAB REINFORCING TO BE SE62 WITH MIN LAPS OF 225mm.
(E) LOAD BEARING PADS TO BE REINFORCED WITH HD12's @ 200mm CRS EACH WAY TOP & BOTTOM.
(F) ALL SAWCUTS TO BE AS PER NZS3604:2011 SECTION 7.

STEEL REINGFORCING COVER

FLOOR SLAB REINFORCING SHALL EXTEND TO A MINIMUM EXTERNAL COVER OF:

(A) AGAINST GROUND 75mm
(B) AGAINST FORMWORK 50mm
(C) TOP COVER TO MESH 30mm

STEEL REINFORCING MESH SHALL HAVE A COVER OF 30mm MINIMUM FROM THE TOP SURFACE OF THE GROUND SLAB AND SHALL BE PLACED IN SUCH A MANNER AS TO AVOID DAMAGE TO THE DPM ON PROPRIETARY CHAIRS. REINFORCING MESH SHALL COMPLY WITH NZS 3422.

KITCHEN DESIGN

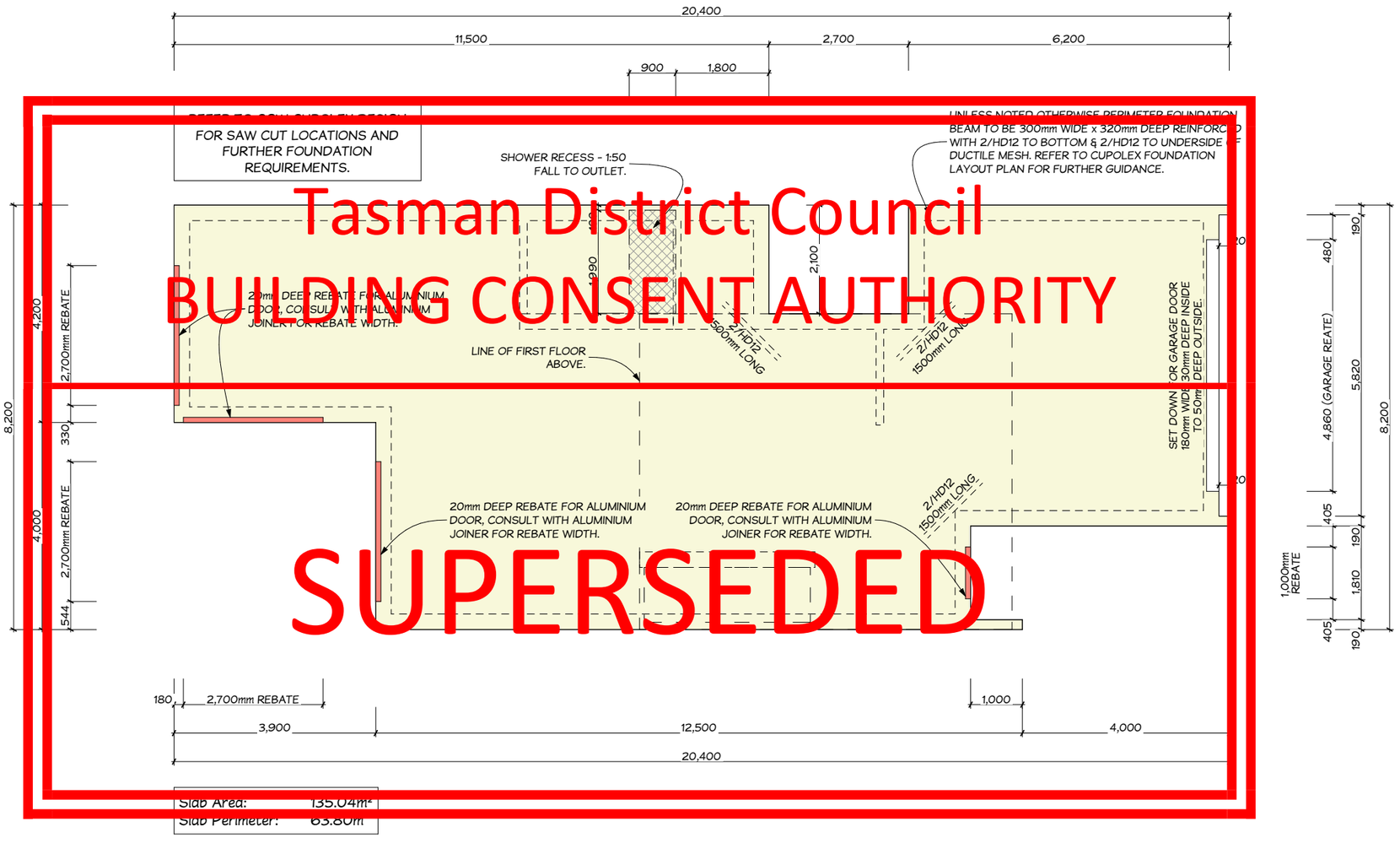
KITCHEN DESIGN SHALL BE IN ACCORDANCE WITH SEPARATE KITCHEN PLANS. CONFIRM POSITION OF WASTE PIPES PRIOR TO POURING THE FLOOR SLAB.

ALUMINIOUM DOOR REBATES

ALLOW FOR 20mm DEEP REBATE FOR EXTERNAL ALUMINIUM DOOR. DEPTHS OF REBATES TO BE AS FOLLOWS:

(A) SINGLE SLIDER – 45mm WIDE
(B) DOUBLE/STACKER SLIDER - 70mm WIDE

CONFIRM ONSITE WITH ALUMINIUM JOINER PRIOR TO POURING FLOOR SLAB.




Tasman District Council
BUILDING CONSENT AUTHORITY

SUPERSEDED

Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| A03 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 19/11/2021 | DATE : |
| 1:100 | SCALE : |
| JM, CW | DRAWN : |

Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

| | |
|---|---|
| LSK BUILDERS 2011 LTD. | CLIENT : |
| KAHIKATEA TOWNHOUSE | PROJECT : |
| 12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND | LOCATION : |
| SLAB PLAN | DRAWING : |

PREMIER SERVICES
Architectural Design Plus

BC220131

Tasman District Council - Approved Plans

23/02/2022



All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE I.C. RATED.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICES.

PUMP CHAMBER CONTROL PANEL

POWER SUPPLY AND CONTROL PANEL FOR SEWER PRESSURIZED PUMP TO BE LOCATED ON EXTERIOR WALL ON DWELLING ADJACENT TO GARAGE.

HOUSE BRACING REQUIREMENTS

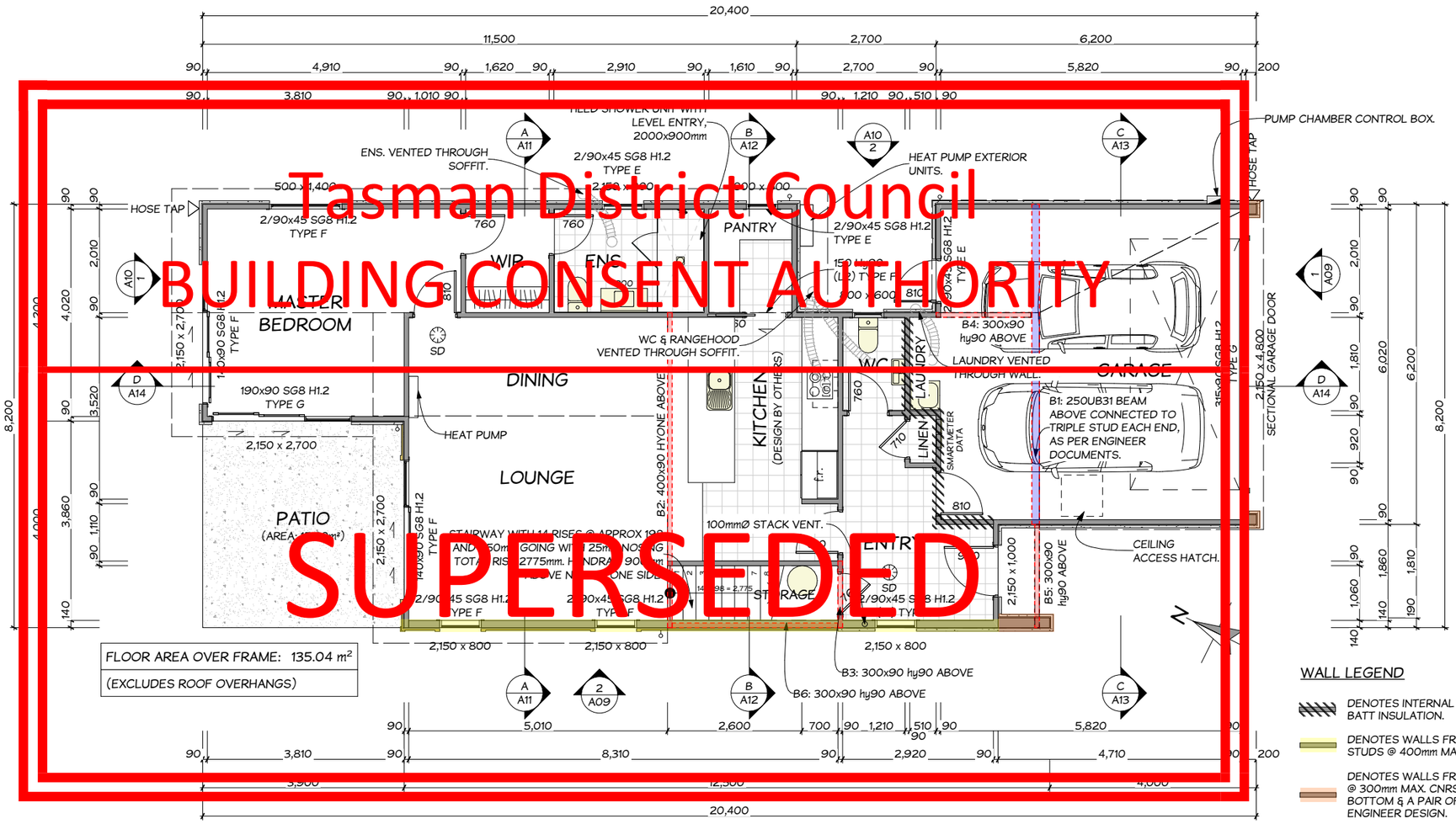
REFER TO WILTON JOUBERT CONSULTING ENGINEERS DOCUMENTS FOR FURTHER GUIDANCE ON WALL BRACING REQUIREMENTS.

## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE F = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2150x800 = OPENING SIZE (H x W)

TOWNHOUSE AS CONSENTED BY SH180022V2
APPROVED PLANS (APPENDIX A)




FLOOR AREA OVER FRAME: 135.04 m²
(EXCLUDES ROOF OVERHANGS)

WALL LEGEND

DENOTES INTERNAL WALLS TO BE INSULATED WITH R2.6 BATT INSULATION.

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

Tasman District Council / AlphaOne Multiproof Approval – 107

A04
BUILDING CONSENT
19/11/2021
1:100
JM, CW

SHEET : original A3
REVISION :
DATE :
SCALE :
DRAWN :
Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

GROUND FLOOR PLAN — DRAWING :

PREMIER SERVICES
Architectural Design Plus

All work is to be carried out in full accordance with the NZBC and Territorial Authority requirements as they apply. Any queries and discrepancies must be confirmed with the Designer before beginning any work

BC220131

Tasman District Council - Approved Plans

23/02/2022



All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

KOPINE FLOORING

20mm KOPINE FLOORING TO BE FIXED WITH 8G x 50mm STAINLESS STEEL COUNTERSUNK SCREWS. PROTECT FRAMING FROM EXCESSIVE MOISTURE AND GROUND CONTACT WITH MOISTURE LEVELS BETWEEN 12% TO 16% MAXIMUM. FIXINGS AT STANDARD FIXING PATTERN 150mm CRS AT SHEET EDGES AND WITHIN THE PANEL AT NO MORE THAN 300mm CRS.

BLOCKING TO JOISTS

PROVIDE PARTIAL BLOCKING TO JOISTS AS NECESSARY.

FIXTURE DRAINAGE

REFER TO GROUND FLOOR DRAINAGE PLAN & PLUMBING ISOMETRIC FOR FURTHER DETAILS.

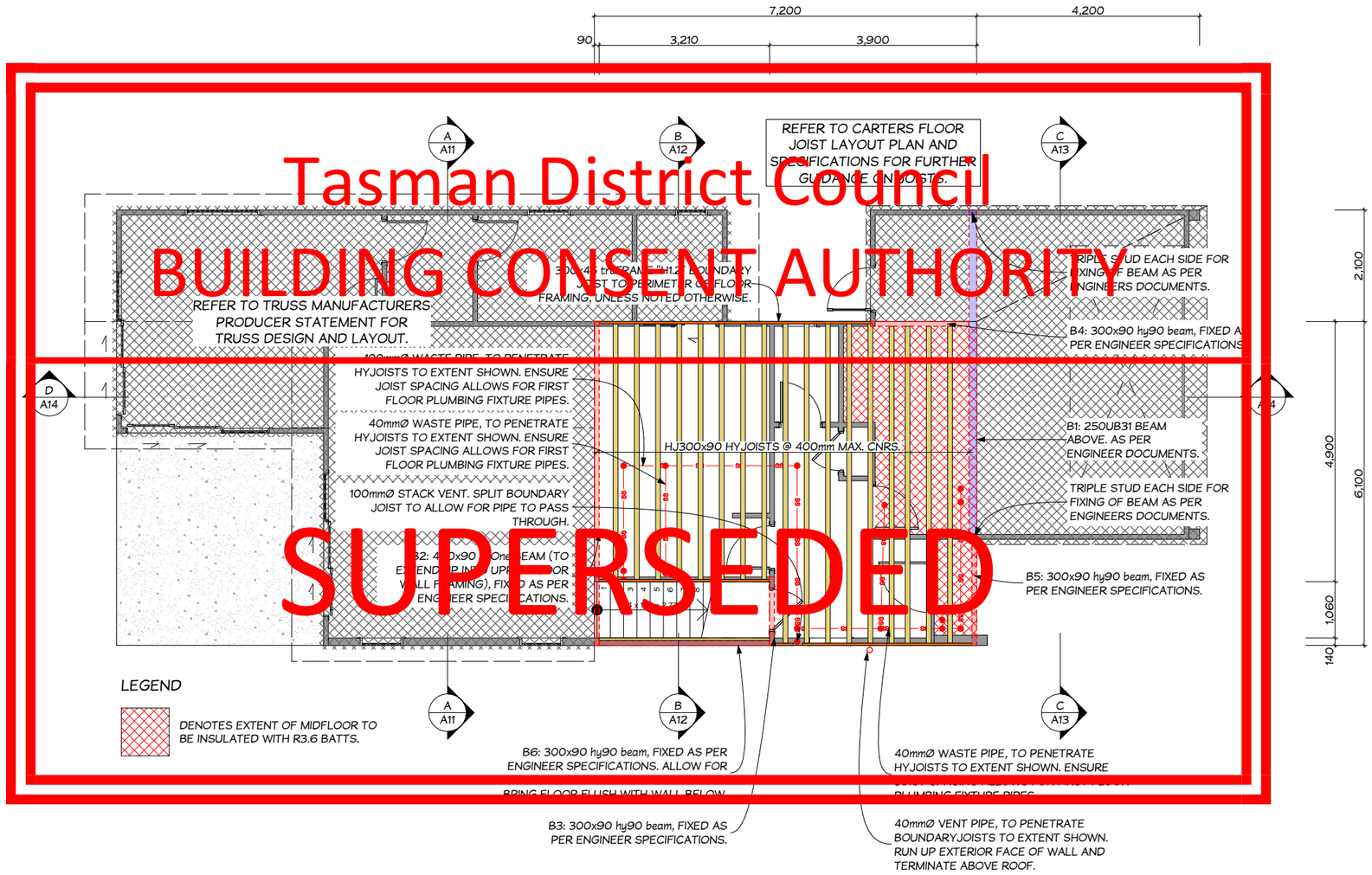
STRUCTURAL ENGINEER

JOHNSON ZHANG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

INSPECTIONS

LAL CINZAH
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.




Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

Tasman District Council / AlphaOne Multiproof Approval – 107

A05
BUILDING CONSENT
19/11/2021
1:100
JM, CW

SHEET : original A3
REVISION : 21106-21110
DATE :
SCALE :
DRAWN :
Job No.

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

MID-FLOOR PLAN — DRAWING :

PREMIER SERVICES
Architectural Design Plus

All work is to be carried out in full accordance with the NZBC and Territorial Authority requirements as they apply. Any queries and discrepancies must be confirmed with the Designer before beginning any work

BC220131

Tasman District Council - Approved Plans

23/02/2022

Page 204 / 1401

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE I.C. RATED.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICES.

HOUSE BRACING REQUIREMENTS

REFER TO WILTON JOUBERT CONSULTING ENGINEERS DOCUMENTS FOR FURTHER GUIDANCE ON WALL BRACING REQUIREMENTS.

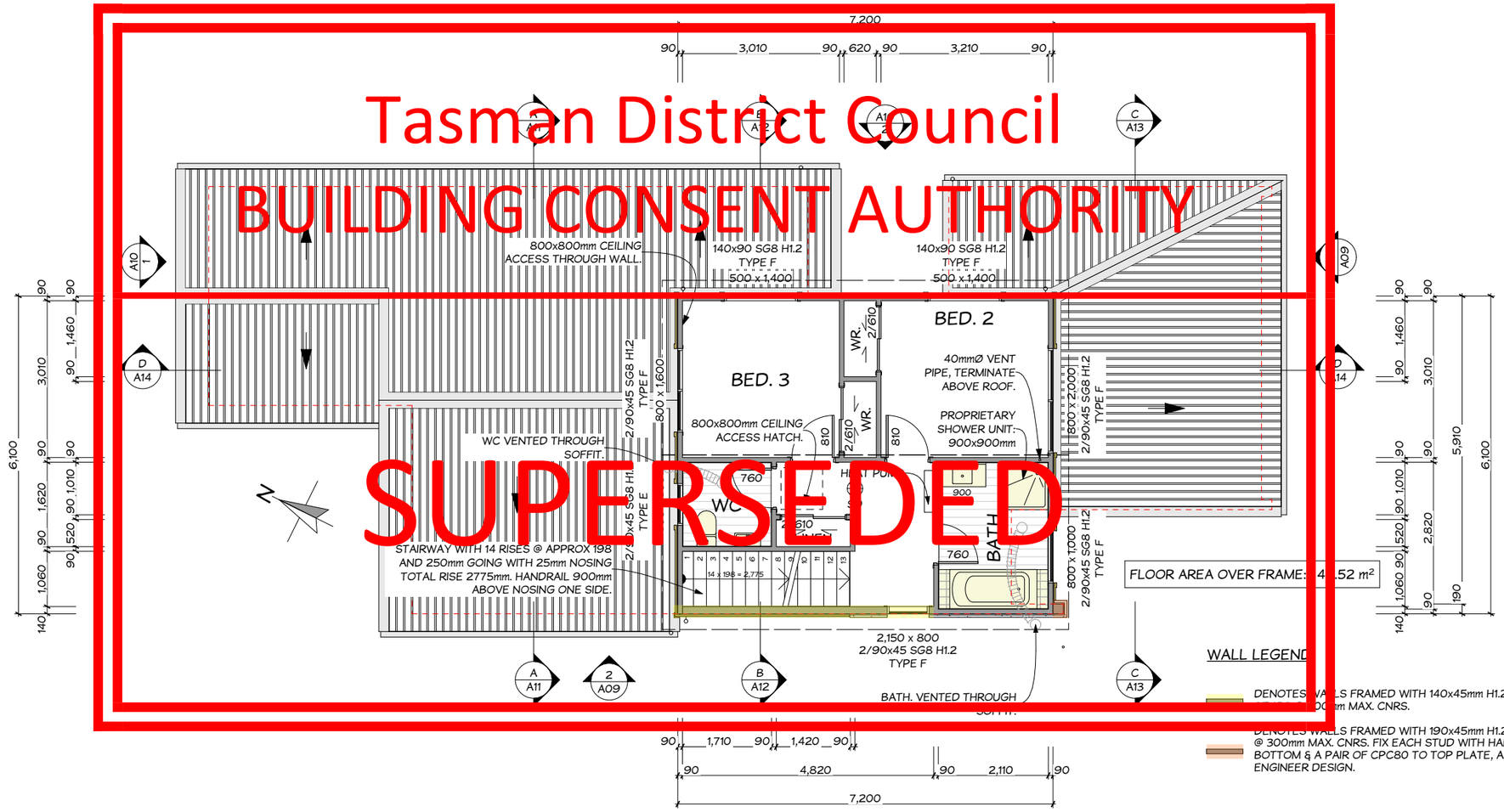
## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE F = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2150x800 = OPENING SIZE (H x W)

TOWNHOUSE AS CONSENTED BY SH180022V2
APPROVED PLANS (APPENDIX A)

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

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| SHEET : original A3 | A06 |
| REVISION : | BUILDING CONSENT |
| DATE : | 19/11/2021 |
| SCALE : | 1:100 |
| DRAWN : | JM, CW |
| Job No. | 21106-21110 |

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

Tasman District Council / AlphaOne Multiproof Approval – 107

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

| | |
|---|---|
| LSK BUILDERS 2011 LTD. | CLIENT : |
| KAHIKATEA TOWNHOUSE | PROJECT : |
| 12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND | LOCATION : |
| FIRST FLOOR PLAN | DRAWING : |

PREMIER SERVICES
Architectural Design Plus

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

BRACING NOTES

BRACED PANELS SHALL BE CONSTRUCTED TO COMPLY WITH RELEVANT "BRANZ" APPRAISAL CERTIFICATES. GIB EZYBRACE SYSTEMS 2016 HAVE BEEN APPRAISED BY THE BUILDING RESEARCH ASSOCIATION OF NEW ZEALAND (BRANZ), APPRAISAL NO. 928 (2016) GIB EZYBRACE®SYSTEMS, 2016. IT IS OF PRIME IMPORTANCE TO COMPLY WITH THE DETAILS OF DESIGN, CONSTRUCTION AND WORKMANSHIP IN THE EZYBRACE SYSTEMS SPECIFICATION AND INSTALLATION MANUAL.

STRUCTURAL ENGINEER

JOHNSON ZHANG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

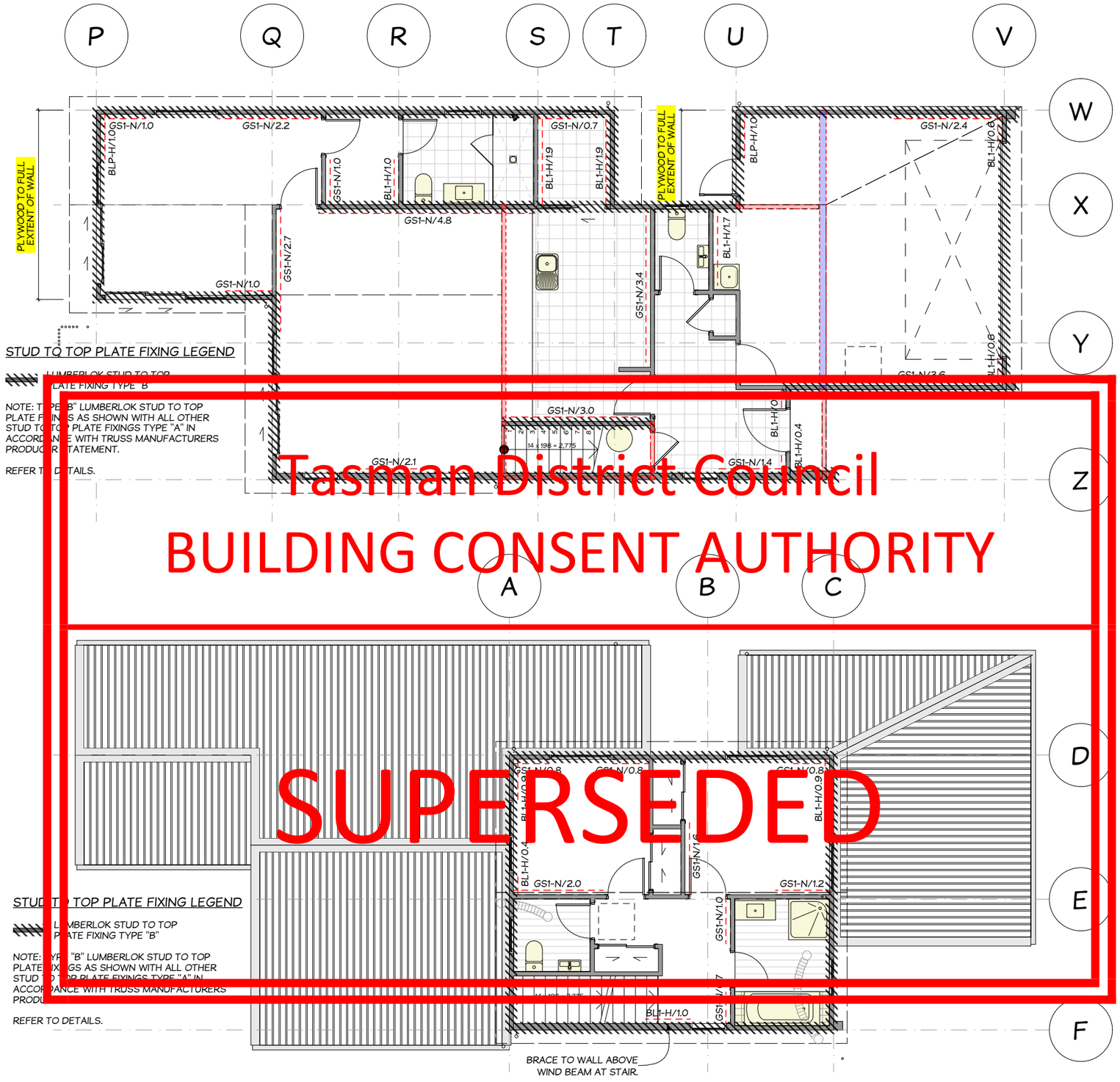
INSPECTIONS

LAL CINZAH
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.

**ENGINEER DESIGN**

BRACING COVERED BY ENGINEER PS1, REFER TO ENGINEER DOCUMENTS FOR FURTHER GUIDANCE ON BRACING SPECIFICATIONS.




Tasman District Council
BUILDING CONSENT AUTHORITY

SUPERSEDED

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| A07 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 19/11/2021 | DATE : |
| 1:100 | SCALE : |
| JM, CW | DRAWN : |

Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
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| A | Building Consent | | 19/11/2021 |

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| KAHIKATEA TOWNHOUSE | PROJECT : |
| 12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND | LOCATION : |
| BRACING PLANS | DRAWING : |

PREMIER SERVICES
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Tasman District Council - Approved Plans
23/02/2022
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## NOTES

DIMENSIONS

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ROOF CLADDING

HIGH WIND ZONE - 0.4mm BMT 6-RIB "COLORSTEEL" ROOFING FIXED OVER SELF SUPPORTING ROOF UNDERLAY OVER CYCLONE GALV. WIRE NETTING (WIRE NETTING ON ROOFS THAT HAVE LESS THAN 10°) TO 70x45mm "H1.2" SG8 PURLINS @ 900mm MAX. CRS (600mm CRS @ RIDGE & GUTTER). PURLINS CONNECTED TO TRUSSES/RAFTERS WITH 1/14g SELF DRILLING SCREW 80mm MINIMUM LONG. (2.4kN FIXING CAPACITY) WITH "T1" FIXING PATTERN AS PER NZBC E2/AS1 TABLE 14 (T1 FIXING PATTERN IS - FIX EVERY CREST...).

DOWNPIPE CALCULATIONS

85m² MAXIMUM ROOF PLAN AREA PER 80Ø DOWNPIPE TO COMPLY WITH THE NEW ZEALAND BUILDING CODE ACCEPTABLE SOLUTION E1/AS1 (SURFACE WATER) FOR 0-25° ROOF PITCH

CONTRIBUTORY FIRST FLOOR AREA A+B: 47.72m². MIN. NUMBER OF DOWNPIPES REQUIRED: "1". ACTUAL NUMBER OF DOWNPIPES USED "1"

CONTRIBUTORY FIRST FLOOR AREA C+D: 57.35m². MIN. NUMBER OF DOWNPIPES REQUIRED: "1". ACTUAL NUMBER OF DOWNPIPES USED "1"

CONTRIBUTORY GROUND FLOOR AREA E: 11.45m². MIN. NUMBER OF DOWNPIPES REQUIRED: "1". ACTUAL NUMBER OF DOWNPIPES USED "1"

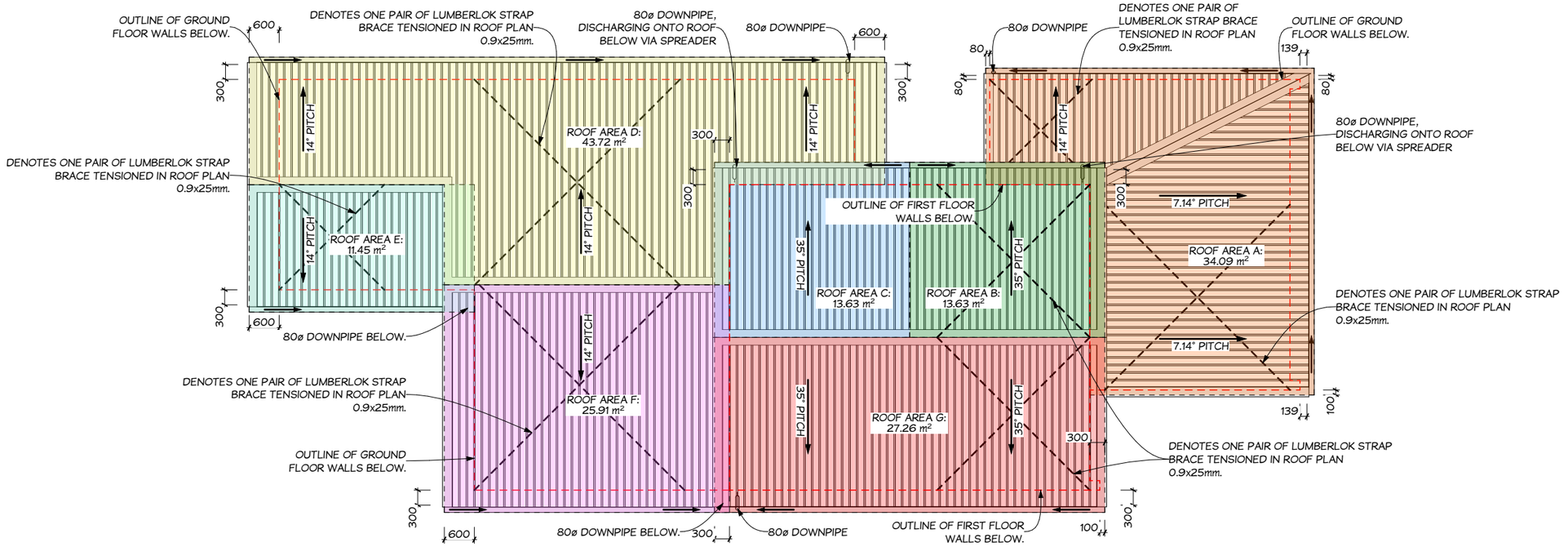
CONTRIBUTORY GROUND FLOOR AREA F: 25.91m². MIN. NUMBER OF DOWNPIPES REQUIRED: "1". ACTUAL NUMBER OF DOWNPIPES USED "1"

CONTRIBUTORY GROUND FLOOR AREA G: 27.26m². MIN. NUMBER OF DOWNPIPES REQUIRED: "1". ACTUAL NUMBER OF DOWNPIPES USED "1"

ROOF BRACING

ALL GABLE ROOFS SHALL HAVE 1 PAIR OF DIAGONALLY OPPOSED 25 x 0.6mm GALVANISED MILD STEEL STRAPS WITH 8kN TENSIONER FOR EVERY 50m² - REFER TO SPECIFICATION FOR DETAILS.

FOR ROOF PITCHES LESS THAN 10° ROOFING UNDERLAY TO BE SUPPORTED OVER CYCLONE GALV. WIRE NETTING




FOR BUILDING CONSENT

| | |
|---|---|
| SHEET : original A3 | A08 |
| REVISION : | BUILDING CONSENT |
| DATE : | 19/11/2021 |
| SCALE : | 1:100 |
| DRAWN : | JM, CW |
| Job No. | 21106-21110 |

| Rev'D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

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LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

ROOF PLAN — DRAWING :

PREMIER SERVICES
Architectural Design Plus

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BC220131

Tasman District Council - Approved Plans

23/02/2022

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## NOTES

POWDER COATED ALUMINIUM JOINERY

ALL POWDER COATED ALUMINIUM JOINERY UNITS TO BE DOUBLE GLAZED WITH THE EXCEPTION OF THE GARAGE. ALL GLAZING SHALL COMPLY WITH NZS4223. ALL SIZES GIVEN FOR WINDOWS AND DOORS ARE ROUGH OPENING SIZES ONLY. CONTRACTOR TO COMFIRM ALL OPENING SIZES WITH JOINERY MANUFACTURER PRIOR TO FABRICATION.

O DENOTES OBSCURE GLAZED JOINERY.
SG DENOTES GRADE "A" SAFETY GLAZING.

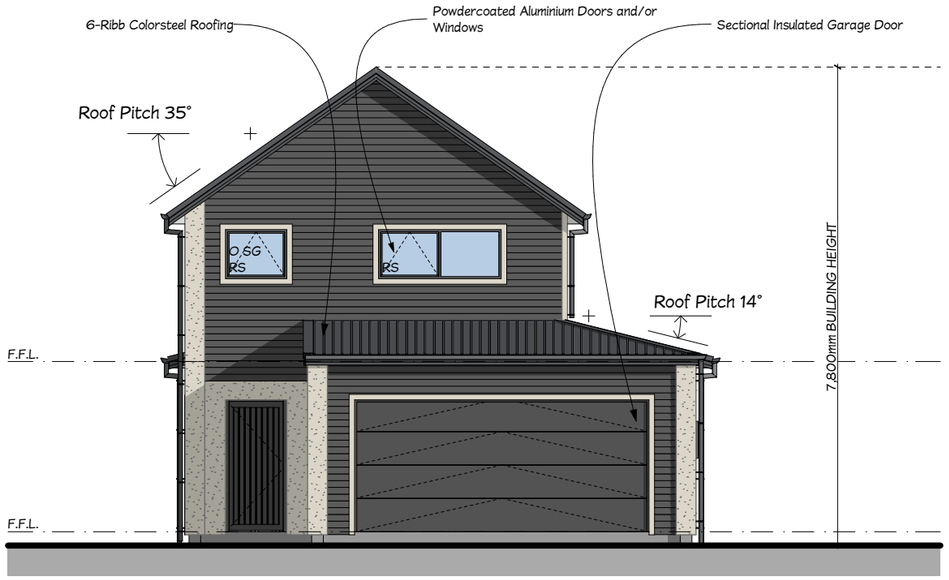
ANY SILL HEIGHTS ARE MEASURED FROM FINISHED FLOOR LEVEL. ALL WINDOWS TO BE FINISHED AT SOFFIT LEVEL UNLESS OTHERWISE SHOWN.

BARRIERS TO AIRFLOW

WHERE WALLS ARE NOT LINED, SUCH AS ATTIC SPACES AT GABLE ENDS AND UNLINED GARAGE SPACES MARSHALL INNOVATIONS "TEKTON BUILDING WRAP" (BRANZ APPRAISAL NO.548). OR A RIGID SHEATHING COMPLYING WITH NZBC ACCEPTABLE SOLUTION E2/AS1, TABLE 23 MUST BE FIXED TO FRAMING PRIOR TO FIXING CLADDING OR CAVITY BATTENS.

IN THE ABSENCE OF INTERNAL LININGS, AN AIR BARRIER IS REQUIRED TO SUPPORT WIND PRESSURES AT SUCH LOCATIONS - ACCEPTABLE SOLUTION E2/AS1 9.1.4. (BARRIERS TO AIRFLOW).

| BUILDING ENVELOPE RISK MATRIX | | |
|---|---|---|
| All Faces (House) | | |
| Risk Factor | Risk Severity | Risk Score |
| Wind zone (per NZS 3604) | High risk | 1 |
| Number of storeys | High risk | 2 |
| Roof/wall intersection design | Very high risk | 5 |
| Eaves width | High risk | 2 |
| Envelope complexity | Medium risk | 1 |
| Deck design | Low risk | 0 |
| Total Risk Score: | | 11 |




1 Southern Elevation 1:100

2 Western Elevation 1:100

TOWNHOUSE AS CONSENTED BY SH180022V2 APPROVED PLANS (APPENDIX A)

ROOF- EBONY
PLASTER- RESENE CARARRA
FEATURE CLADDING – T.B.C.
WINDOW JOINERY – MATT BLACK
DOOR – MATT BLACK
GARAGE DOOR – PITCH BLACK

A09 SHEET : original A3
BUILDING CONSENT REVISION :
19/11/2021 DATE :
1:100 SCALE :
JM, CW DRAWN :
Job No. 21106-21110

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|---|---|---|---|
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LSK BUILDERS 2011 LTD. CLIENT :

KAHIKATEA TOWNHOUSE PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :

ELEVATIONS DRAWING :

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## NOTES

POWDER COATED ALUMINIUM JOINERY

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BARRIERS TO AIRFLOW

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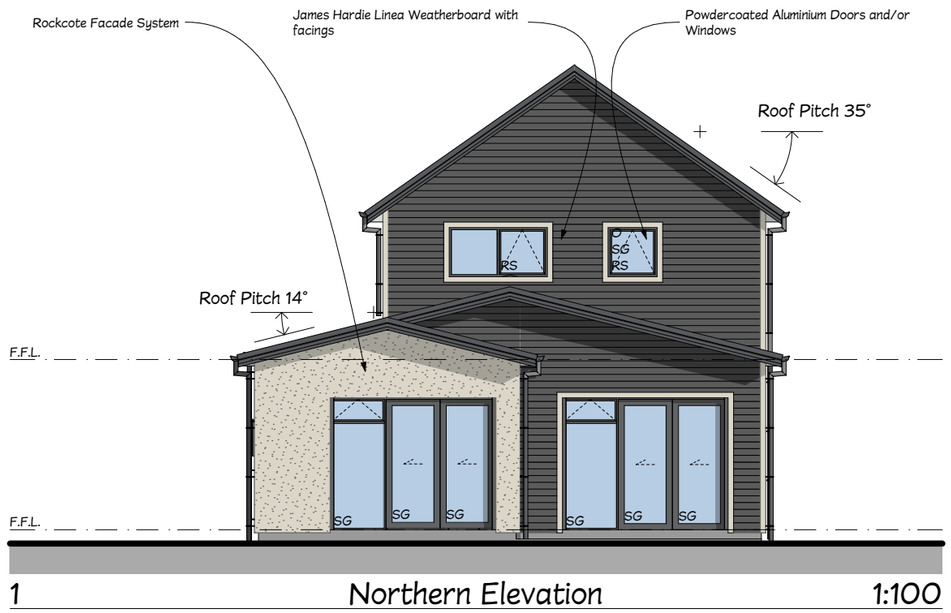
| BUILDING ENVELOPE RISK MATRIX | | |
|---|---|---|
| All Faces (House) | | |
| Risk Factor | Risk Severity | Risk Score |
| Wind zone (per NZS 3604) | High risk | 1 |
| Number of storeys | High risk | 2 |
| Roof/wall intersection design | Very high risk | 5 |
| Eaves width | High risk | 2 |
| Envelope complexity | Medium risk | 1 |
| Deck design | Low risk | 0 |
| Total Risk Score: | | 11 |




1 Northern Elevation 1:100

2 Eastern Elevation 1:100

TOWNHOUSE AS CONSENTED BY SH180022V2 APPROVED PLANS (APPENDIX A)

ROOF- EBONY
PLASTER- RESENE CARARRA
FEATURE CLADDING – T.B.C.
WINDOW JOINERY – MATT BLACK
DOOR – MATT BLACK
GARAGE DOOR – PITCH BLACK

A10
SHEET : original A3
BUILDING CONSENT
REVISION :
19/11/2021
DATE :
1:100
SCALE :
JM, CW
DRAWN :
Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

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LSK BUILDERS 2011 LTD. CLIENT :

KAHIKATEA TOWNHOUSE PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :

ELEVATIONS DRAWING :

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Tasman District Council - Approved Plans

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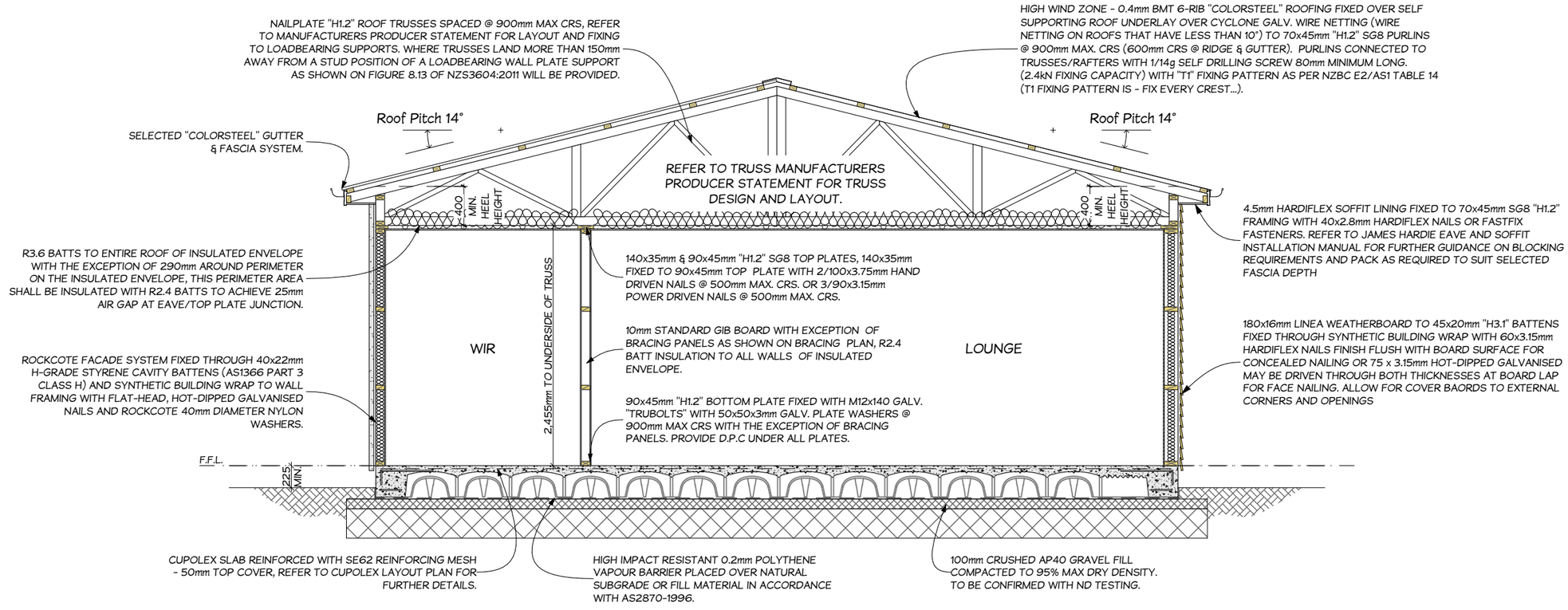


## NOTES

STEEL REINFORCING COVER

FLOOR SLAB REINFORCING SHALL EXTEND TO A MINIMUM EXTERNAL COVER OF:

(A) AGAINST GROUND 75mm
(B) AGAINST FORMWORK 50mm
(C) TOP COVER TO MESH 30mm

STEEL REINFORCING MESH SHALL HAVE A COVER OF 30mm MINIMUM FROM THE TOP SURFACE OF THE GROUND SLAB AND SHALL BE PLACED IN SUCH A MANNER AS TO AVOID DAMAGE TO THE DPM ON PROPRIETARY CHAIRS. REINFORCING MESH SHALL COMPLY WITH NZS 3422.

BUILDING WRAP

BUILDING WRAP SHALL BE MARSHALL INNOVATIONS "TEKTON BUILDING WRAP" (BRANZ APPRAISAL NO.548). BUILDING WRAP MUST BE INSTALLED HORIZONTALLY AND BE CONTINUOUS AROUND CORNERS. THE WRAP MUST BE LAPPED 75mm MIN. @ AT HORIZONTAL JOINTS AND 150mm MIN. OVER STUDS @ VERTICAL JOINTS. WHERE STUDS ARE AT GREATER THAN 450mm CRS, POLYPROPYLENE STRAP OR ADDITIONAL VERTICAL CAVITY BATTENS MUST BE INSTALLED @ MAXIMUM 300mm CRS TO PREVENT BULK INSULATION BULGING INTO THE CAVITY.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

NAILPLATE TRUSSES

TRUSS MANUFACTURER SHALL PROVIDE A PRODUCER STATEMENT PRIOR TO FABRICATION.

CEILING INSULATION CLEARANCE

R3.6 BATTS TO ENTIRE CEILING OF INSULATED ENVELOPE, TRIM BATTS WHERE NECESSARY TO ACHIEVE 25mm AIR GAP AT EAVE/TOP PLATE JUNCTION. REFER TO PINK BATTS ROOF UNDERLAY AND INSULATION CLEARANCE MANUAL FOR FURTHER DETAILS.

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A11 — SHEET : original A3
BUILDING CONSENT — REVISION :
19/11/2021 — DATE :
1:50 — SCALE :
JM, CW — DRAWN :

Job No. 21106-21110

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| A | Building Consent | | 19/11/2021 |

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LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

CROSS SECTION A-A — DRAWING :

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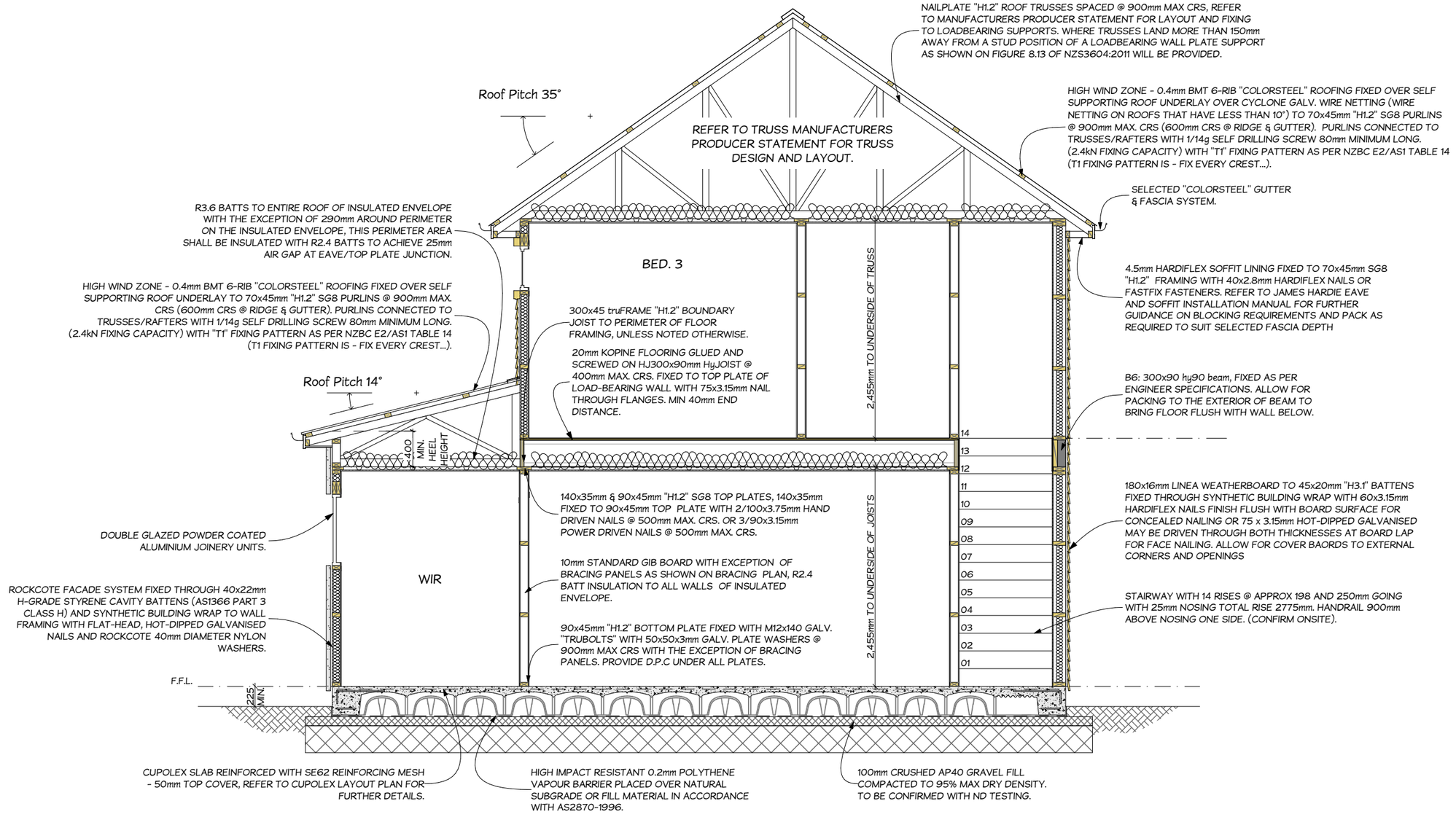


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LINTELS

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A12
SHEET : original A3
BUILDING CONSENT
REVISION :
19/11/2021
DATE :
1:50
SCALE :
JM, CW
DRAWN :
Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
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| A | Building Consent | | 19/11/2021 |

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KAHIKATEA TOWNHOUSE PROJECT :
12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :
CROSS SECTION B-B DRAWING :

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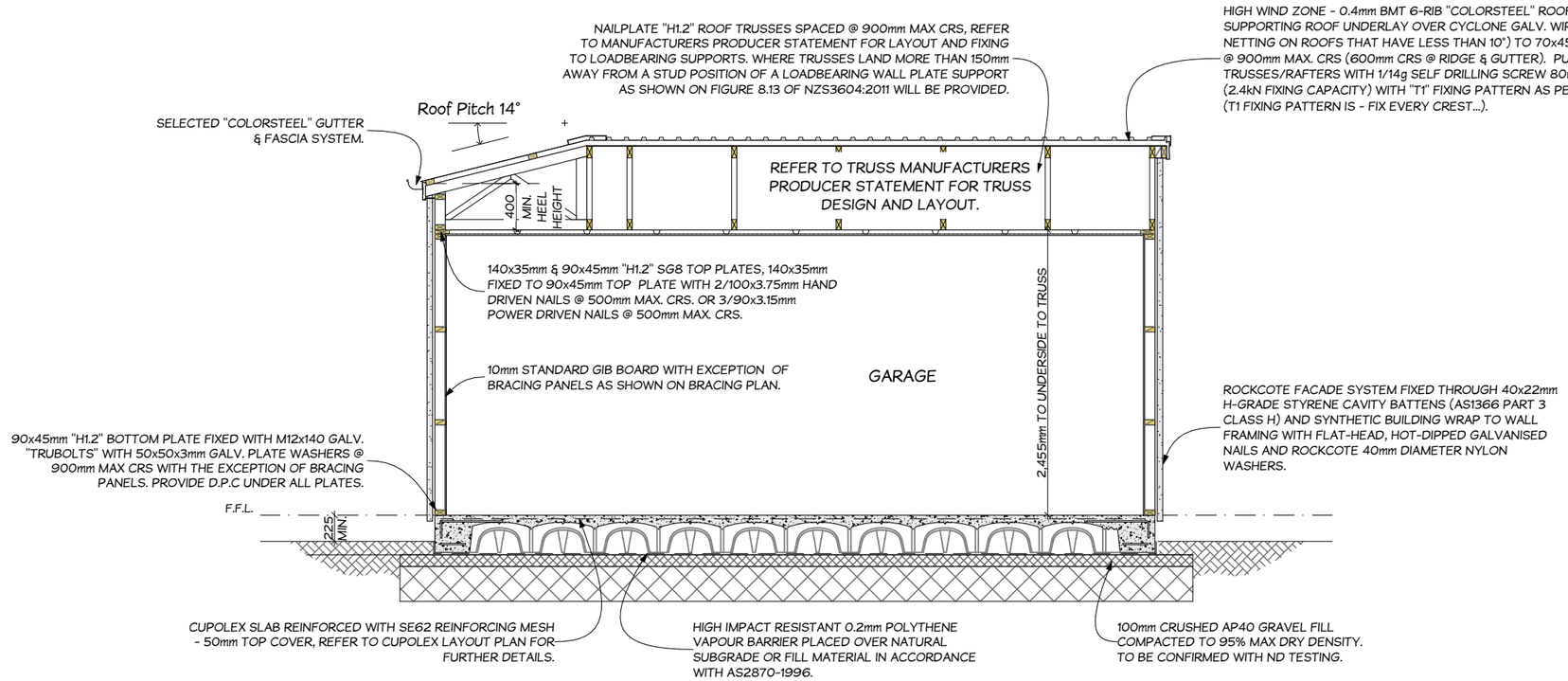


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A13 | SHEET : original A3
BUILDING CONSENT | REVISION :
19/11/2021 | DATE :
1:50 | SCALE :
JM, CW | DRAWN :
Job No. 21106-21110

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| A | Building Consent | | 19/11/2021 |

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KAHIKATEA TOWNHOUSE | PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND | LOCATION :

CROSS SECTION C-C | DRAWING :

PREMIER SERVICES
Architectural Design Plus

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Page 212 / 1401

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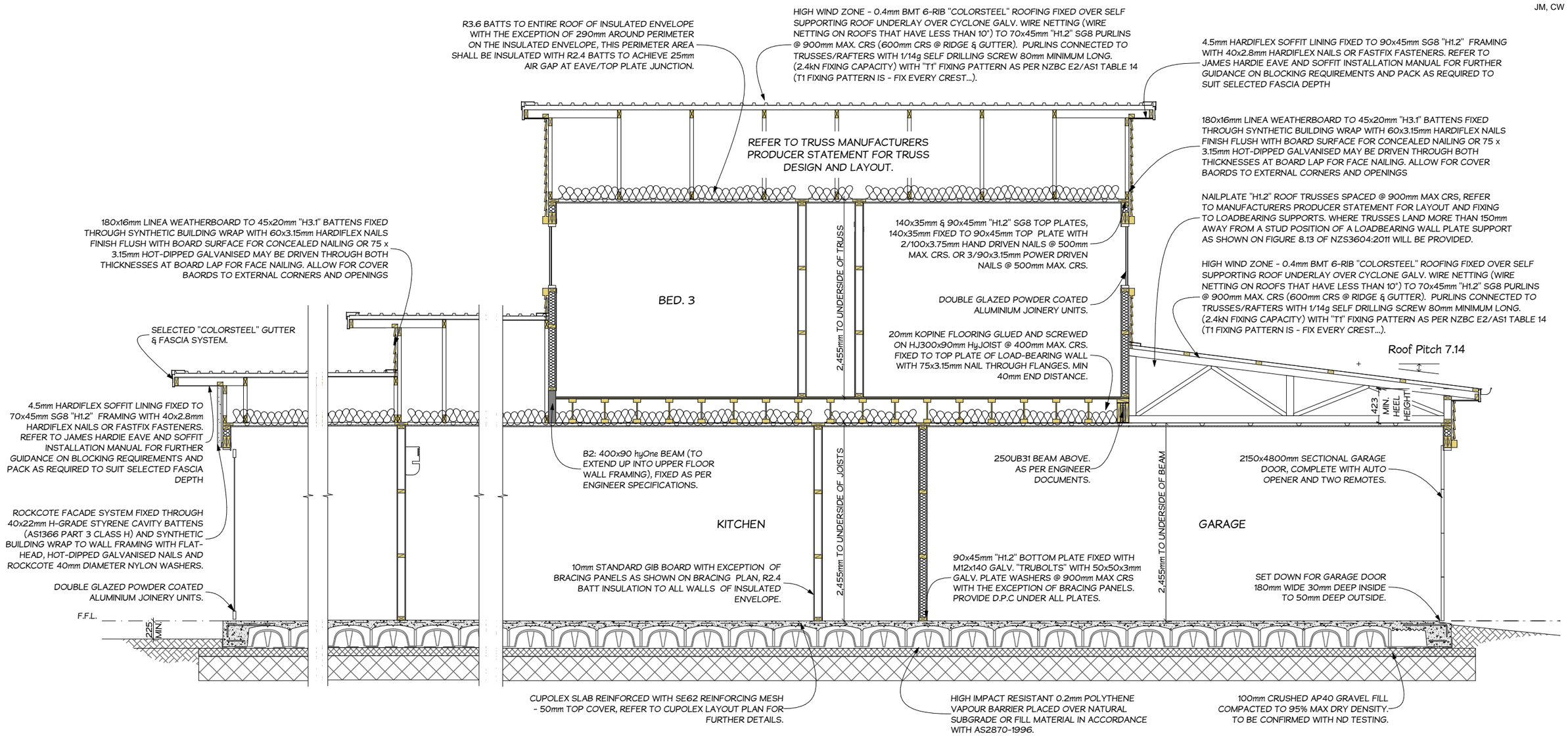


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(B) AGAINST FORMWORK 50mm
(C) TOP COVER TO MESH 30mm

STEEL REINFORCING MESH SHALL HAVE A COVER OF 30mm MINIMUM FROM THE TOP SURFACE OF THE GROUND SLAB AND SHALL BE PLACED IN SUCH A MANNER AS TO AVOID DAMAGE TO THE DPM ON PROPRIETARY CHAIRS. REINFORCING MESH SHALL COMPLY WITH NZS 3422.

BUILDING WRAP

BUILDING WRAP SHALL BE MARSHALL INNOVATIONS "TEKTON BUILDING WRAP" (BRANZ APPRAISAL NO.548). BUILDING WRAP MUST BE INSTALLED HORIZONTALLY AND BE CONTINUOUS AROUND CORNERS. THE WRAP MUST BE LAPPED 75mm MIN. @ AT HORIZONTAL JOINTS AND 150mm MIN. OVER STUDS @ VERTICAL JOINTS. WHERE STUDS ARE AT GREATER THAN 450mm CRS, POLYPROPYLENE STRAP OR ADDITIONAL VERTICAL CAVITY BATTENS MUST BE INSTALLED @ MAXIMUM 300mm CRS TO PREVENT BULK INSULATION BULGING INTO THE CAVITY.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

NAILPLATE TRUSSES

TRUSS MANUFACTURER SHALL PROVIDE A PRODUCER STATEMENT PRIOR TO FABRICATION.

CEILING INSULATION CLEARANCE

R3.6 BATTS TO ENTIRE CEILING OF INSULATED ENVELOPE, TRIM BATTS WHERE NECESSARY TO ACHIEVE 25mm AIR GAP AT EAVE/TOP PLATE JUNCTION. REFER TO PINK BATTS ROOF UNDERLAY AND INSULATION CLEARANCE MANUAL FOR FURTHER DETAILS.

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A14
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1:50
JM, CW

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LSK BUILDERS 2011 LTD. CLIENT :

KAHIKATEA TOWNHOUSE PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :

CROSS SECTION D-D DRAWING :

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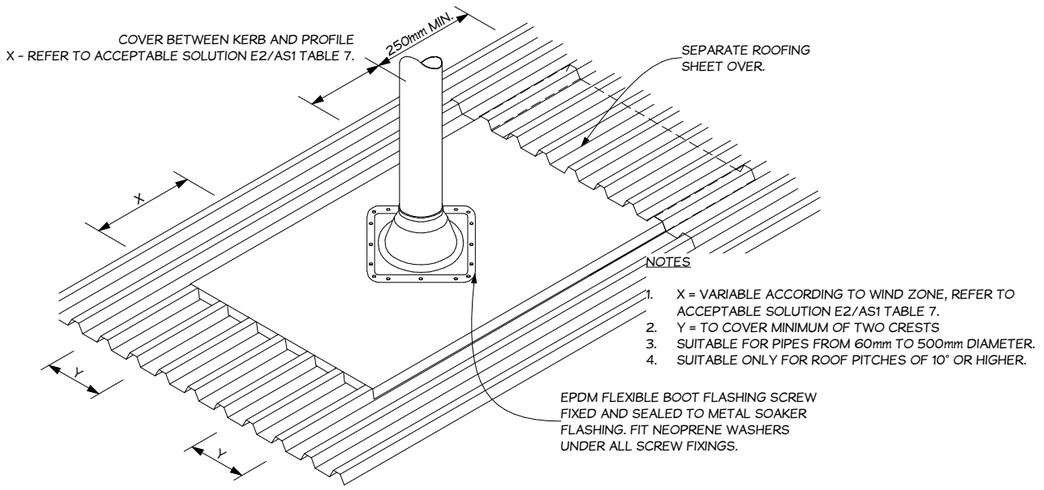
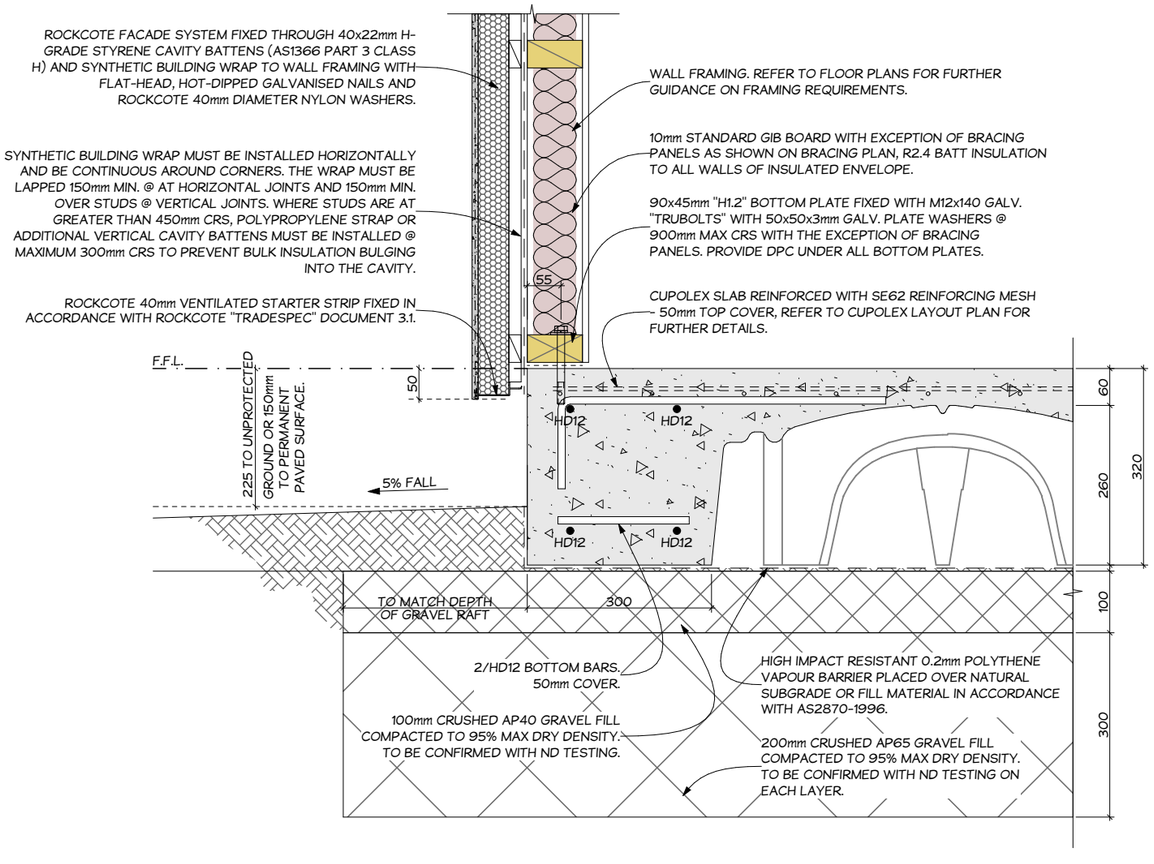
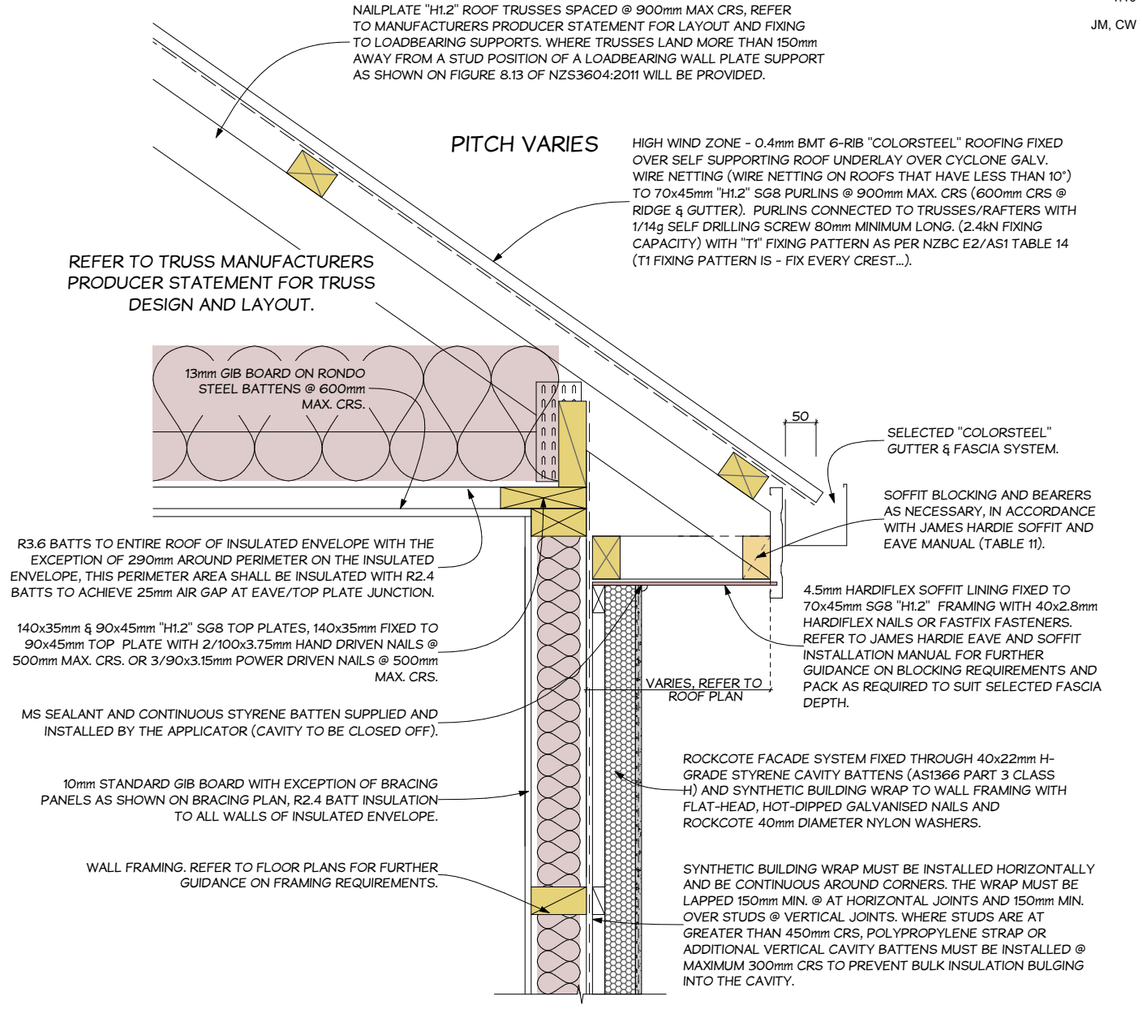


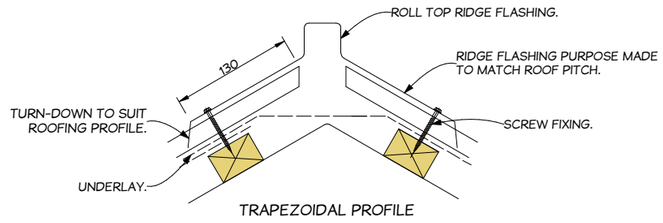

1 . SOAKER FLASHING FOR PIPE PENETRATIONS
not to scale




2 . ROCKCOTE - TYP. FOOTING DETAIL
1:10




3 . ROCKCOTE - TYP. EAVE DETAIL
1:10




4 . PROFILED METAL RIDGE & HIP FLASHINGS
not to scale

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A15
BUILDING CONSENT
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1:10
JM, CW

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Job No. 21106-21110

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DETAILS DRAWING :

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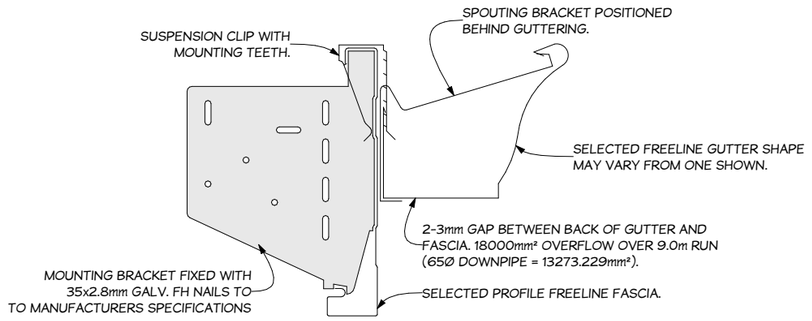
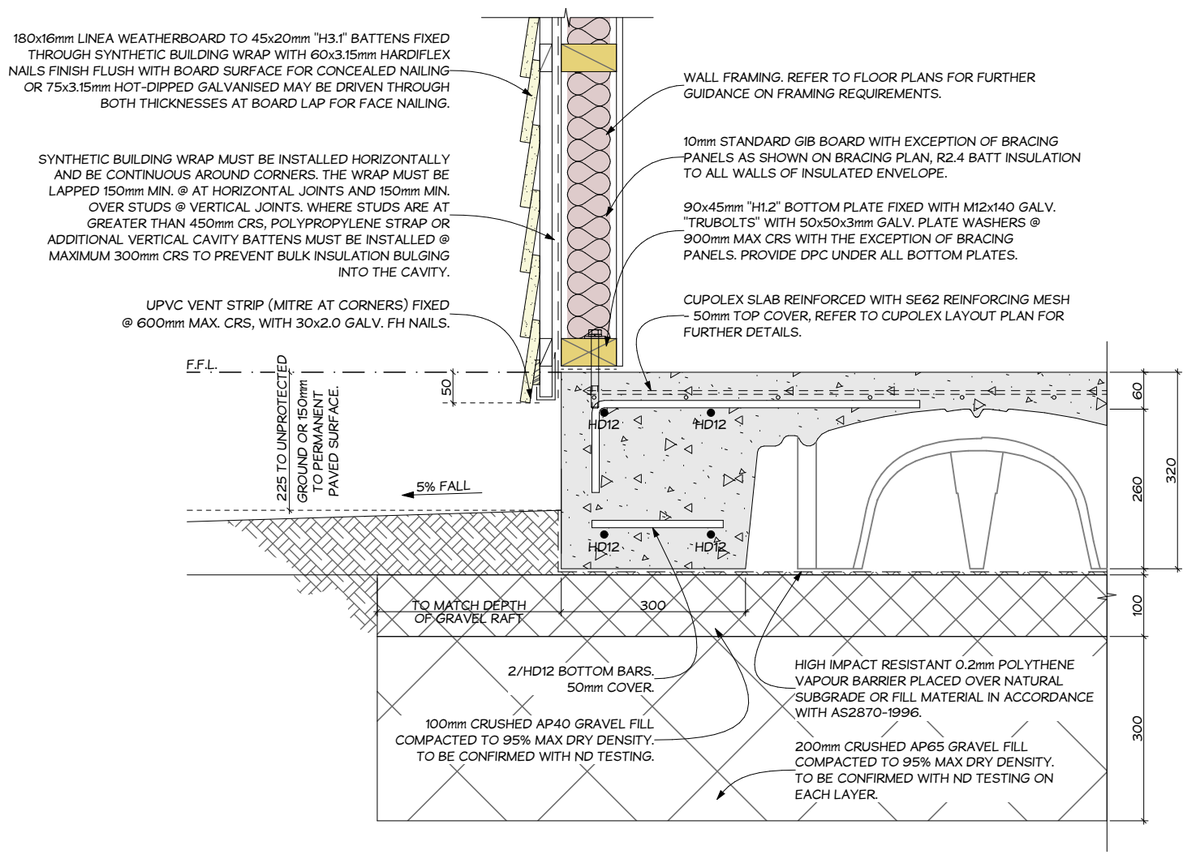
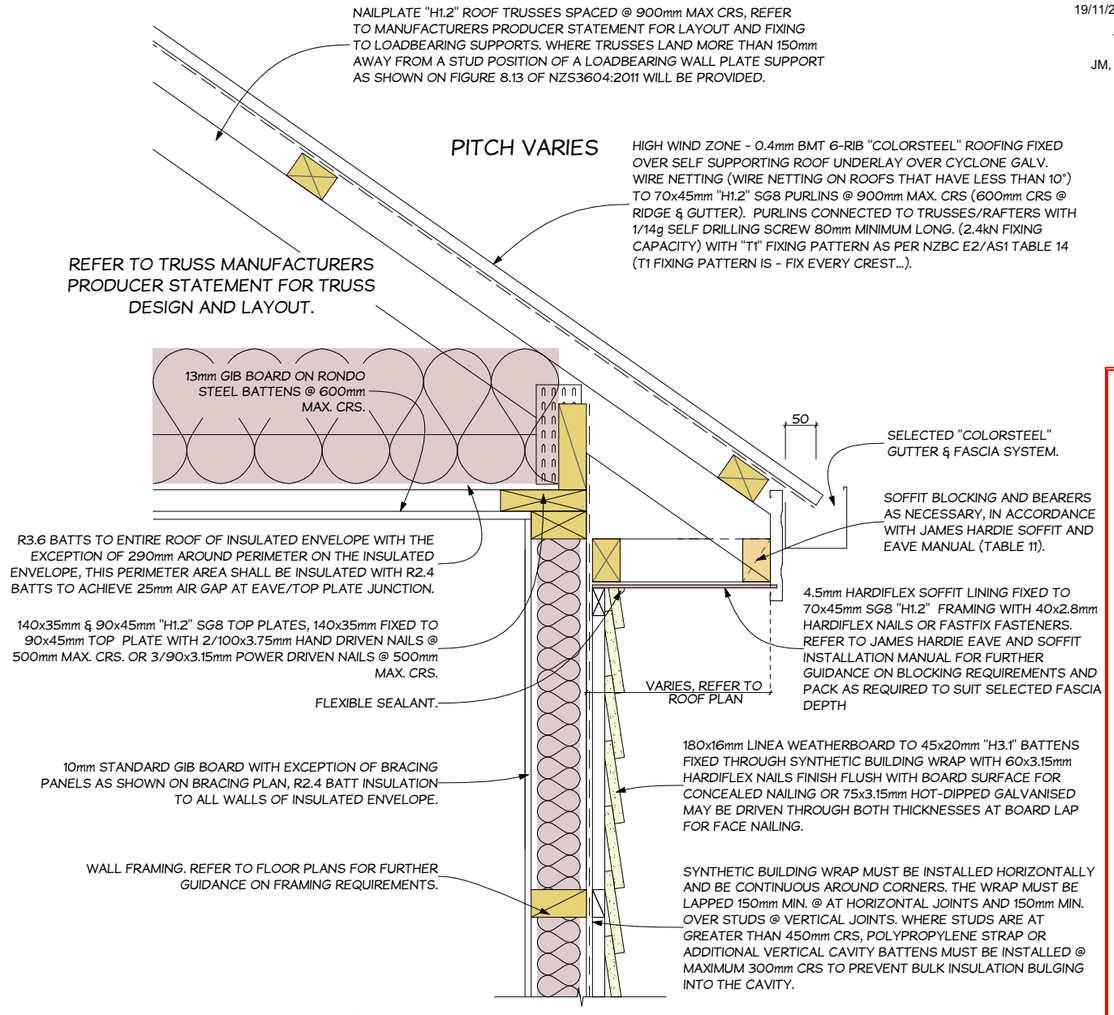



5 . METAL GUTTER DETAIL
not to scale



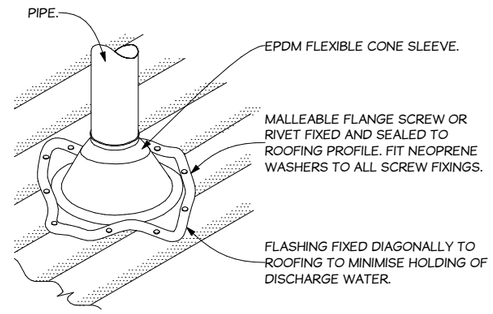

6 . LINEA WEATHERBOARD - TYP. FOOTING DETAIL
1:10




7 . LINEA WEATHERBOARD - TYP. EAVE DETAIL
1:10

NOTE

1. MAX. ROOF PITCH FOR THIS FLASHING 45°, MINIMUM PITCH 10°.
2. FOR PIPES UPTO 60mm DIAMETER.




8 . FLASHING FOR SMALL PIPES
not to scale

A16 SHEET : original A3
BUILDING CONSENT REVISION : 21106-21110
19/11/2021 DATE :
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JM, CW DRAWN : Job No.

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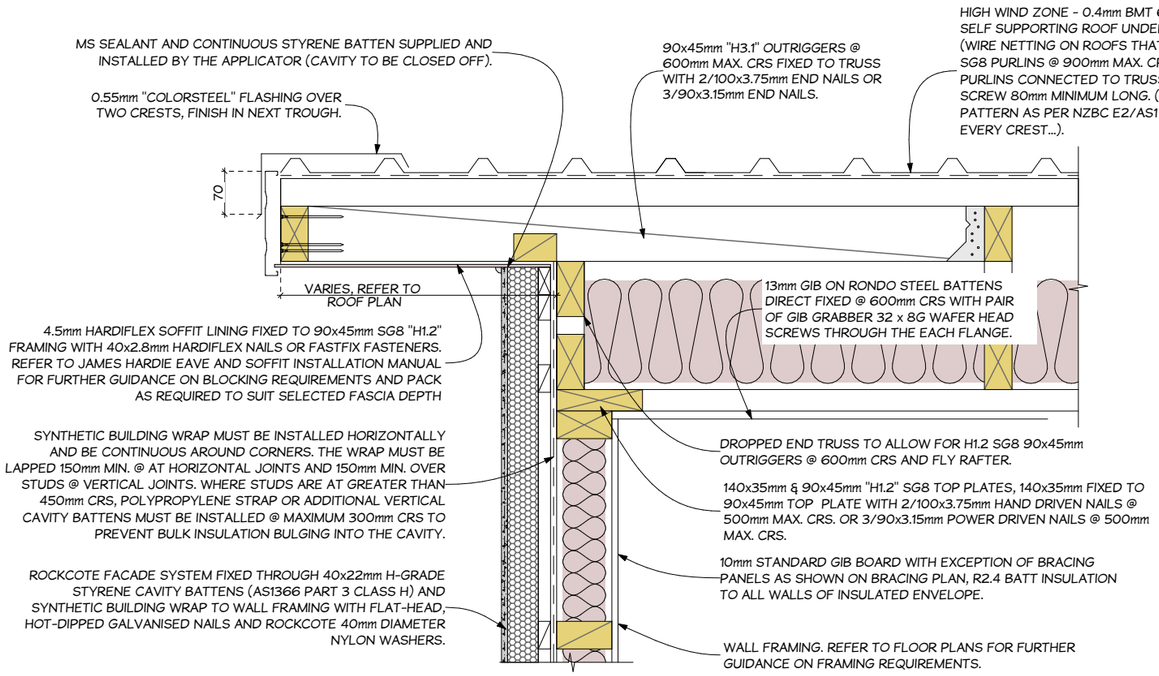
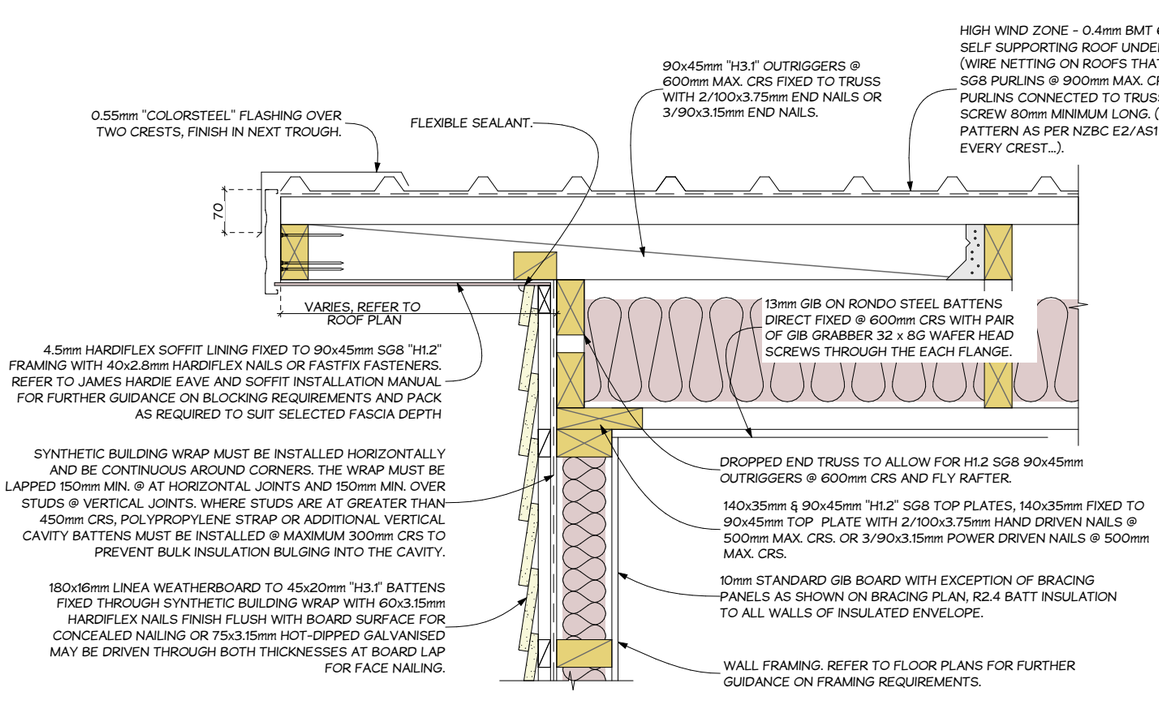


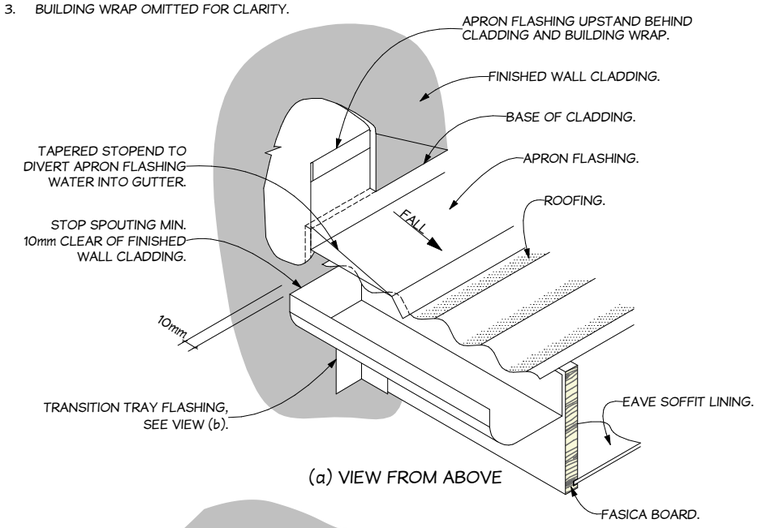

9 . ROCKCOTE - TYP. BARGE DETAIL
1:10



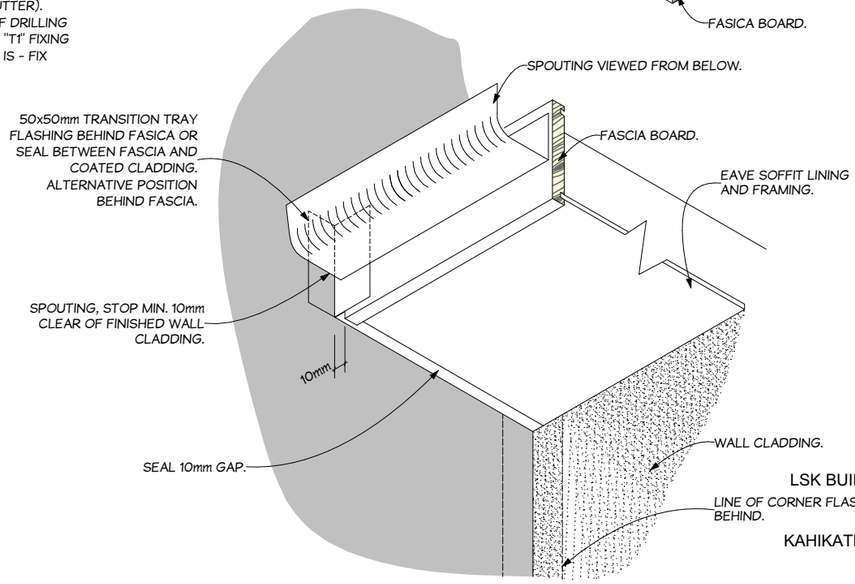

10 . LINEA WEATHERBOARD - TYP. BARGE DETAIL
1:10

NOTES

1. THE UPSTAND AT THE LOWER EDGE OF THE APRON FLASHING MAY BE PREFORMED TO A LARGER SIZE AND THEN TRIMMED ON SITE TO SUIT.
2. THE TRANSITION FLASHING BRIDGES GAP AT THE END OF THE FASCIA TO PROTECT THE SOFFIT FRAMING. VIEW (b) INDICATES POSITION OF TRANSITION FLASHING IN RELATION TO SOFFIT, WHEN VIEWED FROM BELOW.
3. BUILDING WRAP OMITTED FOR CLARITY.




(a) VIEW FROM ABOVE




(b) VIEW FROM BELOW

11 . GUTTER/WALL JUNCTION
not to scale

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BUILDING CONSENT
19/11/2021
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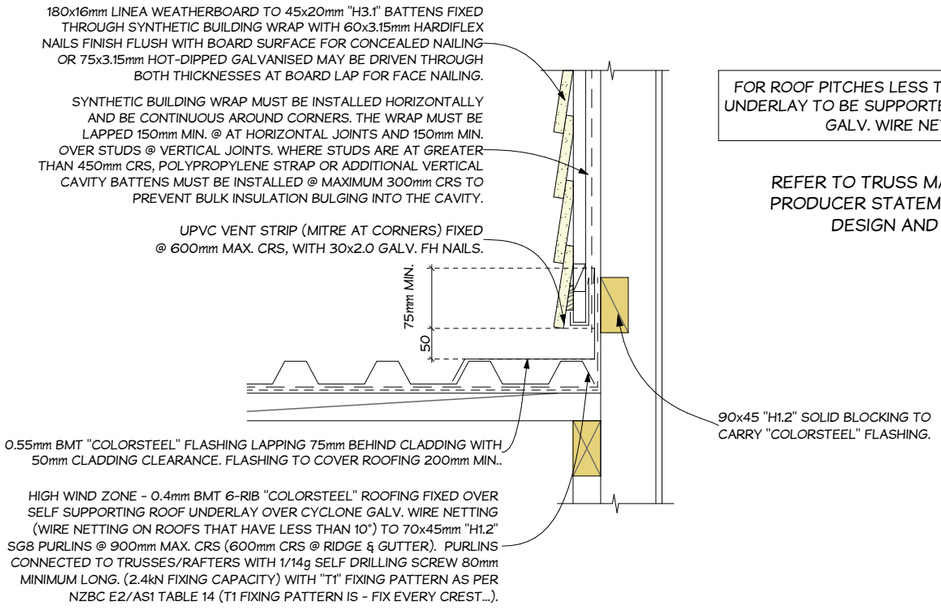
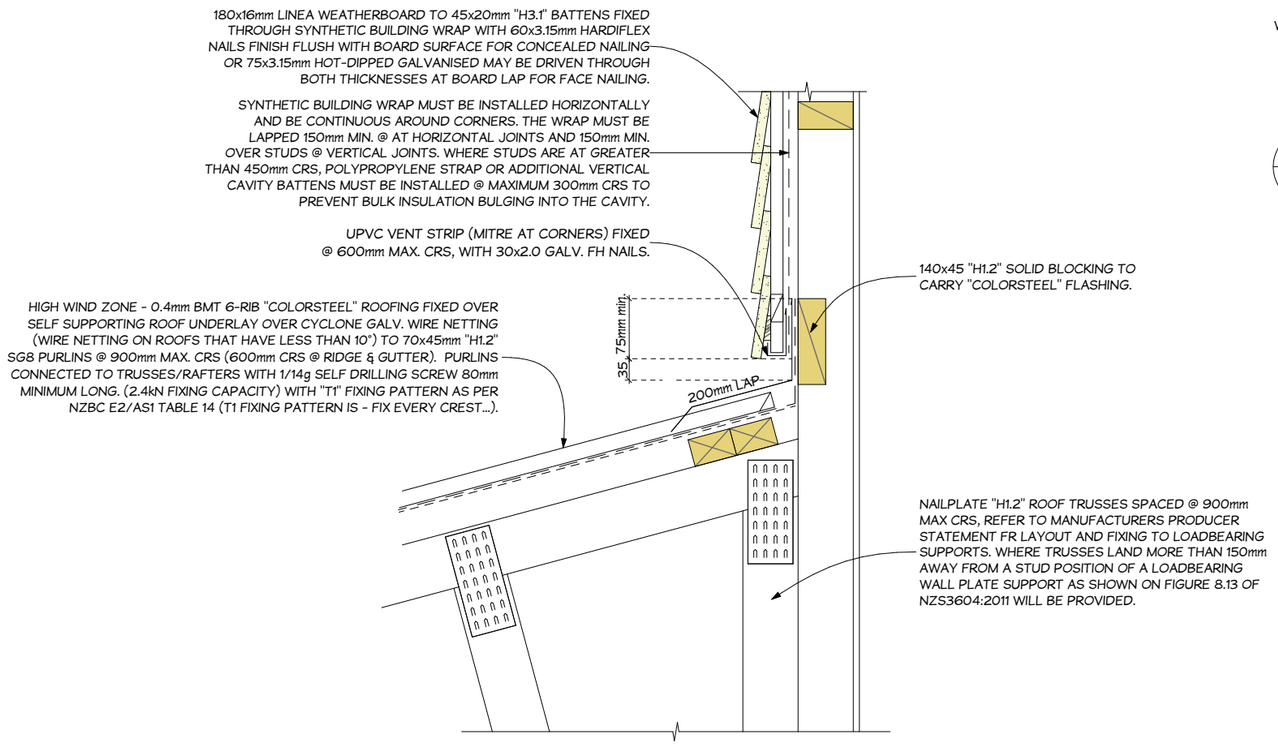


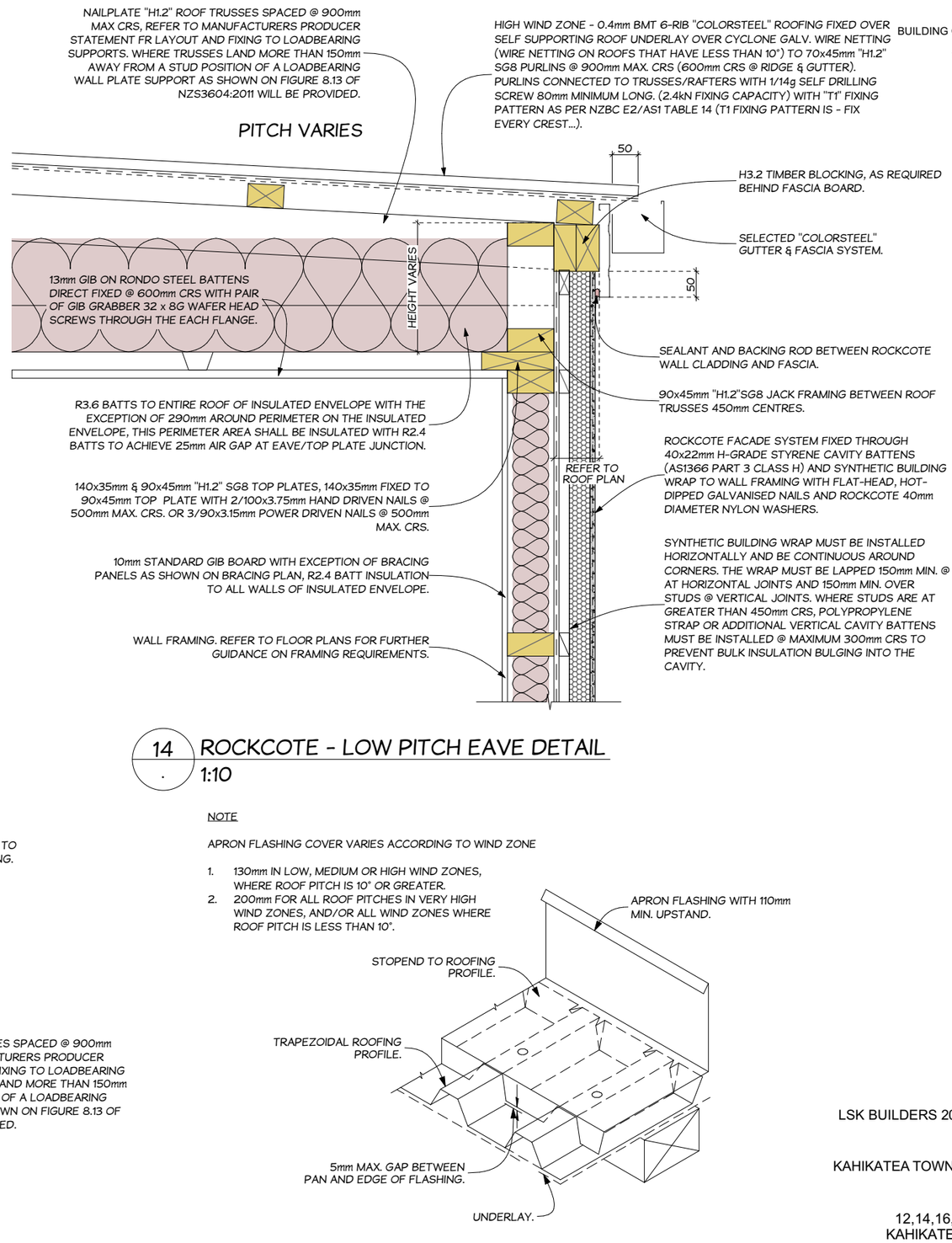

FOR ROOF PITCHES LESS THAN 10° ROOFING UNDERLAY TO BE SUPPORTED OVER CYCLONE GALV. WIRE NETTING

REFER TO TRUSS MANUFACTURERS PRODUCER STATEMENT FOR TRUSS DESIGN AND LAYOUT.

## 12 . LINEA WEATHERBOARD - PARALLEL APRON FLASHING DETAIL
1:10




## 13 . LINEA WEATHERBOARD - APRON FLASHING DETAIL
1:10




## 14 . ROCKCOTE - LOW PITCH EAVE DETAIL
1:10

NOTE

APRON FLASHING COVER VARIES ACCORDING TO WIND ZONE

1. 130mm IN LOW, MEDIUM OR HIGH WIND ZONES, WHERE ROOF PITCH IS 10° OR GREATER.
2. 200mm FOR ALL ROOF PITCHES IN VERY HIGH WIND ZONES, AND/OR ALL WIND ZONES WHERE ROOF PITCH IS LESS THAN 10°.




## 15 . TRAPEZOIDAL NOTCHED FLASHING
1:10

| | |
|---|---|
| A18 | |
| BUILDING CONSENT | SHEET : original A3 |
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| 1:10 | DATE : |
| JM, CW | SCALE : |
| | DRAWN : |
| | Job No. 21106-21110 |

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| 12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND | LOCATION : |
| DETAILS | DRAWING : |

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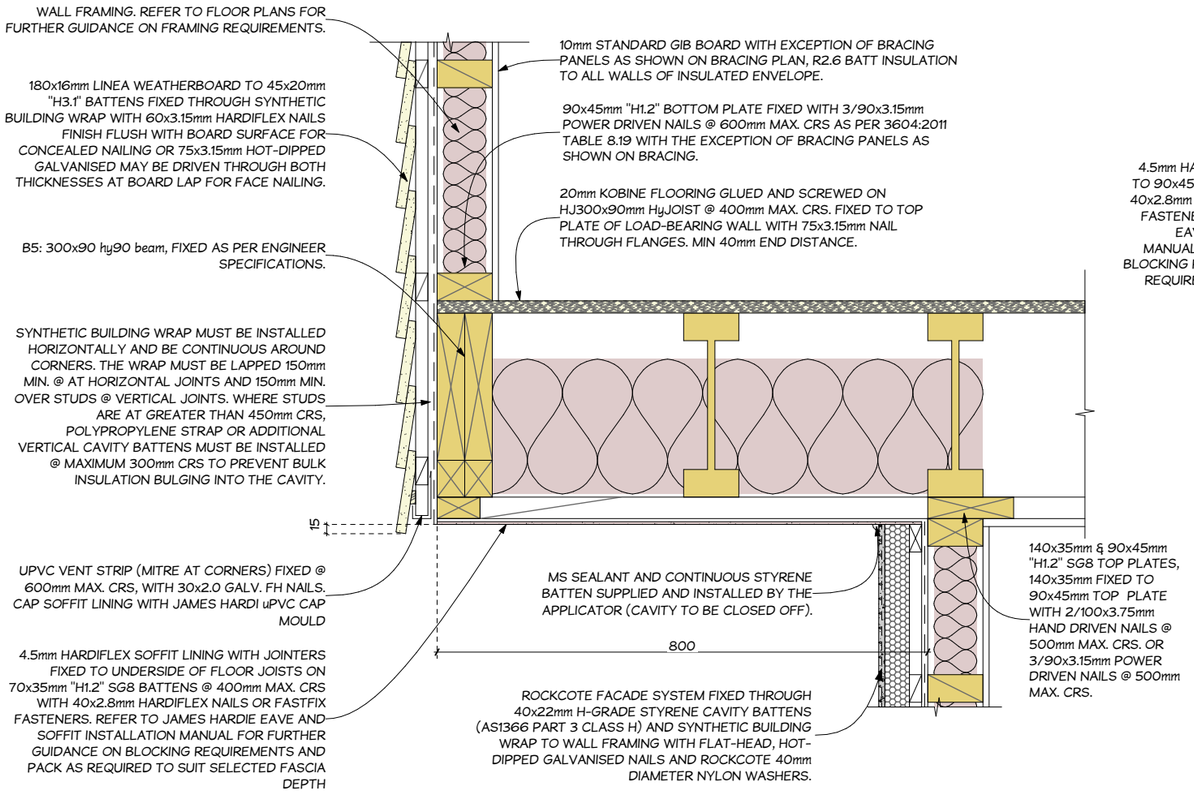
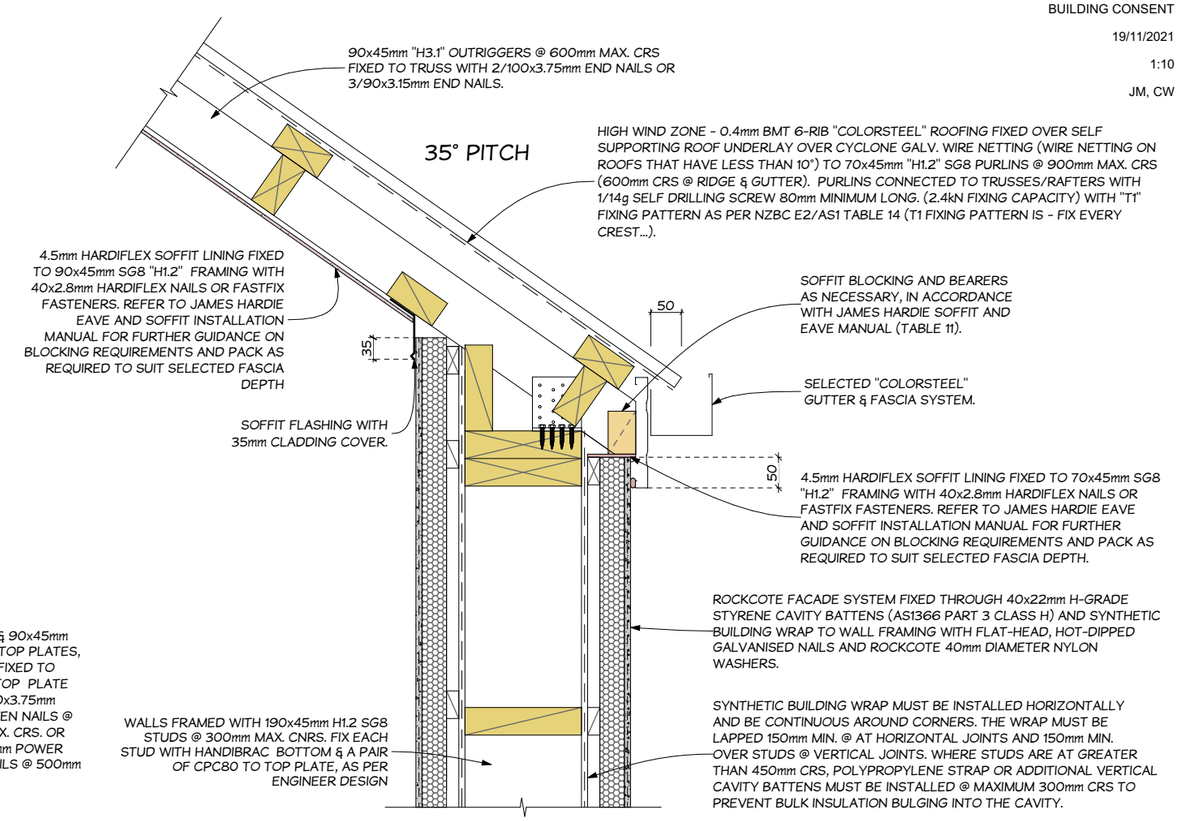
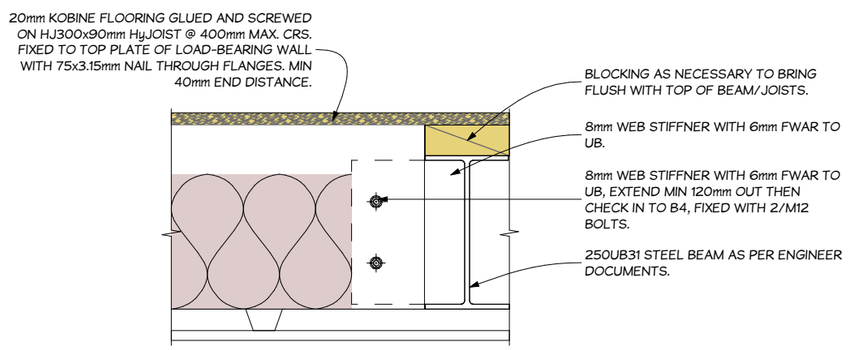


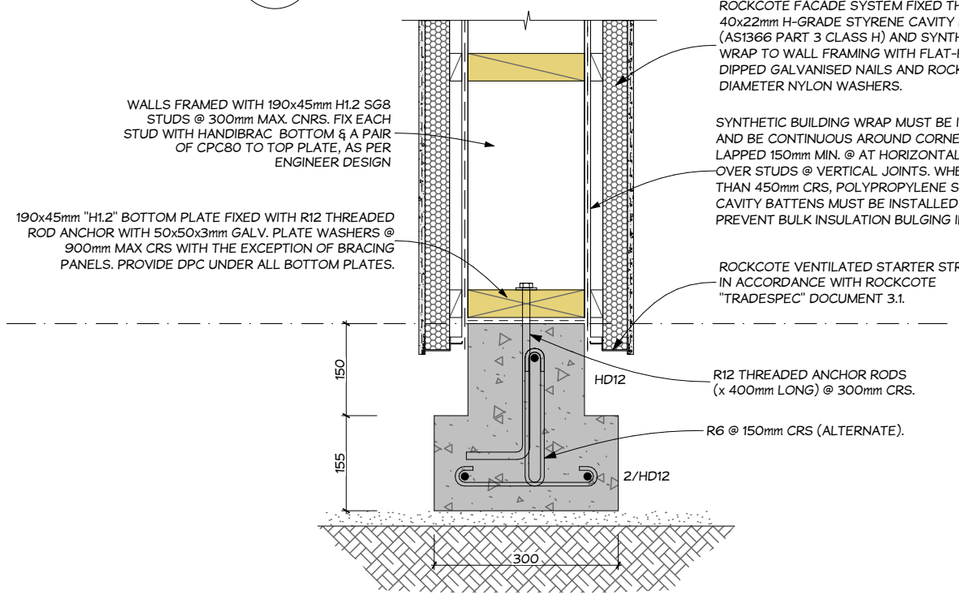

16 . ENTRY EAVE DETAIL
1:10




18 . ROCKCOTE WING WALL - EAVE DETAIL
1:10




17 . (B4) 300x90 Hy90 BEAM TO GARAGE BEAM DETAIL
not to scale




19 . ROCKCOTE - WING WALL FOOTING DETAIL
1:10

A19
BUILDING CONSENT
19/11/2021
1:10
JM, CW

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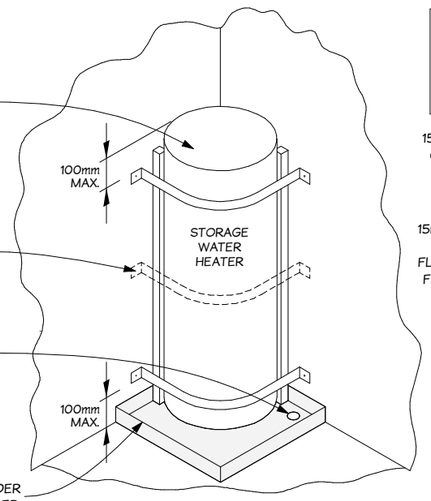
STORAGE WATER HEATERS TO BE RESTRAINED WITH 25 x 1mm GALVANISED STEEL STRAPS TENSIONED WHEN FIXED IN PLACE. STRAPS TO BE FIXED TO WALL FRAMING WITH.

- 1 No. 8mm COACH SCREW WITH 30x2mm THICK WASHERS, OR
- 2 No. 20x2.5mm THICK WASHERS.

SCREWS TO PENETRATE TIMBER FRAMING A MINIMUM OF 50mm.

EXTRA CENTRE STRAP FOR WATER HEATERS EXCEEDING 200 LITRES.

PURPOSE MADE HWC TURNDISH INSTALLED INTO HWC TRAY TO ALLOW SAFE TRAY TO DISCHARGE THROUGH INTO A PVC 100mmø FLOOR WASTE GULLY AS PER AS/NZS 3500.5:2012, PARAGRAGH 4.36.8.7. GULLY FEED WITH A 20mm COLDWATER OVERFLOW.



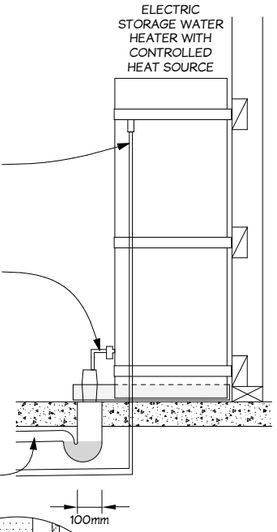

SAFE TRAY UNDER CYLINDER.

FOR ANY CYLINDER WITH AN UNCONTROLLED HEAT SOURCE (ie SOLAR PANELS OR WETBACK), AN ADDITIONAL COPPER DRAIN WILL BE NEEDED.

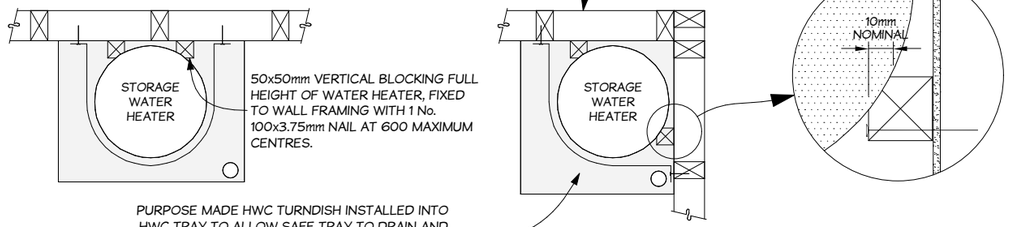
15mmø COPPER TPR DRAIN TO CONNECT TO 20mm COPPER PIPE, DISCHARGING TO GT WITH 4WAY RISER..

15mm COLDWATER EXPANSION VALVE PIPE TO FEED HWC FLOOR WASTE GULLY. 100mmø FLOOR WASTE GULLY AS PER AS/NZS 3500.5:2012, PARAGRAGH 4.36.8.7.

50mmø MIN. DRAIN AS PER AS/NZS3500.5:2012 PARAGRAGH 4.36.8.8.




LIGHT TIMBER FRAME WALL COMPLYING WITH NZS3604:2011.

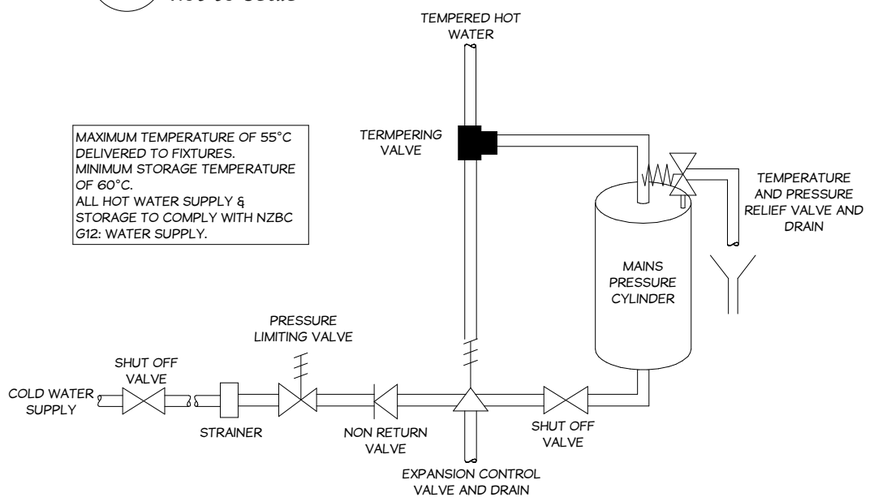



50x50mm VERTICAL BLOCKING FULL HEIGHT OF WATER HEATER, FIXED TO WALL FRAMING WITH 1 No. 100x3.75mm NAIL AT 600 MAXIMUM CENTRES.

PURPOSE MADE HWC TURNDISH INSTALLED INTO HWC TRAY TO ALLOW SAFE TRAY TO DRAIN AND RELEIF VALVE TO DISCHARGE THROUGH INTO A PVC 100mmø FLOOR WASTE GULLY AS PER AS/NZS 3500.5 2012, PARAGRAGH 4.36.8.7.

## 20. SEISMIC RESTRAINT & SAFE TRAY OF WATER HEATERS
not to scale

MAXIMUM TEMPERATURE OF 55°C DELIVERED TO FIXTURES.
MINIMUM STORAGE TEMPERATURE OF 60°C.
ALL HOT WATER SUPPLY & STORAGE TO COMPLY WITH NZBC G12: WATER SUPPLY.




## 21. PRESSURE REDUCING & TEMPERING VALVES FOR WATER HEATERS
not to scale

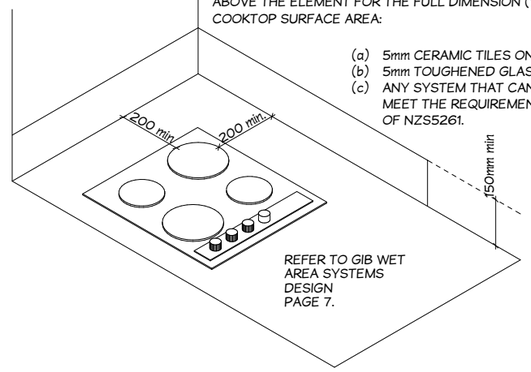
GIB PLASTERBOARD PRODUCTS MUST NOT BE EXPOSED TO TEMPERATURES IN EXCESS OF 52°C FOR SUSTAINED PERIODS. CHECK WITH THE APPLIANCE MANUFACTURER THAT THIS REQUIREMENT WILL BE MET. HOWEVER.

- BENCH TOP MADE FROM STAINLESS STEEL, DECORATIVE HIGH PRESSURE LAMINATE OR TILES TO COMPLY WITH G3: CLAUSE 1.1.3.
- WALL LININGS ADJACENT TO APPLIANCES AND FACILITIES SHALL HAVE SURFACES THAT CAN EASILY MAINTAINED IN A HYGIENIC CONDITION. WHERE A SPLASHBACK IS NOT PROVIDED, WALL LININGS WILL BE PAINTED WITH 2 COATS OF GLOSS PAINT (IMPERVIOUS COATING), TO COMPLY WITH G3: CLAUSE 1.6.

THE PROTECTION OF COMBUSTIBLE SURFACES SURROUNDING COOKING APPLIANCES IS COVERED BY NZS 5261. CONSULT THE CURRENT VERSION OF THIS STANDARD TO ENSURE COMPLIANCE.

AS A GUIDE THE FOLLOWING OPTIONS ARE ACCEPTABLE FOR WALL SURFACES WITHIN 200mm OF THE PERIPHERY OF A GAS ELEMENT TO A HEIGHT OF 150mm ABOVE THE ELEMENT FOR THE FULL DIMENSION (WIDTH AND DEPTH) OF THE COOKTOP SURFACE AREA:

(a) 5mm CERAMIC TILES ON GIB PLASTERBOARD
(b) 5mm TOUGHENED GLASS ON GIB PLASTERBOARD
(c) ANY SYSTEM THAT CAN BE DEMONSTRATED TO MEET THE REQUIREMENTS OF CLAUSE 2.6.2.6 OF NZS5261.




## 22. WALL SURFACES SURROUNDING COOKTOPS
not to scale

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1:10
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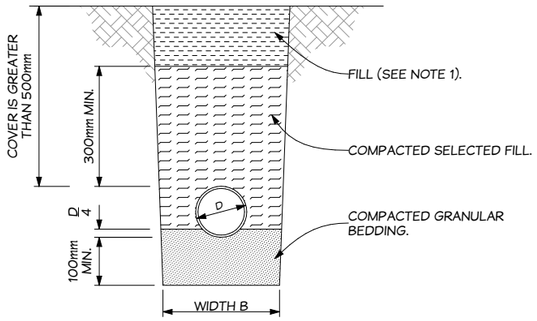
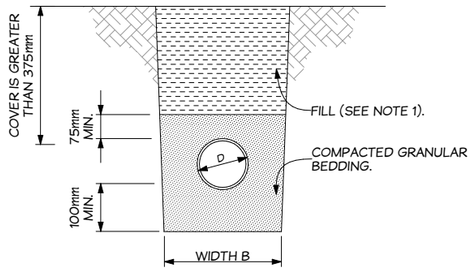
NOTES

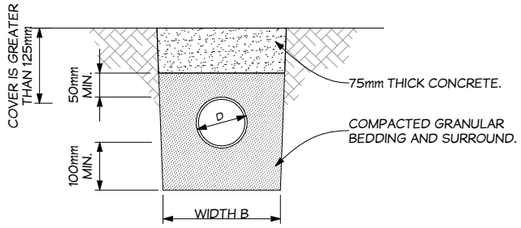
1. FILL SHALL BE...
- ORDINARY FILL WHERE DRAINS ARE LOCATED BELOW GARDENS AND OPEN COUNTRY.
- COMPACTED SELECTED FILL WHERE THE DRAINS ARE LOCATED BELOW RESIDENTIAL DRIVEWAYS AND SIMILAR AREAS SUBJECTED TO LIGHT TRAFFIC.




(a) COVER GREATER THAN 500mm
BEDDING TYPE "B" OF NZS4452




(b) COVER GREATER THAN 375mm
BEDDING TYPE "D" OF NZS4452

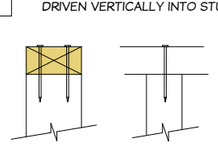



(b) COVER GREATER THAN 125mm

## 23. DRAINAGE TRENCH BEDDING AND BACKFILLING
not to scale

TYPE A
0.7kN

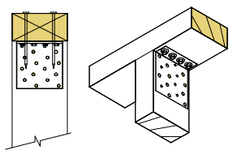
2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD.



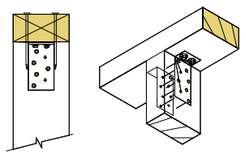
TYPE B
4.7kN

CHOOSE ANY OF THE 3 OPTIONS BELOW

2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS ONE LUMBERLOK 6kN STUD ANCHOR (CPC80).

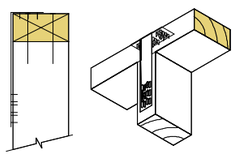


2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS TWO LUMBERLOK CPC40.

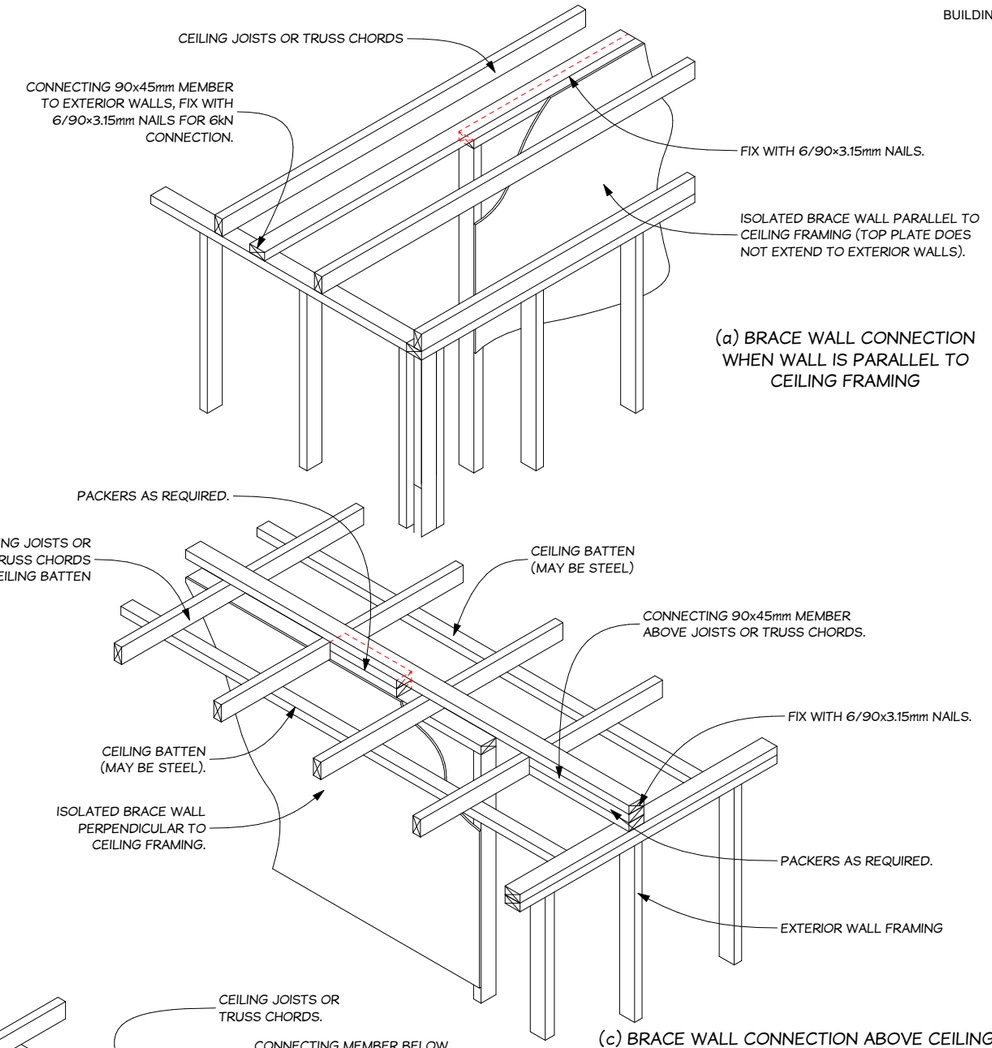


RECOMMENDED FOR INTERNAL WALL OPTIONS TO AVOID LINING ISSUES

2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS LUMBERLOK STUD STRAP (ONE FACE ONLY).

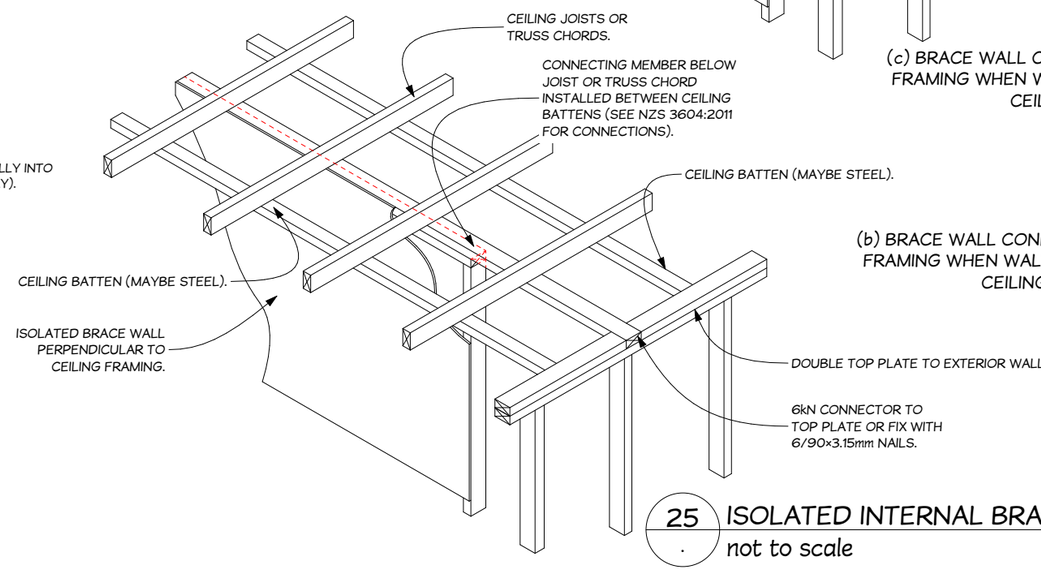


## 24. LUMBERLOK STUD TO TOP PLATE FIXINGS
not to scale




(a) BRACE WALL CONNECTION WHEN WALL IS PARALLEL TO CEILING FRAMING

(c) BRACE WALL CONNECTION ABOVE CEILING FRAMING WHEN WALL IS PERPENDICULAR TO CEILING FRAMING




(b) BRACE WALL CONNECTION BELOW CEILING FRAMING WHEN WALL IS PERPENDICULAR TO CEILING FRAMING

## 25. ISOLATED INTERNAL BRACE ELEMENTS
not to scale

A21
BUILDING CONSENT
19/11/2021
1:10
JM, CW

SHEET : original A3
REVISION :
DATE :
SCALE :
DRAWN :
Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

Tasman District Council / AlphaOne Multiproof Approval – 107

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. CLIENT :

KAHIKATEA TOWNHOUSE PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :

DETAILS DRAWING :

PREMIER SERVICES
Architectural Design Plus

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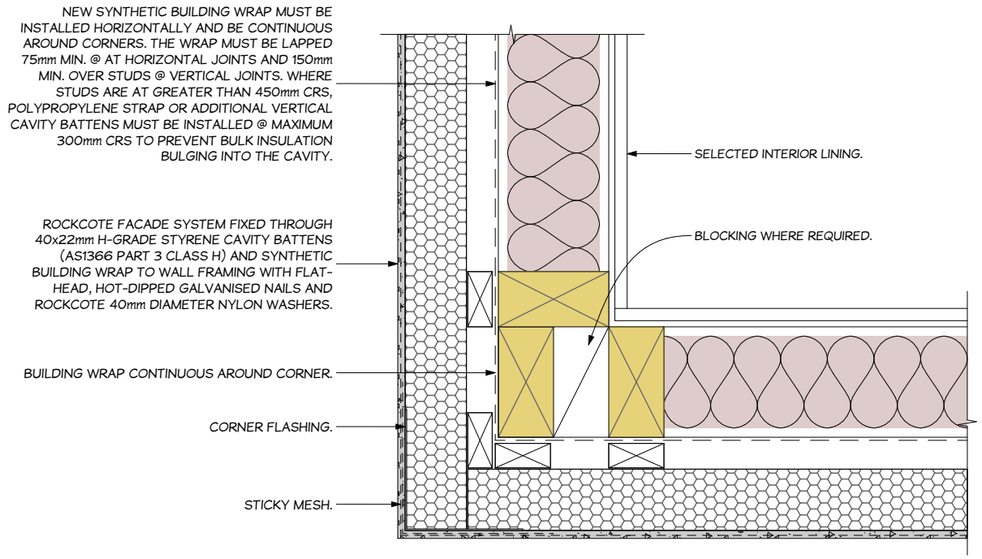
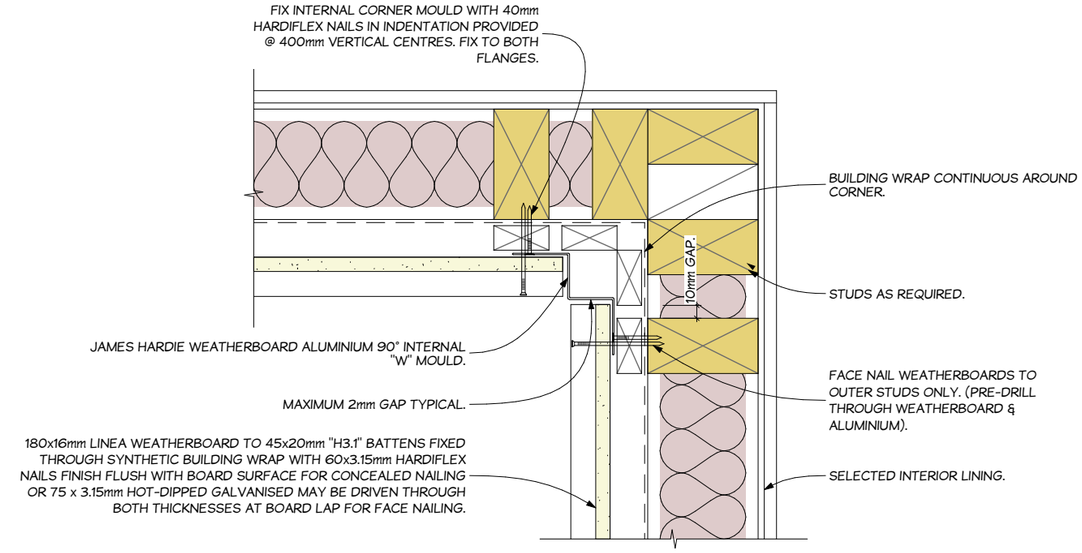
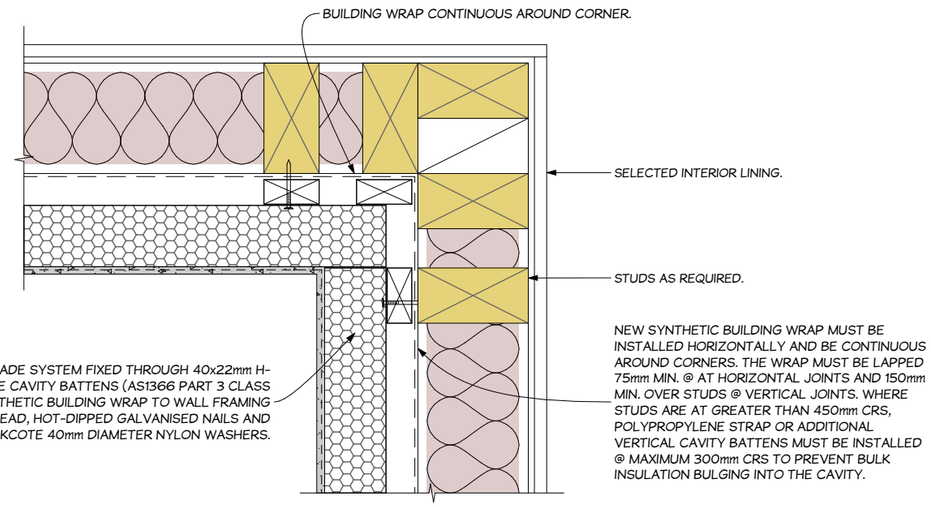


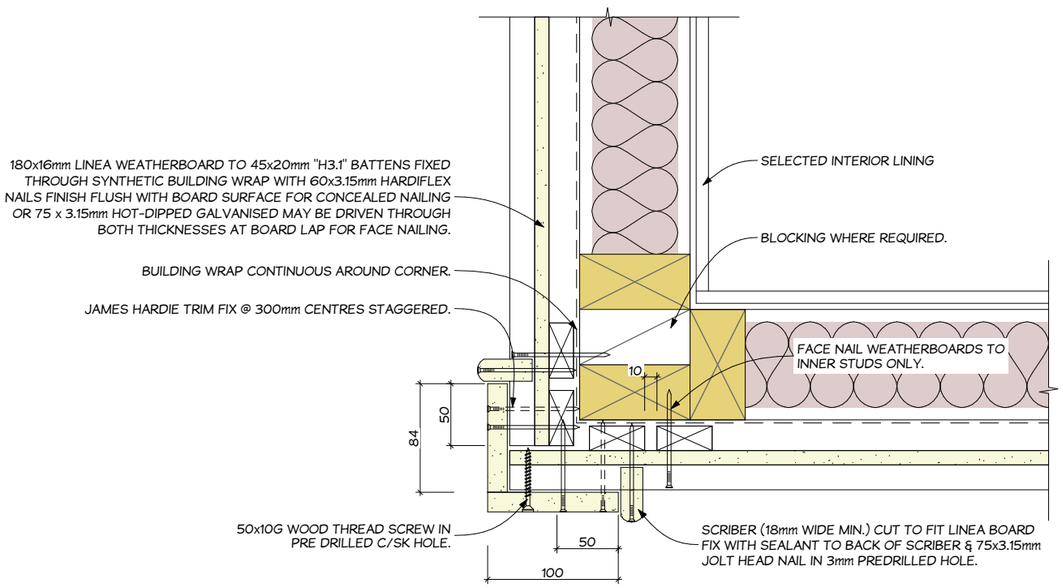

101 . ROCKCOTE - EXTERNAL CORNER DETAIL
1:5




103 . LINEA WEATHERBOARD - INTERNAL 90° CORNER
1:5




102 . ROCKCOTE- INTERNAL CORNER DETAIL
1:5




104 . LINEA WEATHERBOARD - BOXED EXTERNAL CORNER
1:5

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A22
SHEET : original A3
BUILDING CONSENT
REVISION : 21106-21110
19/11/2021
DATE :
1:5
SCALE :
JM, CW
DRAWN :
Job No.

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

Tasman District Council / AlphaOne Multiproof Approval – 107

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. CLIENT :
KAHIKATEA TOWNHOUSE PROJECT :
12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :
JUNCTION DETAILS DRAWING :

PREMIER SERVICES
Architectural Design Plus

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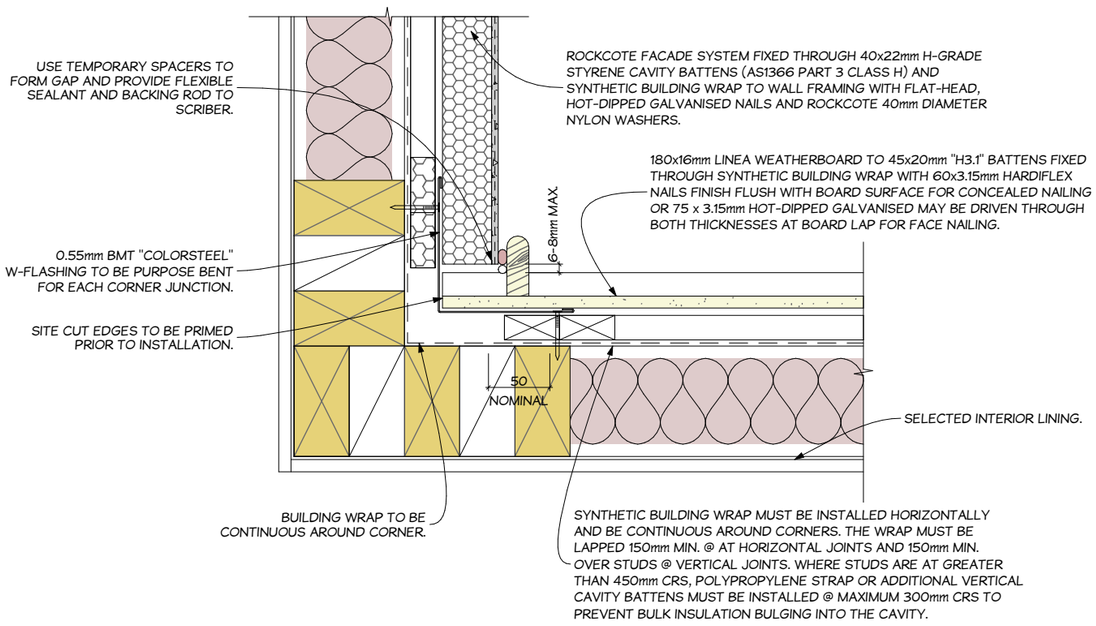
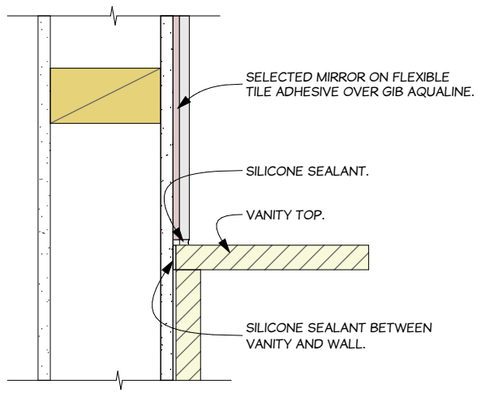
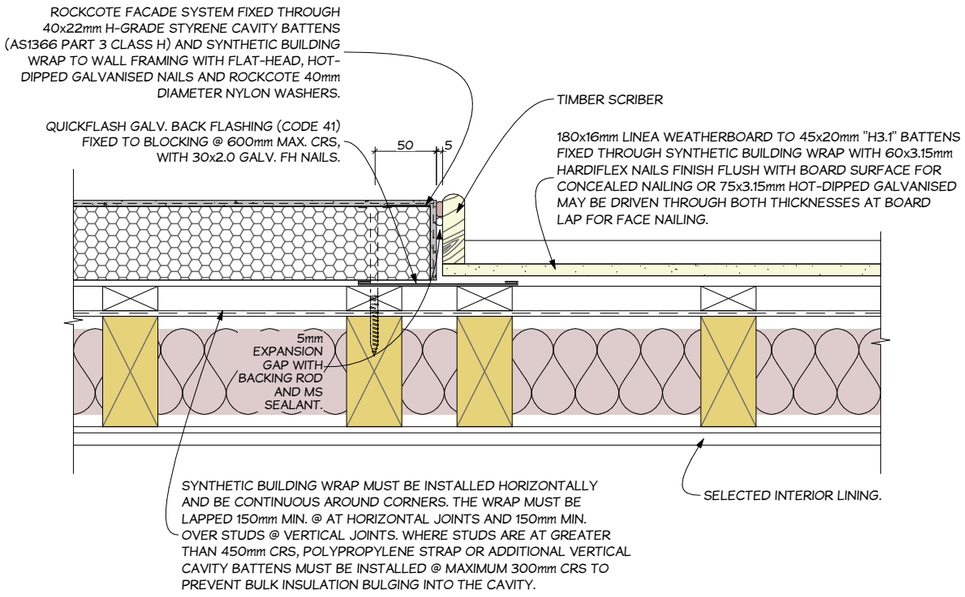


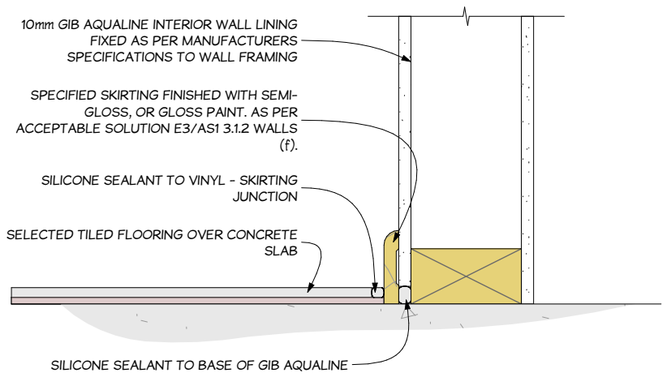

105 . ROCKCOTE/LINEA WEATHERBOARD - INTERNAL CORNER DETAIL
1:5




107 . VANITY TOP DETAIL
1:5




106 . ROCKCOTE GRAPHEX/LINEA WEATHERBOARD VERTICAL JUNCTION DETAIL
1:5




108 . BATHROOM WALL/FLOOR
SCALE 1:5

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A23 SHEET : original A3
BUILDING CONSENT REVISION :
19/11/2021 DATE :
1:5 SCALE :
JM, CW DRAWN :
Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

Tasman District Council / AlphaOne Multiproof Approval – 107

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LSK BUILDERS 2011 LTD. CLIENT :
KAHIKATEA TOWNHOUSE PROJECT :
12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :
JUNCTION DETAILS DRAWING :

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BC220131

Tasman District Council - Approved Plans

23/02/2022

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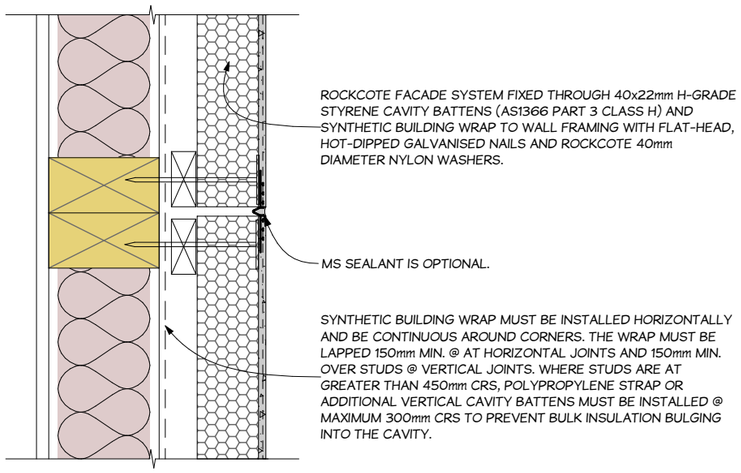
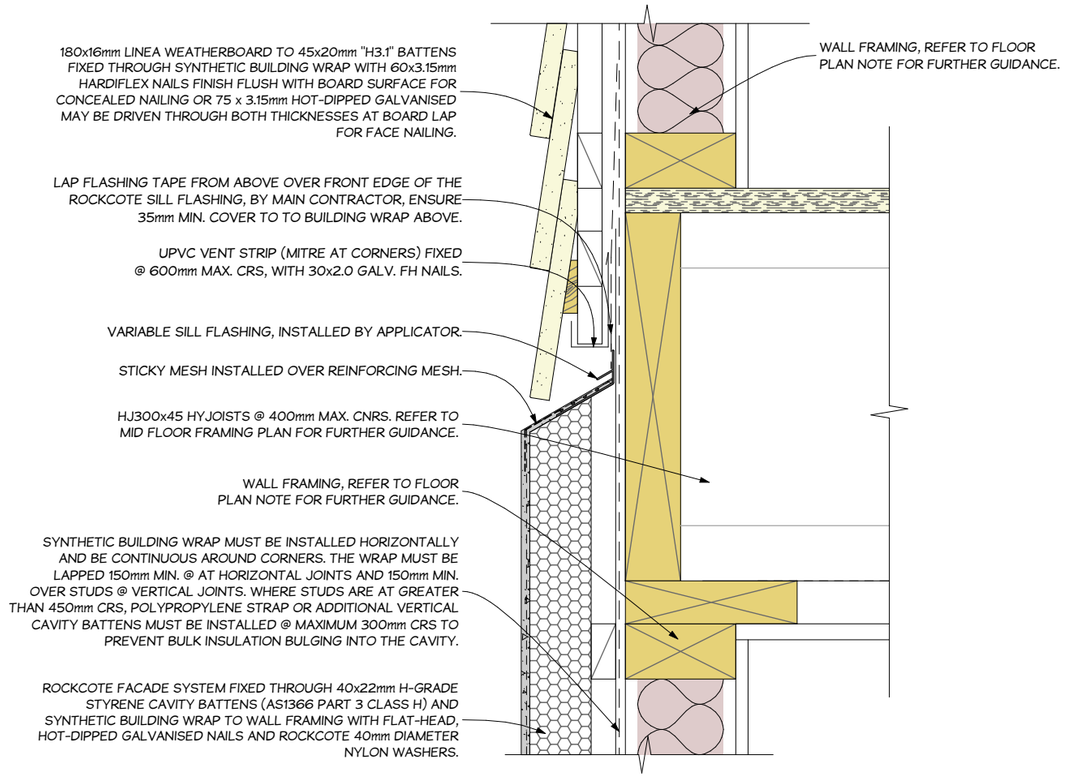



109 . ROCKCOTE- VERTICAL CONTROL JOINT DETAIL
1:5




110 . ROCKCOTE/LINEA WEATHERBOARD - HORIZONTAL JUNCTION
1:5

A24
BUILDING CONSENT
19/11/2021
1:5
JM, CW

SHEET : original A3
REVISION :
DATE :
SCALE :
DRAWN :

Job No. 21106-21110

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| A | Building Consent | | 19/11/2021 |

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LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

JUNCTION DETAILS — DRAWING :

PREMIER SERVICES
Architectural Design Plus

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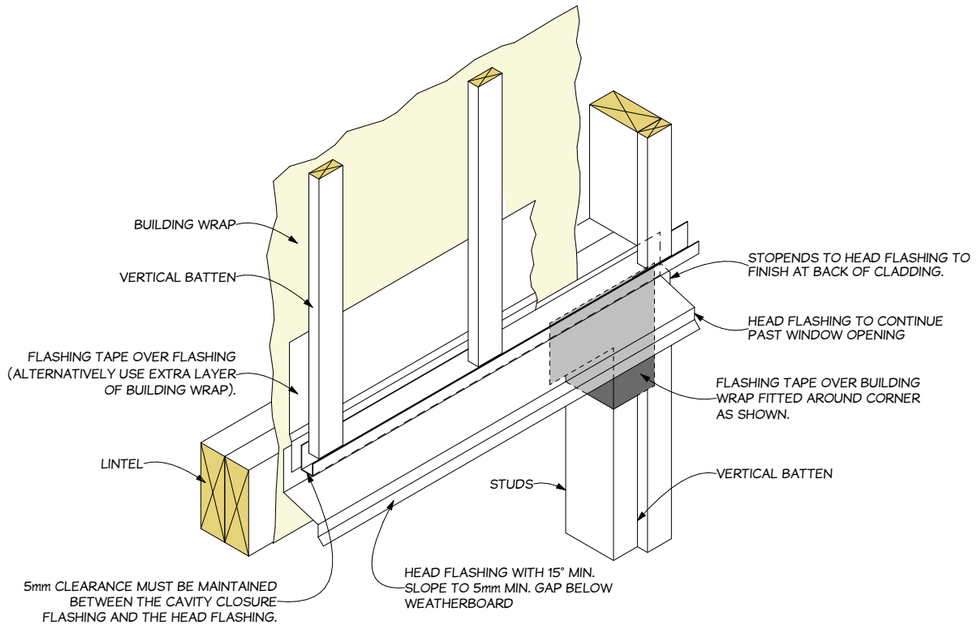
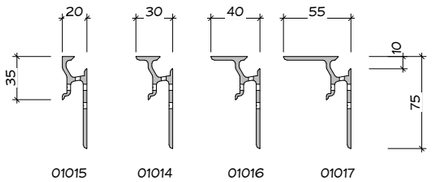
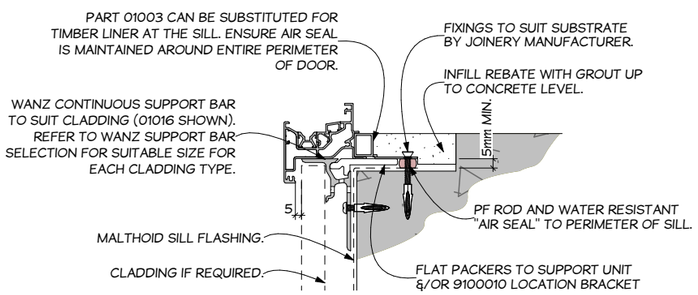



111 . HEAD FLASHING TERMINATION
not to scale

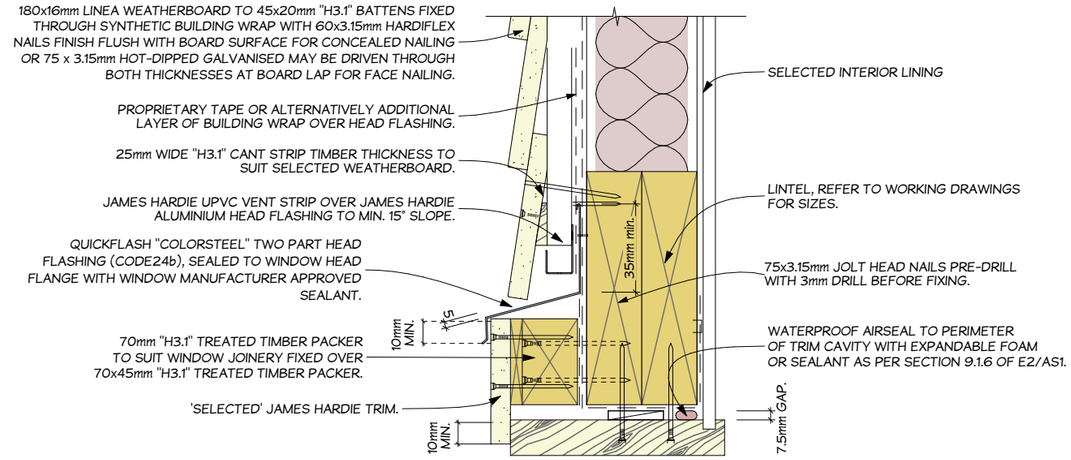
ALL WINDOWS SHALL BE DOUBLE GLAZED EXCLUDING GARAGE AND SHALL HAVE WANZ SUPPORT BARS PROVIDED BY JOINERY SUPPLIER TO ALL WINDOWS AND DOORS EXCEEDING 600mm IN WIDTH.



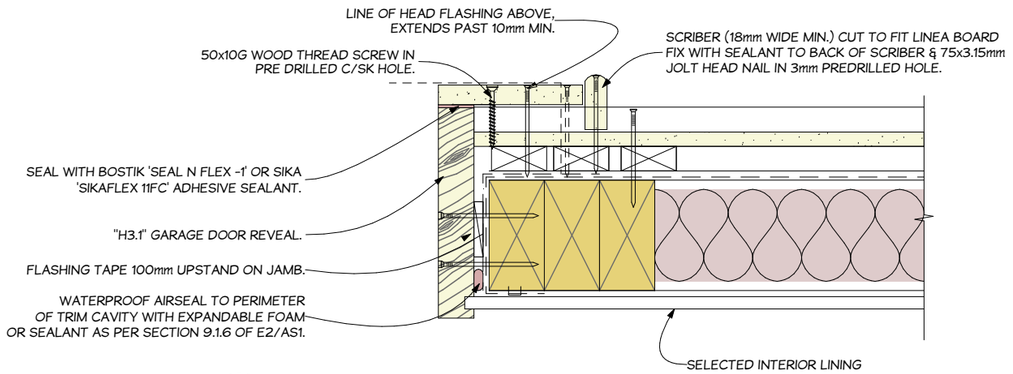

112 . WANZ SUPPORT BAR SELECTION
1:5




113 . DOOR SILL DETAIL - WANZ BAR
1:5




114 . LINEA WEATHERBOARD - GARAGE DOOR HEAD DETAIL WITH FACINGS
1:5




115 . LINEA WEATHERBOARD - GARAGE DOOR JAMB DETAIL
1:5

A25
BUILDING CONSENT
19/11/2021
1:5
JM, CW

SHEET : original A3
REVISION :
DATE :
SCALE :
DRAWN :
Job No. 21106-21110

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| A | Building Consent | | 19/11/2021 |

Tasman District Council / AlphaOne Multiproof Approval – 107

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LSK BUILDERS 2011 LTD. CLIENT :
KAHIKATEA TOWNHOUSE PROJECT :
12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :
OPENING DETAILS DRAWING :

PREMIER SERVICES
Architectural Design Plus

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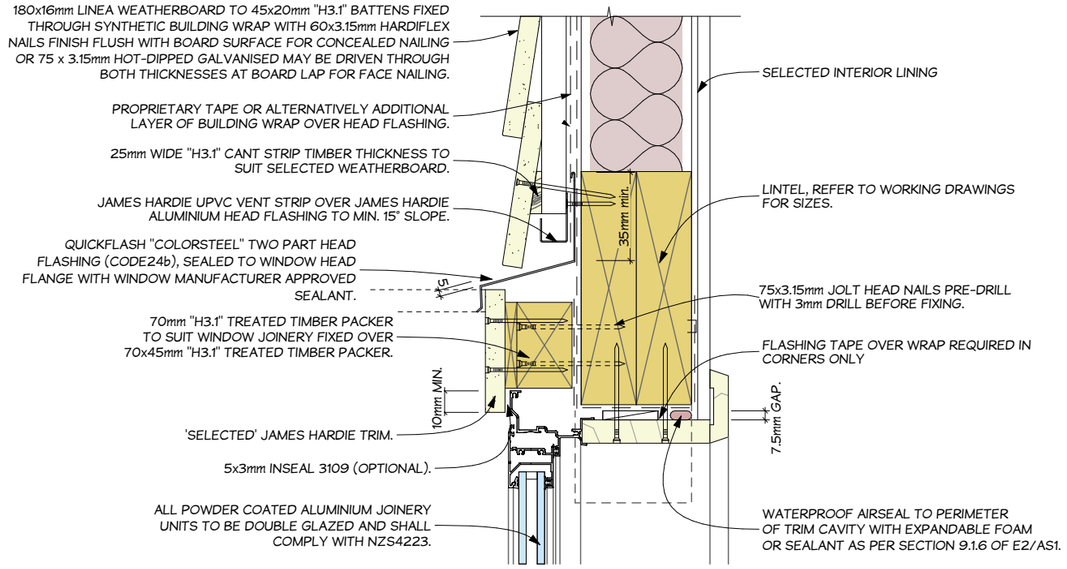
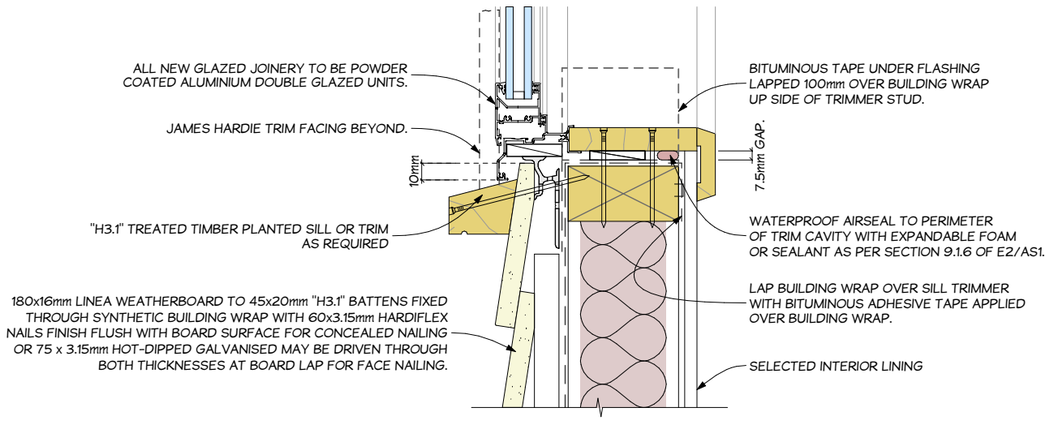
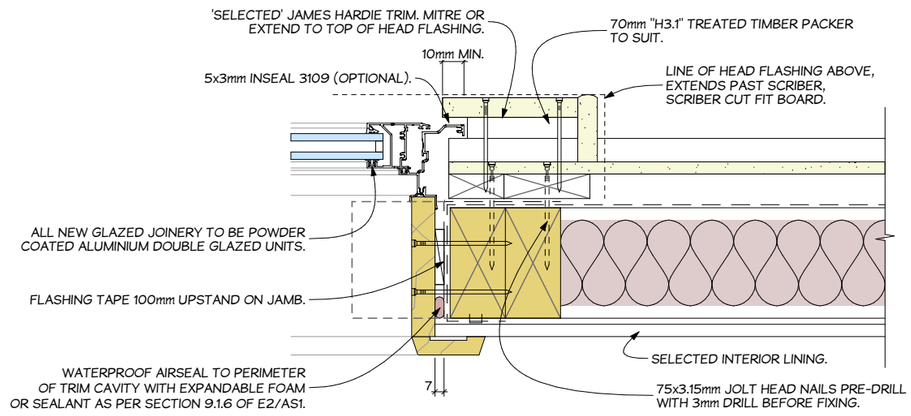



116 . WEATHERBOARD - HEAD DETAIL WITH FACINGS
1:5




GENERAL NOTES FOR MATERIALS SECTION
1. FLASHING MATERIALS MUST BE SELECTED BASED ON ENVIRONMENTAL EXPOSURE, REFER TO NZS 3604 AND TABLE 20 OF NZBC CLAUSE E2/AS1.
2. BUILDING WRAP MUST COMPLY WITH ACCEPTABLE SOLUTION NZBC CLAUSE E2/AS1 & NZS 3604.
3. FLASHING TAPE MUST HAVE PROVEN COMPATIBILITY WITH THE SELECTED BUILDING WRAP & OTHER MATERIALS WITH WHICH IT COMES INTO CONTACT AS PER TABLE 21 OF NZBC CLAUSE E2/AS1.

117 . LINEA WEATHERBOARD WINDOW SILL WITH FACINGS
1:5




118 . LINEA WEATHERBOARD WINDOW JAMB WITH FACINGS
1:5

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| SHEET : original A3 | A26 |
| REVISION : | BUILDING CONSENT |
| DATE : | 19/11/2021 |
| SCALE : | 1:5 |
| DRAWN : | JM, CW |

Job No. 21106-21110

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|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

| | |
|---|---|
| CLIENT : | LSK BUILDERS 2011 LTD. |
| PROJECT : | KAHIKATEA TOWNHOUSE |
| LOCATION : | 12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND |
| DRAWING : | OPENING DETAILS |

PREMIER SERVICES
Architectural Design Plus

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BC220131 Tasman District Council - Approved Plans 23/02/2022
Page 225 / 1401

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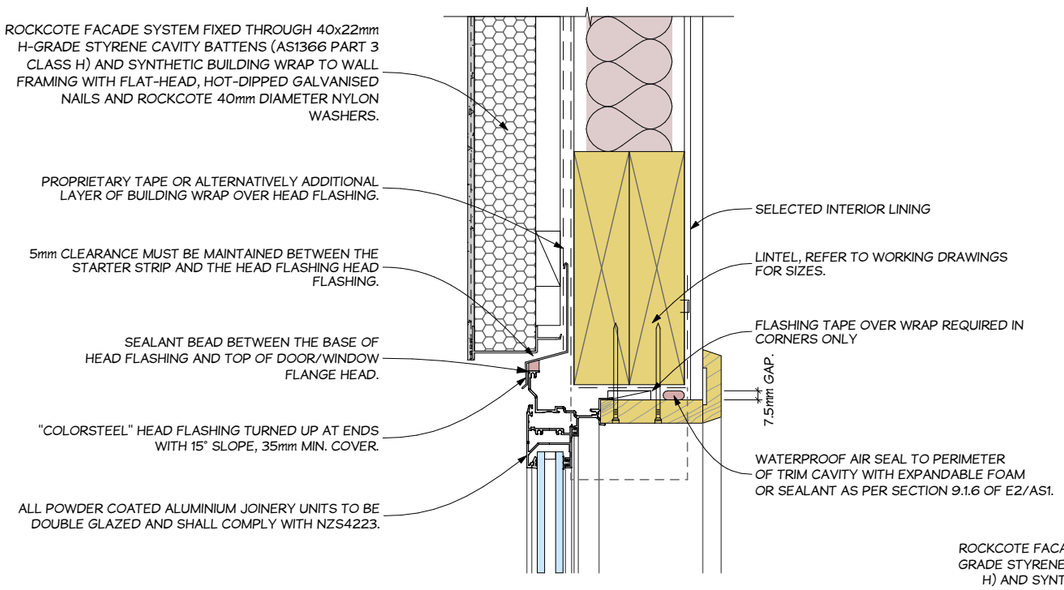
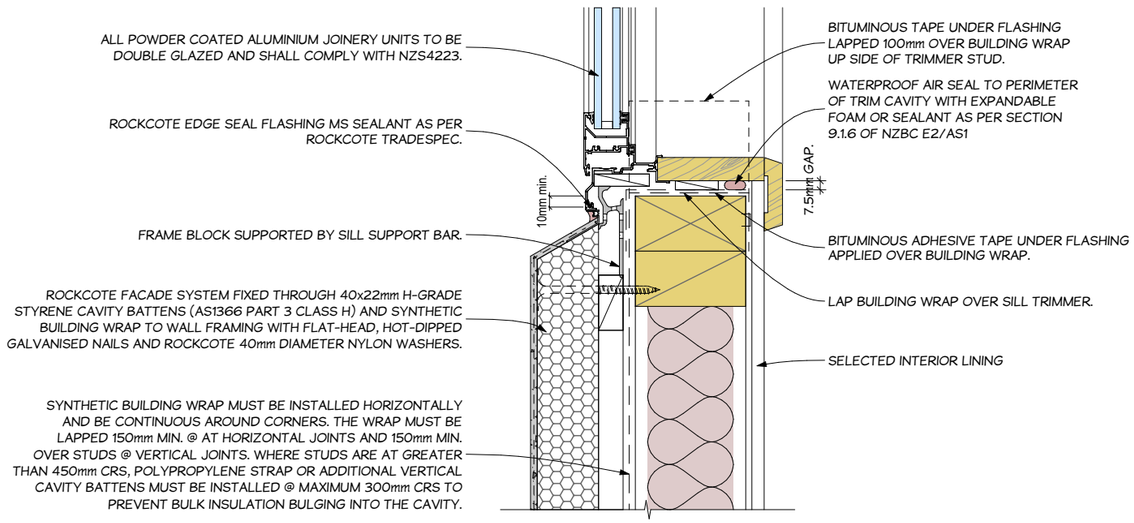
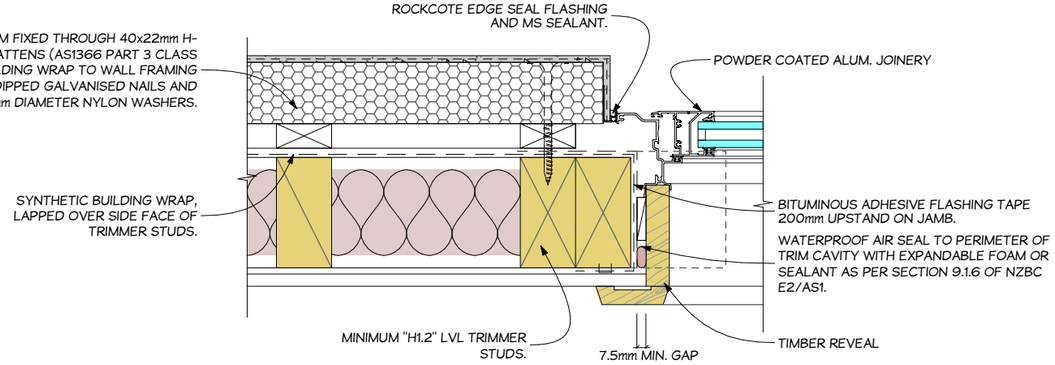



119 . ROCKCOTE EPS - HEAD DETAIL
1:5




120 . ROCKCOTE EPS - SILL DETAIL
1:5




121 . ROCKCOTE EPS - JAMB DETAIL
1:5

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| A27 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 19/11/2021 | DATE : |
| 1:5 | SCALE : |
| JM, CW | DRAWN : |

Job No. 21106-21110

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LSK BUILDERS 2011 LTD. CLIENT :

KAHIKATEA TOWNHOUSE PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :

OPENING DETAILS DRAWING :

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BC220131 Tasman District Council - Approved Plans 23/02/2022
Page 226 / 1401

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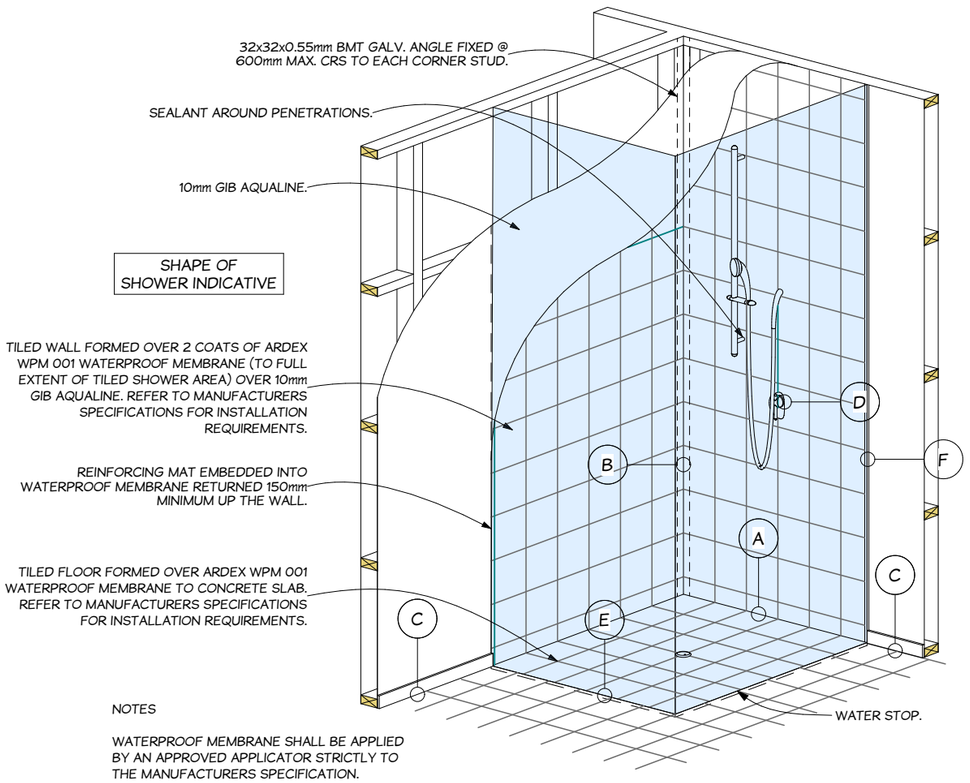
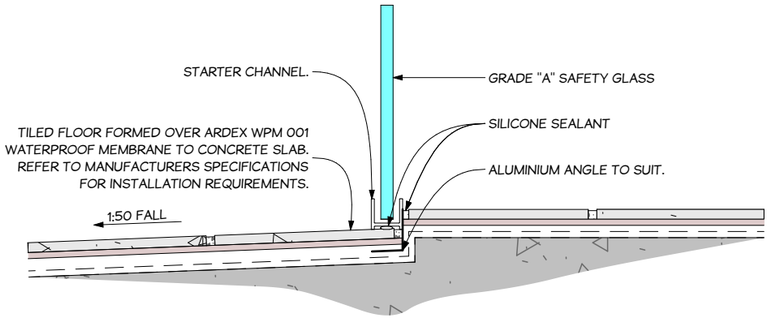



NOTES

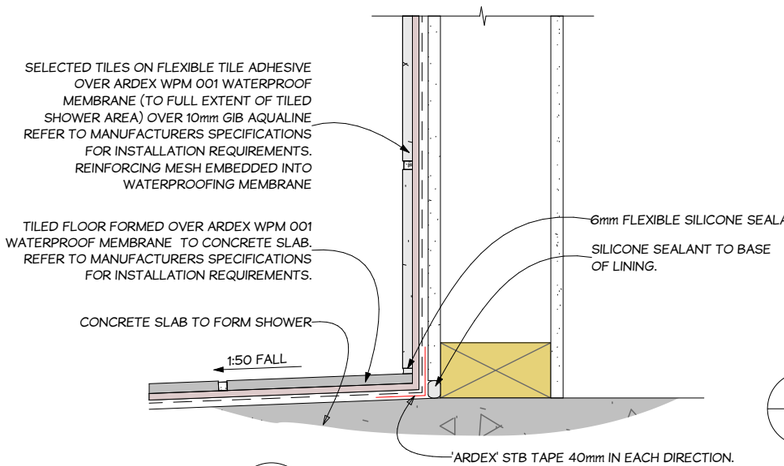
WATERPROOF MEMBRANE SHALL BE APPLIED BY AN APPROVED APPLICATOR STRICTLY TO THE MANUFACTURERS SPECIFICATION.

122 / . TILED SHOWER WITH RECESSED BASE DETAIL
not to scale

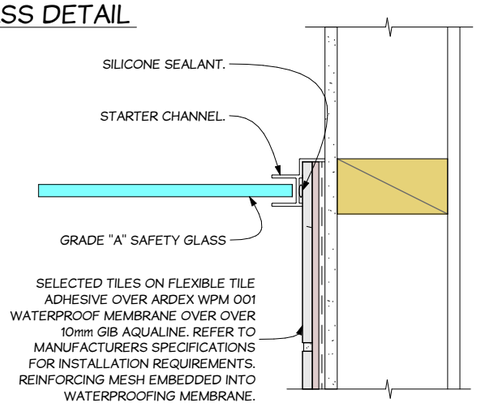



TILE WEIGHT 23kg/m²

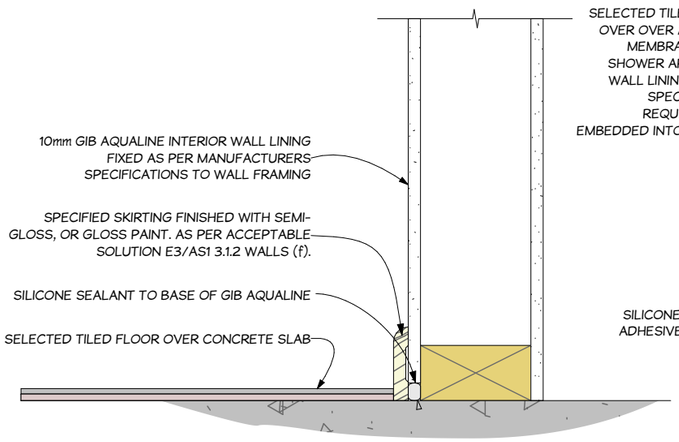
E / . SHOWER FLOOR RECESS AT GLASS DETAIL
SCALE 1:5



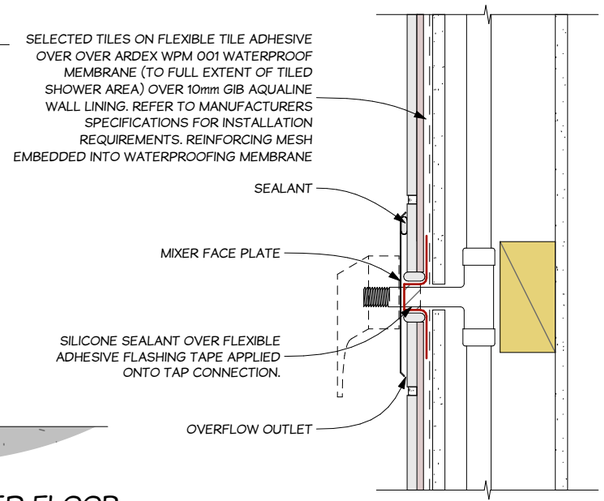

A / . SHOWER WALL BASE DETAIL
1:5



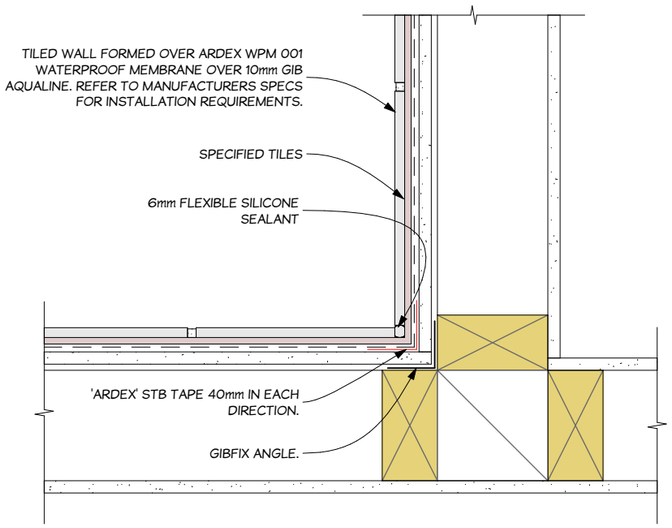

F / . SHOWER ENCLOSURE/TILED WALL INTERSECTION
SCALE 1:5




C / . BATHROOM WALL/FLOOR TILED FLOOR
1:5




D / . SHOWER MIXER DETAIL
1:5




B / . SHOWER WALL CORNER DETAIL
1:5

A28
BUILDING CONSENT
19/11/2021
1:5
JM, CW

| | |
|---|---|
| SHEET : original A3 | A28 |
| REVISION : | BUILDING CONSENT |
| DATE : | 19/11/2021 |
| SCALE : | 1:5 |
| DRAWN : | JM, CW |
| Job No. | 21106-21110 |

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

Tasman District Council / AlphaOne Multiproof Approval – 107

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

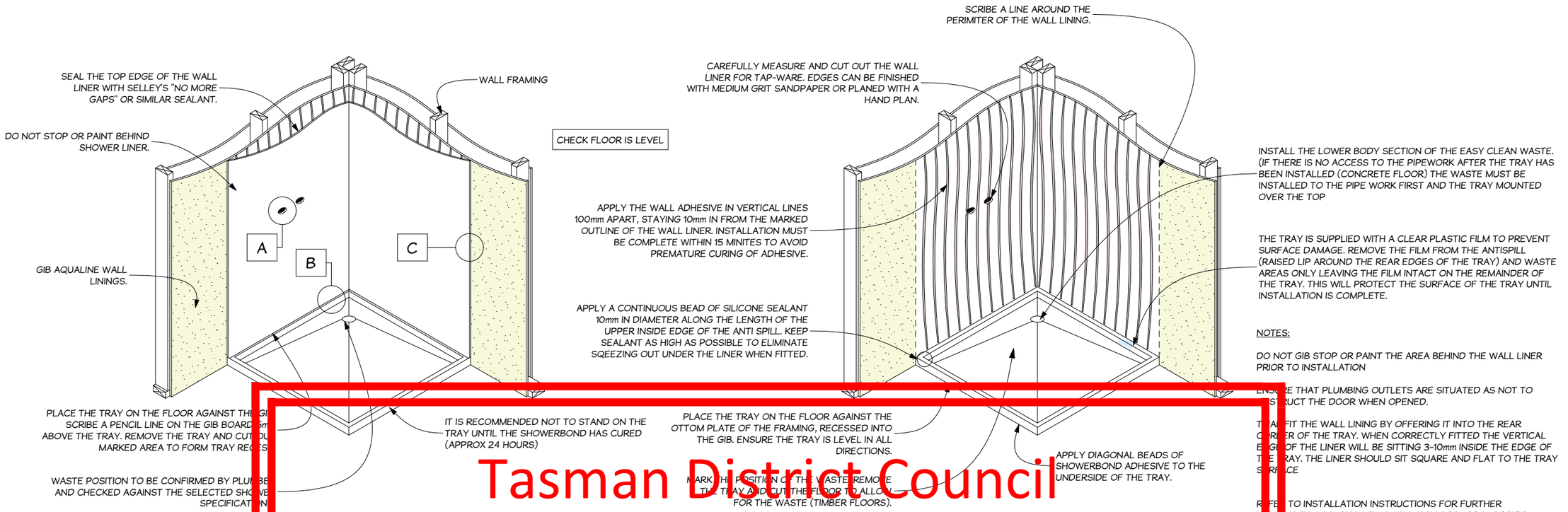
| | |
|---|---|
| LSK BUILDERS 2011 LTD. | CLIENT : |
| KAHIKATEA TOWNHOUSE | PROJECT : |
| 12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND | LOCATION : |
| SHOWER DETAILS | DRAWN : |

PREMIER SERVICES
Architectural Design Plus

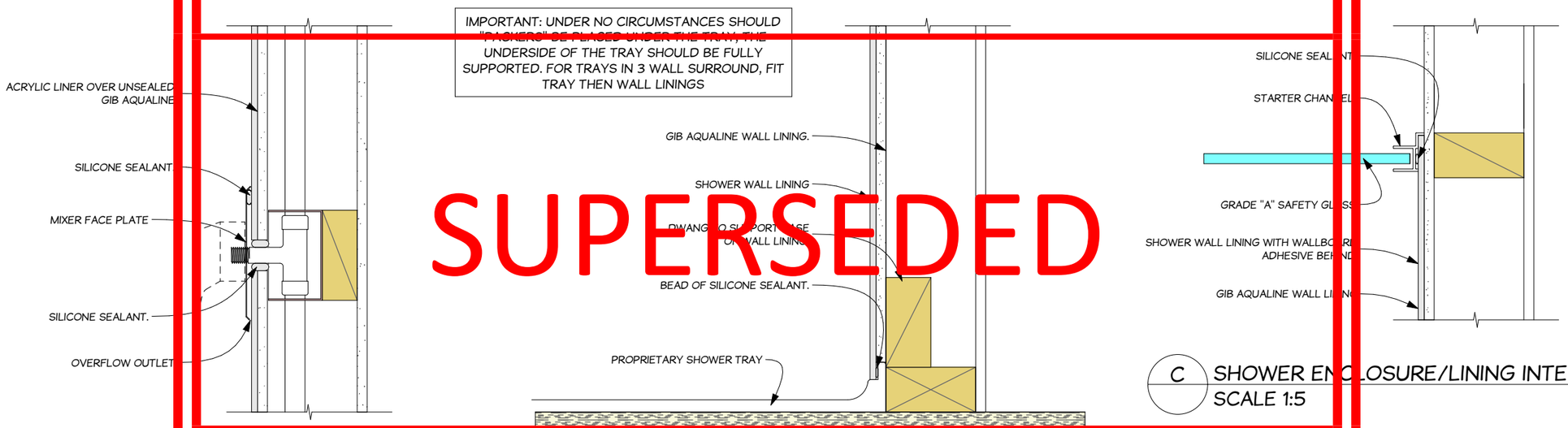
All work is to be carried out in full accordance with the NZBC and Territorial Authority requirements as they apply. Any queries and discrepancies must be confirmed with the Designer before beginning any work

BC220131
Tasman District Council - Approved Plans
23/02/2022


All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.




123 . PROPRIETARY SHOWER BASE DETAIL
not to scale




A SHOWER MIXER DETAIL
SCALE 1:5

B SHOWER WALL BASE DETAIL
SCALE 1:5

C SHOWER ENCLOSURE/LINING INTERSECTION
SCALE 1:5

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

Tasman District Council / AlphaOne Multiproof Approval – 107

A29
BUILDING CONSENT
19/11/2021
1:5
JM, CW

SHEET : original A3
REVISION :
DATE :
SCALE :
DRAWN :
Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

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LSK BUILDERS 2011 LTD. — CLIENT :
KAHIKATEA TOWNHOUSE — PROJECT :
12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :
SHOWER DETAILS — DRAWING :

PREMIER SERVICES
Architectural Design Plus

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BC220131

Tasman District Council - Approved Plans

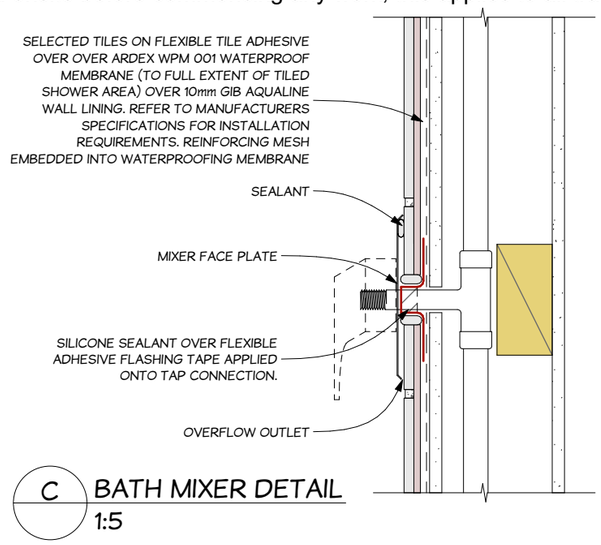
23/02/2022

Page 228 / 1401

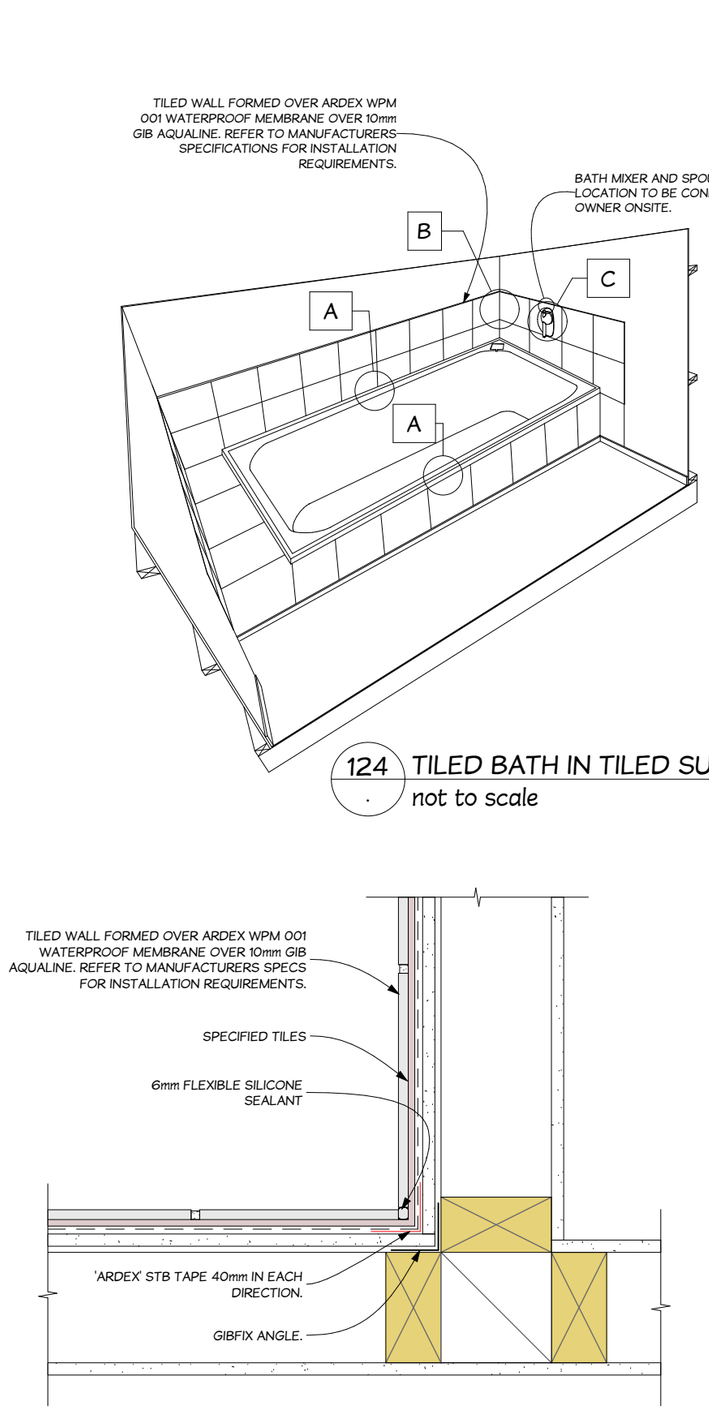
All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.



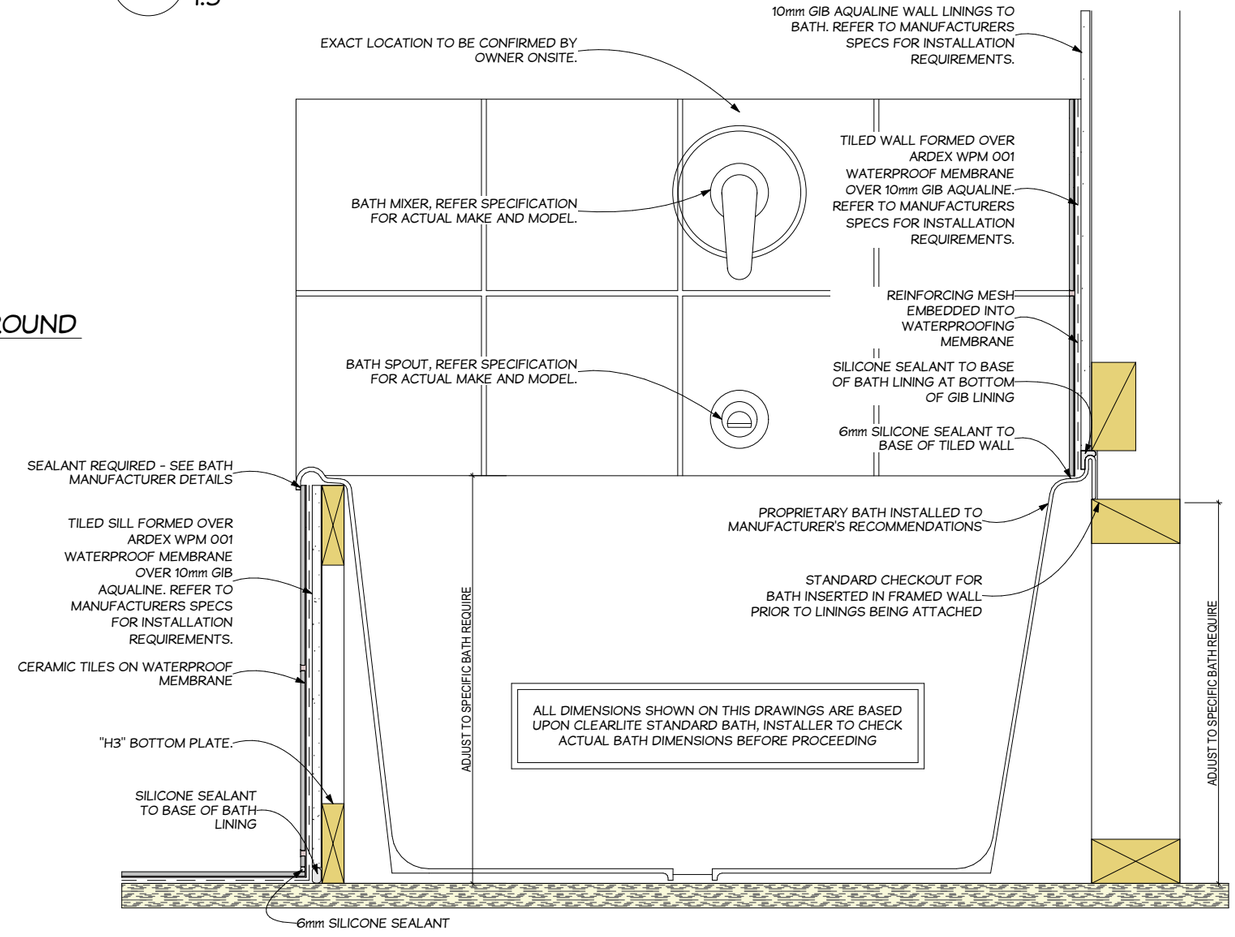

124 TILED BATH IN TILED SURROUND
not to scale




C BATH MIXER DETAIL
1:5




B BATH WALL CORNER DETAIL
1:5




A BATH WALL BASE
not to scale

| | |
|---|---|
| A30 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 19/11/2021 | DATE : |
| 1:5 | SCALE : |
| JM, CW | DRAWN : |

Job No. 21106-21110

| Rev'D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

Tasman District Council / AlphaOne Multiproof Approval – 107

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LSK BUILDERS 2011 LTD. CLIENT :

KAHIKATEA TOWNHOUSE PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :

BATH DETAILS DRAWING :

PREMIER SERVICES
Architectural Design Plus

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BC220131

Tasman District Council - Approved Plans

23/02/2022



All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

FOUL WATER/SANITARY PLUMBING

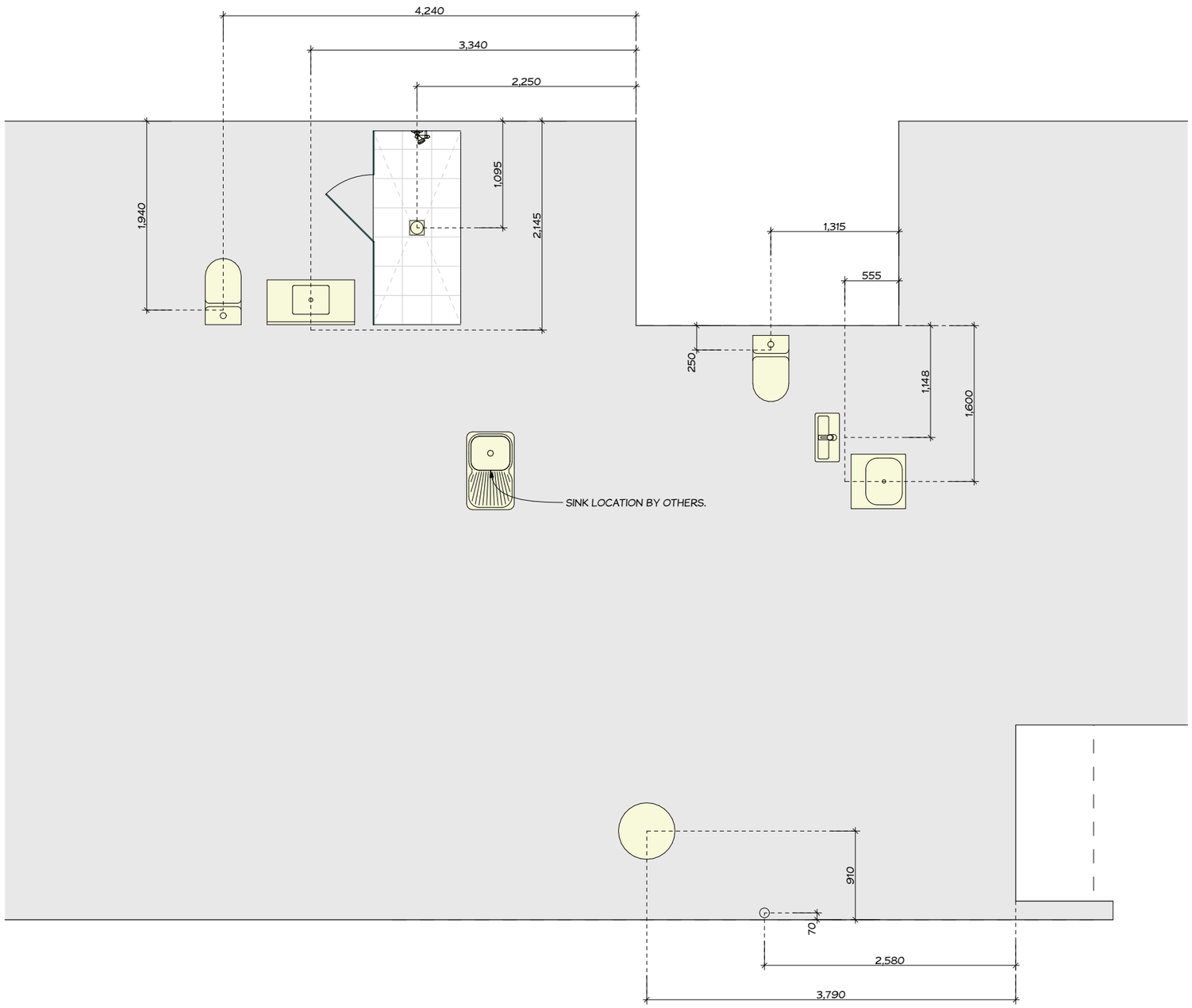
SANITARY DRAINAGE SYSTEM TO NEW ZEALAND BUILDING CODE CLAUSE G13/AS1 (FOUL WATER)

| FIXTURE DISCHARGE PIPE SIZES AND GRADIENT | | |
|---|---|---|
| SANITARY FIXTURE OR APPLIANCE | DISCHARGE PIPE (mm) | MINIMUM GRADIENT |
| Basin/Vanity | 40ø | 1:40 |
| Bathtub | 40ø | 1:40 |
| Shower | 40ø | 1:40 |
| Water Closet Pan | 100ø | 1:40 |
| Kitchen Sink | 50ø | 1:40 |
| Laundry Tub | 50ø | 1:40 |
| | | |

WATER SUPPLY

ALL COLD-WATER SUPPLY PIPEWORK SHALL BE MEDIUM/HIGH-DENSITY POLYETHYLENE (MDPE/HDPE), ARRANGED AND FIXED SO THAT ALL JOINTS ARE IN A FULLY 'RELAXED' CONDITION, WITHOUT ANY STRESS OR TENSION.

INSTALL CONVENIENTLY LOCATED ISOLATING VALVES TO TURN OFF EACH GROUP OF FITTINGS, AND INSTALL A SMALL ISOLATING VALVE ALONGSIDE EACH TOILET CISTERN NOT INTEGRALLY FITTED WITH ONE.




Tasman District Council / AlphaOne Multiproof Approval – 107

A31 — SHEET : original A3

BUILDING CONSENT — REVISION :

19/11/2021 — DATE :

1:50 — SCALE :

JM, CW — DRAWN :

Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |

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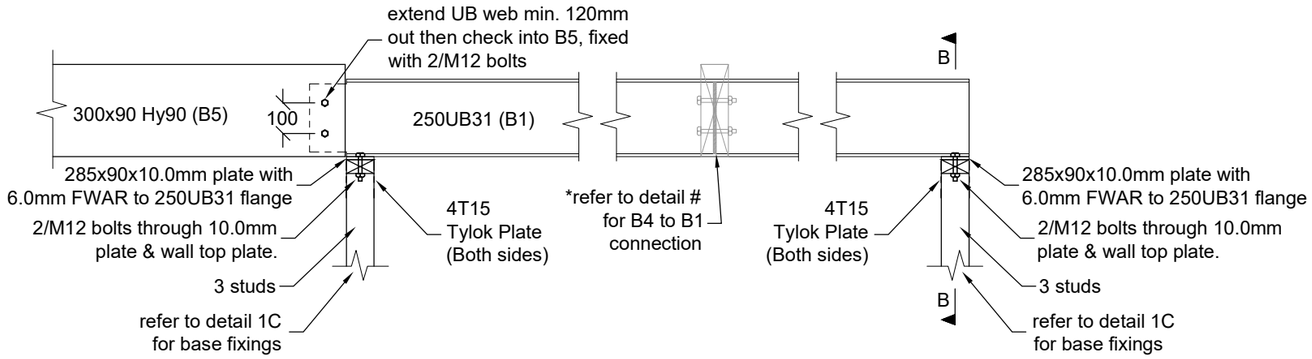
LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

FIXTURE LAYOUT PLAN — DRAWING :

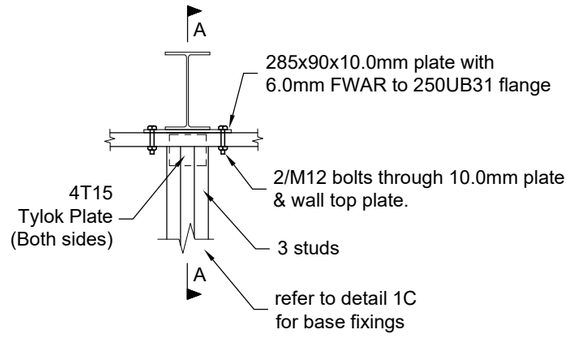
PREMIER SERVICES
Architectural Design Plus




1A

Detail ( A - A )

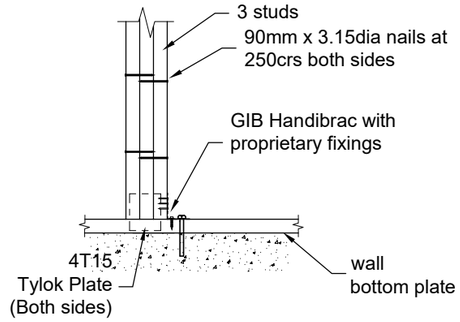
250UB31 (B1) on 3 studs




1B

Detail ( B - B )

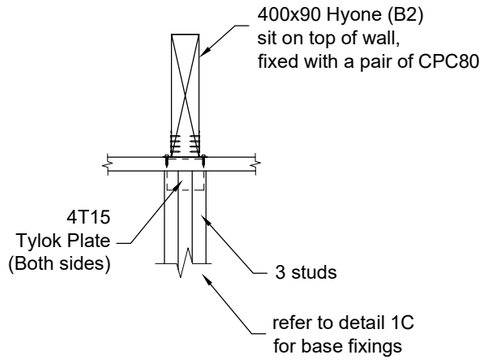
250UB31 (B1) on 3 studs




1C

Detail

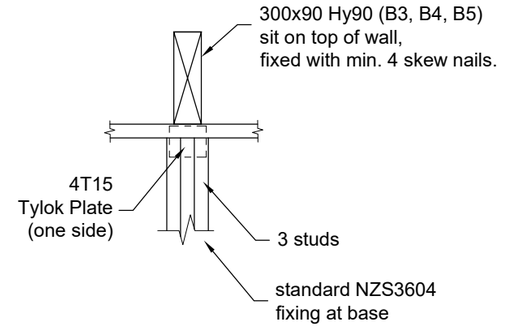
Base fixing for 3 studs




2

Detail

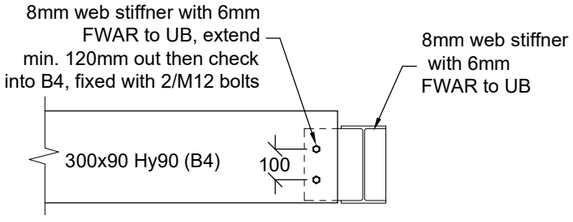
400x90 Hyone (B2) on 3 studs




3

Detail (to both end of beam)

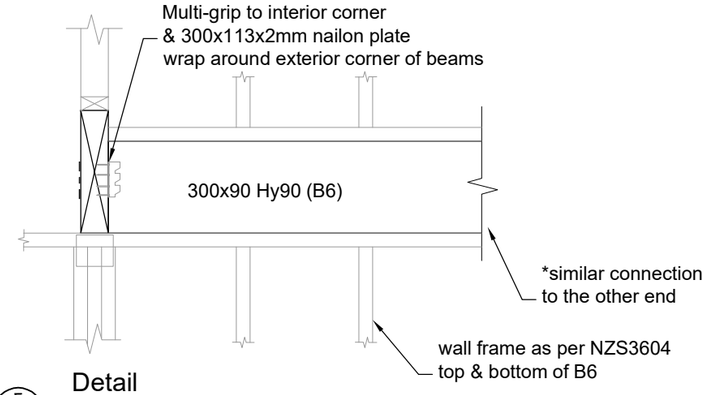
300x90 Hy90 (B3, B4, B5) on 3 studs




4

Detail

300x90 Hy90 (B4) to 250UB31 (B1)




5

Detail

300x90 Hy90 (B6) to 400x90 Hyone (B2)

NOTES:

1. Do not scale from drawings. These drawings are to be read in conjunction with the architectural drawings and all other related documents. Refer to architectural drawings for dimensions. Contact the architect/ engineer if any discrepancies are found.
2. These drawings are NOT to be used as shop drawings, Wilton Joubert takes no responsibility for set-out and dimensions when shop drawings have not been provided. Check all structural beams, components and dimensions prior to fabrication and installation. Ensure truss and frame manufacturers understand what connections are shown. If a connection does not work practically, contact Wilton Joubert prior to fabrication.
3. Unless otherwise stated, all steel beams supporting trusses and floor members shall be packed with SG8 timber and bolted with M12 bolts at min. 600crs.
4. All structural steel & connections' coating / durability requirements shall be as per NZS3604:2011 or proprietary coatings (solutions) to comply with SNZ TS 3404:2018.
5. Bolts bearing on timber may be substituted with coach bolts of the same size and grade, as preferred on site.
6. All built-up timber member shall be well spiked as per NZS3604.

| No. | DESCRIPTION | DATE |
|---|---|---|
| | REVISION | |

Tasman District Council / AlphaOne Multiproof Approval – 107

WILTON JOUBERT
Northland: 09 945 4188 Christchurch: 021 824 063
Auckland: 09 527 0196 Wanaka: 03 443 6209
www.wiltonjoubert.co.nz

SITE ADDRESS:

**Proposed Residence:
12, 14, 16, 18, 20
Kahikatea Way,
Richmond**

SHEET TITLE:

**Connections Detail**

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

| | |
|---|---|
| DESIGNED BY: JZ | DRAWN BY: JZ |
| CHECKED BY: DL | APPROVED BY: Wilton Joubert Ltd |
| DATE: 22-09-2021 | OFFICE: Lunn Avenue |
| DRAWING SCALE: 1:20 | ORIGINAL DRAWING SIZE: A3 |
| Original Job #: Job # 110906 | Sheet #: SD1 |
| Revision Job #: | |

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## LEGEND:

- CUPOLEX MODULE LAYOUT
- SET OUT POINT FOR CUPOLEX MODULES
- 2/HD12 x 1500mm LONG TIED TO UNDERSIDE OF MESH
- 300mm WIDE CONCRETE BEAM
- 150mm WIDE CONCRETE BEAM
- BETON PACKERS
- 200mm DEEP CUPOLEX MODULE FOR SHOWER REBATES

FLOOR AREA: 135m²

## NOTES:

1. CHECK THE BUILDING CONSENT DOCUMENTATION FOR ANY INSPECTIONS THAT ARE REQUIRED BY THE BUILDING CONSENT AUTHORITY.
2. FOUNDATION LAYOUT DIMENSIONS PROVIDED FOR INFORMATION ONLY. ARCHITECTS FOUNDATION DIMENSIONS TO TAKE PRECEDENCE.
3. REFER TO ARCHITECTS DRAWINGS FOR ALL SLAB REBATE DIMENSIONS AND LOCATIONS.
4. DESIGN BASED ON 200kPA UBC AS SPECIFIED BY DAVIS OBIVIE GEOTECHNICAL REPORT DATE 06 SEPTEMBER 2021, REF 37435. ENGINEER TO CONFIRM SOIL BEARING CAPACITY IS CONSISTENT WITH THE DESIGN ASSUMPTIONS ON SITE.
5. WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.
6. TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE PODS SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 60mm THICK TOPPING OF THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENT.
7. FOR SET-OUT DIMENSIONS AND SITE LEVELS REFER ARCHITECTS DRAWINGS.
8. CONCRETE TO BE 25MPa AT 28 DAYS.
9. SLAB REINFORCING TO BE SE62 WITH MIN LAP OF 665mm. OR 665 MESH FOR SUBSITUTION.
10. LOAD BEARING PADS TO BE REINFORCED WITH HD12's @ 200mm CRS EACH WAY TOP & BOTTOM.
11. ALL SAWCUTS TO BE AS PER NZS3604:2011 SECTION 7.
12. REFER TO SPECIFICATION ON SHEET 003 FOR BOTTOM PLATE FIXINGS.

## INSPECTIONS:

IN ORDER FOR CGW CONSULTING ENGINEERS TO PROVIDE A PS4, AT A MINIMUM WE MUST UNDERTAKE THE FOLLOWING INSPECTIONS:

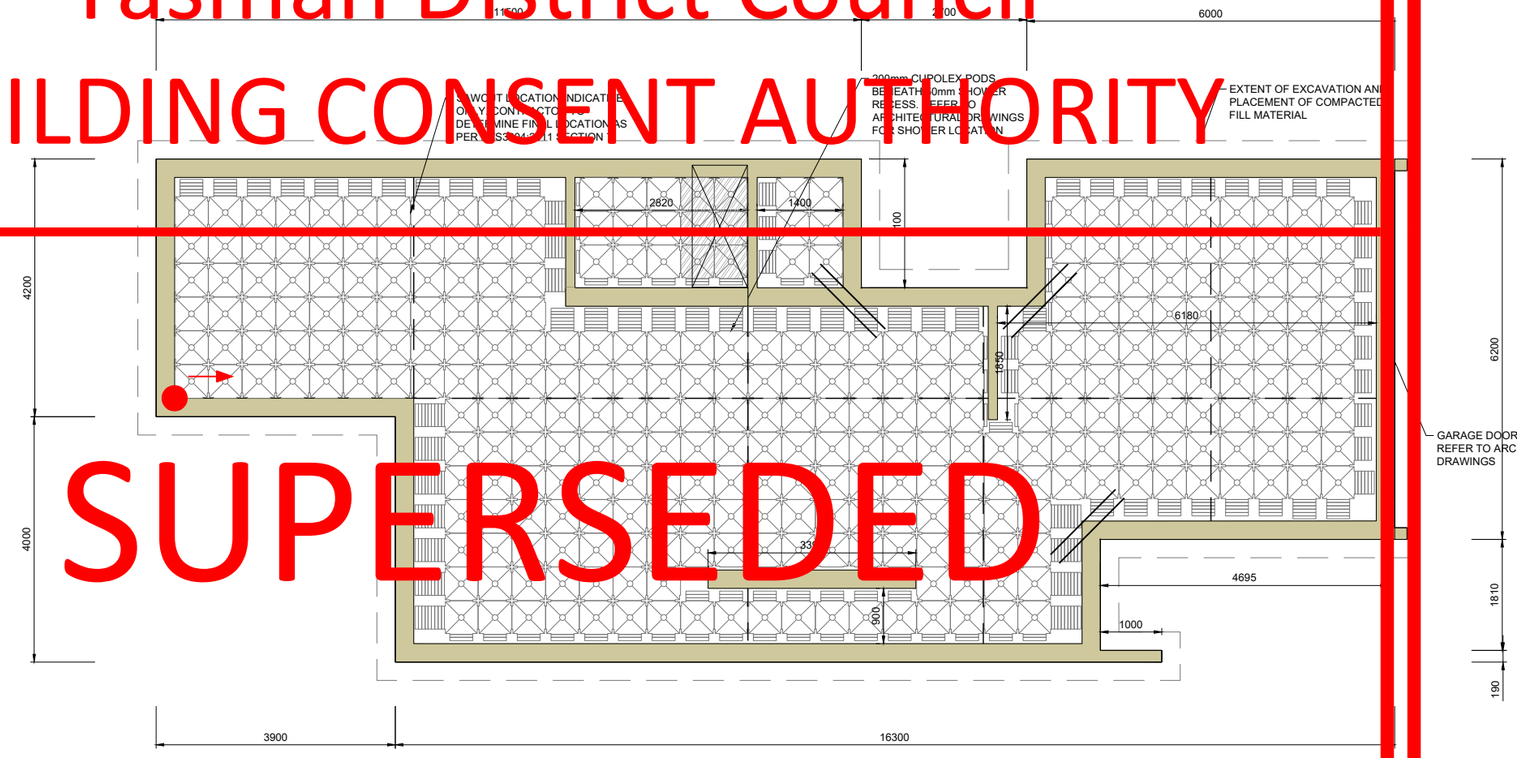
1. SUBGRADE INSPECTION ONCE ALL TOPSOIL AND UNSUITABLE MATERIAL HAVE BEEN REMOVED FROM THE EXCAVATION.
2. INSPECTION OF FILL MATERIALS AND TESTING AS REQUIRED.
3. PRE POUR INSPECTION.

WE REQUIRE 24HRS NOTICE BEFORE ANY INSPECTION.

TO BOOK AN INSPECTION CALL: 03 548-8259
AND QUOTE THIS NUMBER: 21628

NOTE: THIS DESIGN HAS BEEN PRODUCED PRIOR TO DRAINAGE PLANS BEING AVAILABLE. IT IS THE CONTRACTORS RESPONSIBILITY TO CHECK FOR THE LOCATION OF ALL COUNCIL PIPES AND SOAKPITS TO ENSURE THEY DO NOT CLASH WITH THE SLAB DESIGN. SHOULD EITHER OF THESE BE FOUND ON SITE AND THE HOUSE FOOTPRINT BE LOCATED WITHIN THE ZONE OF INFLUENCE (TYPICALLY 45 DEGREES FROM THE PIPE INVERT) THEN CGW SHALL BE CONTACTED FOR COMMENT PRIOR TO CONSTRUCTION.

REFER TO NOTE 9 FOR MESH SUBSTITUTION.




CUPOLEX FOUNDATION LAYOUT PLAN

SUPERSEDED

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

Tasman District Council / AlphaOne Multiproof Approval – 107

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2. VERIFY ALL DIMENSIONS ON SITE
3. DO NOT SCALE FROM DRAWINGS
4. THE ADEQUACY OF THE DESIGN INCORPORATED ON THE PLANS IS SUBJECT TO THE REQUIREMENTS INCLUDED IN THE SPECIFICATION FOR THE WORKS AND THE DESIGN ASSUMPTIONS INCORPORATED IN THE CALCULATIONS AND REPORTS FOR THE PROJECT

CGW CONSULTING ENGINEERS
NELSON • CHRISTCHURCH • WANAKA • AUCKLAND
03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: CUPOLEX SOLUTIONS
12,14,16,18,20 , KAHIKATEA WAY
RICHMOND

DRAWING TITLE: FOUNDATION PLAN AND SPECIFICATION

DESIGNED BY: ANDY MA
DRAFTED BY: ANDY MA

| REV | DATE | REVISION | CHD | APD |
|---|---|---|---|---|
| A | 10.08.21 | FIRST ISSUE | AF | RLC |

FOR CONSTRUCTION

| SCALE | SIZE |
|---|---|
| AS SHOWN | A3 |

| PROJECT NO | TYPE | SHEET | REV |
|---|---|---|---|
| 21628 | DWG | S-01-01 | A |

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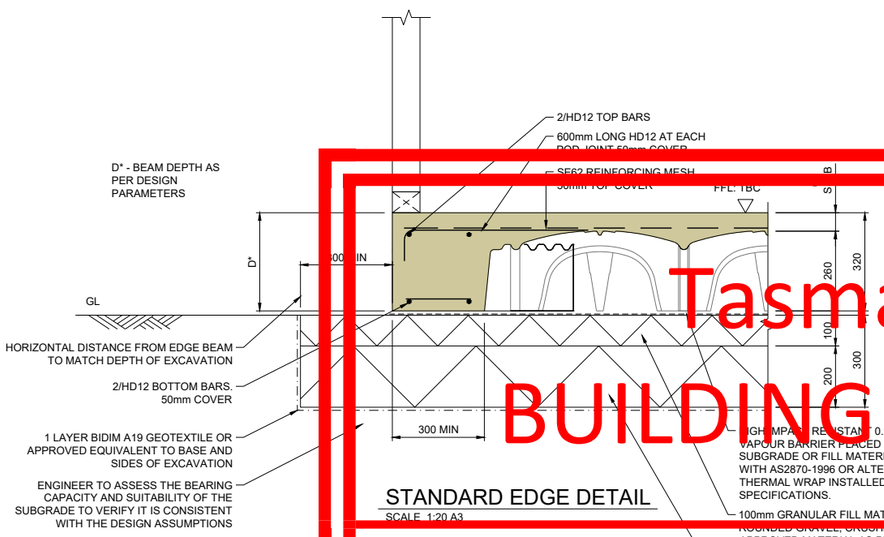
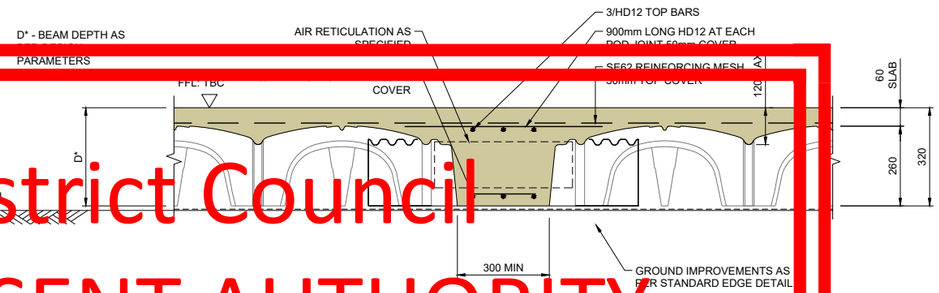



## STANDARD EDGE DETAIL
SCALE 1:20 A3




## 300mm INTERNAL BEAM DETAIL
SCALE 1:20 A3

NOTE: DEPTH OF GRAVEL RAFT IS INDICATIVE ONLY. GRAVEL DEPTH TO BE THE MAXIMUM OF;
- 75mm OF GRANULAR FILL MATERIAL COMPOSED OF ROUNDED GRAVEL, CRUSHED ROCK, SCORIA OR APPROVED MATERIAL AS PER NZS 3604:2011 CLAUSE 7.5.3.2 TO ACHIEVE A LEVEL SURFACE,
- TOPSOIL DEPTH,
- DEPTH TO 200kPA SOIL
- OR AS OTHERWISE SPECIFIED IN THE GEOTECHNICAL REPORT.

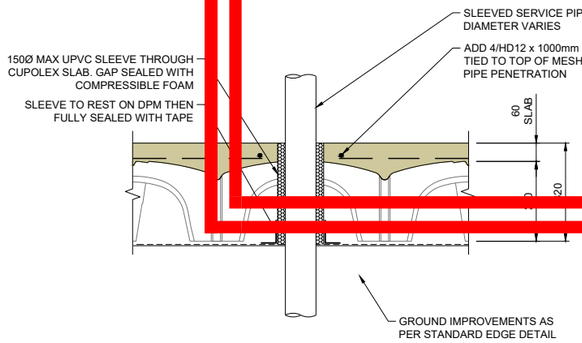
ALL MAY BE SWAPPED OUT WITH APPROVED EQUIVALENT BY GEOTECHNICAL ENGINEER INSPECTING SITE CUT.

HIGH IMPACT RESISTANT 0.2mm POLYTHENE VAPOUR BARRIER PLACED OVER NATURAL SUBGRADE OR FILL MATERIAL IN ACCORDANCE WITH AS2870-1996 OR ALTERNATIVELY CUPOLEX THERMAL WRAP INSTALLED AS PER CUPOLEX SPECIFICATIONS.

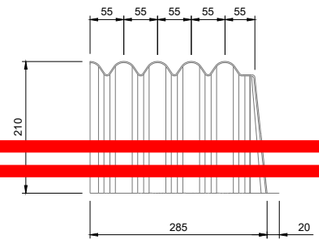
100mm GRANULAR FILL MATERIAL COMPOSED OF ROUNDED GRAVEL, CRUSHED ROCK, SCORIA OR APPROVED MATERIAL AS PER NZS 3604:2011 CLAUSE 7.5.3.2. THIS SHOULD RETURN A MINIMUM DRY DENSITY OF 95% OF THE MAX DRY DENSITY OF THE FILL MATERIAL.

200mm LAYERS OF GRANULAR FILL MATERIAL COMPOSED OF ROUNDED GRAVEL, CRUSHED ROCK, SCORIA OR APPROVED MATERIAL AS PER NZS 3604:2011 CLAUSE 7.5.3.2. THIS SHOULD RETURN A MINIMUM DRY DENSITY OF 95% OF THE MAX DRY DENSITY OF THE FILL MATERIAL.

FILL COMPACTION NOTES:
- CHECK BUILDING FOUNDATION CONDITIONS BEFORE COMMENCING CONSTRUCTION. IF COUNCIL REQUIRES A PS4, CONTACT A CONSULTING ENGINEER BEFORE STARTING EARTHWORKS. NO INSPECTION = NO PS4
- ANY FILL DEPTH OVER 300mm NOT CONFIRMED BY A FOUNDATION WALK WILL NEED TO BE TESTED. CONTACT AN ENGINEER BEFORE DRAWING WORKS.
- AS A GUIDE THE FOLLOWING COMPACTION METHOD MAY BE USED:
  1. MINIMUM 350 KG PLATE COMPACTOR TO BE USED TO COMPACT FILL
  2. MINIMUM OF 6 PASSES OF PLATE COMPACTOR WITH SUFFICIENT WATER TO MEET SELECTED FILL MOISTURE REQUIREMENTS.
  3. FILL TO BE PLACED IN MAXIMUM 150mm THICK LAYERS.
  4. REFER TO SUBGRADE NOTES ON THE SPECIFICATION PAGE OF THESE DRAWINGS REGARDING THE USE OF ALTERNATE MATERIALS. CONTACT THE GEOTECHNICAL ENGINEER IF YOU INTEND TO USE SOMETHING DIFFERENT THAN THE MATERIALS SPECIFIED




## PIPE PENETRATION DETAIL
SCALE 1:20 A3




## BETON STOP DETAIL
SCALE 1:10 A3

SUPERSEDED
Tasman District Council
BUILDING CONSENT AUTHORITY
Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT
Tasman District Council / AlphaOne Multiproof Approval – 107

CGW CONSULTING ENGINEERS
NELSON • CHRISTCHURCH • WANAKA • AUCKLAND
03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: CUPOLEX SOLUTIONS
12,14,16,18,20 , KAHIKATEA WAY
RICHMOND

DRAWING TITLE: CUPOLEX FOUNDATION DETAILS

DESIGNED BY: ANDY MA
DRAFTED BY: ANDY MA

| REV | DATE | REVISION | CHD | APD |
|---|---|---|---|---|
| A | 10.08.21 | FIRST ISSUE | AF | RLC |

FOR CONSTRUCTION

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| PROJECT NO | TYPE | SHEET | REV |
| 21628 | DWG | S-01-02 | A |

BC220131 Tasman District Council - Approved Plans 23/02/2022
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## SPECIFICATION:

GENERAL

CHECK THE BUILDING CONSENT DOCUMENTATION FOR ANY INSPECTIONS THAT ARE REQUIRED BY THE "BUILDING CONSENT AUTHORITY"

FOR SET-OUT DIMENSIONS AND SITE LEVELS REFER ARCHITECTS DRAWINGS

SUBGRADE

DESIGN BASED ON 200 kPa UBC AS PER NZS3604:2011 AS SPECIFIED IN DAVIS OBIVIE GEOTECHNICAL REPORT DATE 06 SEPTEMBER 2021, REF 37435. ENGINEER TO CONFIRM SOIL BEARING CAPACITY IS CONSISTENT WITH THE DESIGN ASSUMPTIONS ON SITE.

WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.

UNLESS SPECIFIED, HARDFILL SHALL BE TNZ M4/AP40 COMPACTED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY.

THE CONTRACTOR MAY SUBMIT ALTERNATIVES FOR CONSTRUCTION MATERIALS AS A MEANS OF COMPLIANCE TO THESE DRAWINGS AND SPECIFICATIONS. THESE SHALL BE SUBSTANTIATED WITH PAST PERFORMANCE RESULTS AND SUPPORTING EVIDENCE THAT THE ALTERNATIVES WILL ACHIEVE THE REQUIRED RESULTS BEFORE APPROVAL WILL BE GIVEN BY THE ENGINEER FOR THEIR USE.

BLINDING

MAXIMUM 25mm OF COMPACTED GAP 7 OR CRUSHER DUST.

CONCRETE

ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH NZS:3109:1997.

CONCRETE TO BE FINISHED TO NZS3114:1987.

ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH F'C OF 25MPA AT 28 DAYS.

ALL CONCRETE SHALL BE SUPPLIED FROM A READY MIXED CONCRETE BATCHING PLANT WHICH HOLDS A MINIMUM OF "HIGH GRADE" PRODUCTION STANDARD AS DEFINED BY NZS3109.

ALL CONCRETE SHALL BE FULLY COMPACTED BY APPROVED VIBRATION EQUIPMENT.

VIBRATION SHALL BE APPLIED IN A UNIFORM PATTERN WITH CARE TAKEN NOT TO OVER-VIBRATE.

THE FLOOR SLAB SHALL BE PLACED CONTINUOUSLY AND WITH STRICT ATTENTION TO AVOIDANCE OF COLD JOINTS AND PLASTIC SHRINKAGE.

SHOULD DELAYS OCCUR WITH CONCRETE SUPPLY, THE UNFORMED EDGES OF FRESHLY PLACED CONCRETE SHALL BE COATED WITH AN EVAPORATION RETARDANT (SIKAFILM OR SIMILAR APPROVED) AND JOINS SHALL BE SUITABLY VIBRATED UPON CONTINUATION OF PLACING.

EVAPORATION RETARDANT SHALL BE APPLIED GENERALLY TO FLOOR SURFACE TO PREVENT PLASTIC SHRINKAGE UNDER ADVERSE AMBIENT CONDITIONS (IE, CAUSING RAPID BLEED WATER EVAPORATION).

THE FLOOR SLAB SHALL BE MOIST CURED BY COMPLETE FLOODING WITH WATER ONCE CONCRETE HAS ACHIEVED INITIAL SET. FLOODING SHALL BE TO SUFFICIENT DEPTH TO PREVENT FROST ICE FORMING ON THE CONCRETE SURFACE AND SHALL BE APPLIED FOR AS LONG AS POSSIBLE BUT NOT LESS THAN 7 DAYS. ALTERNATIVELY SPECIALIST SUPPORT SHALL BE SOUGHT FROM MARKHAM AND THEIR DESIGN TEAM TO ASCERTAIN THAT A CURING AGENT SUCH AS 'AQURON 2000' OR SIMILAR PRODUCT IS A FEASIBLE ALTERNATIVE FOR THE PROJECT.

CONCRETE SURFACE FINISHES SHALL BE IN ACCORDANCE WITH NZS3114, AS FOLLOWS:

| | |
|---|---|
| FOOTING | U2 (WOOD) |
| FLOOR SLAB | U3 (STEEL FLOAT) |
| PRECAST | F5 / U3 (STEEL TROWEL) |

REINFORCING

ALL REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF AS/NZS4671:2001.

SLAB REINFORCING TO BE SE62 WITH MIN LAPS OF 225mm. OR 665 MESH FOR SUBSTITUTION.

LOAD BEARING PADS TO BE REINFORCED WITH HD12'S @ 200mm CRS EACH WAY TOP & BOTTOM.

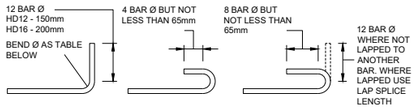
MINIMUM 50mm COVER TO BE MAINTAINED TO REINFORCING ON OUTER FACES. 30mm ELSEWHERE UNLESS SPECIFIED ON DRAWINGS.

SPLICING OF REINFORCEMENT WHETHER BY LAPPING, WELDING OR MECHANICAL SPLICE, SHALL BE AS SHOWN ON THE DRAWINGS OR AS SPECIFICALLY APPROVED BY THE ENGINEER.

TOP REINFORCEMENT SHALL BE SUPPORTED BY BAR CHAIRS OR OTHER APPROVED METHODS.

DEFORMED BARS SHALL BE OF SEISMIC GRADE MICRO-ALLOY STEEL, (GRADE 300E & GRADE 500E MA) AS MANUFACTURED BY PACIFIC STEEL LTD.

BENDS FOR ALL BARS EXCEPT STIRRUPS AND TIES:



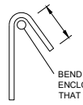

STANDARD HOOK STANDARD 180° HOOK WALL OR SLAB BAR BENT AROUND ANOTHER BAR

| STEEL GRADE | BAR DIA (mm) | MINIMUM DIA. OF BEND |
|---|---|---|
| GRADE 300E/500E | 6-20 | 5x BAR DIA. |
| GRADE 300E/500E | 25-40 | 6x BAR DIA. |

ALL HOOKS ON STIRRUPS AND TIES MUST FIT CLOSELY AROUND MAIN BARS.

THE FIRST STIRRUP SHALL NOT TO BE PLACED FURTHER THAN THE

BENDS FOR STIRRUPS AND TIES:




STANDARD STIRRUP & TIE HOOKS

| STEEL GRADE | BAR DIA (mm) | MINIMUM DIA. OF BEND | |
|---|---|---|---|
| | | PLAIN BARS | DEFORMED BARS |
| GRADE 300E/500E | 6-20 | 2 BAR DIA. | 4 BAR DIA. |
| GRADE 300E/500E | 25-40 | 3 BAR DIA. | 5 BAR DIA. |

BAR SPLICE LENGTHS (Ldb)

| BAR SIZE | CONCRETE STRENGTH | MIN LAP LENGTH |
|---|---|---|
| HD | 25MPa | 550mm |
| HD | 25MPa | 700mm |
| HD | 25MPa | 900mm |

RECESSED SHOWERS

TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE SLAB SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 50mm THICK TOPPING FOR THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENTS.

SEALANT'S

ALL SEALANT'S AND WATERSTOPS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS.

STEEL

ALL EXPOSED STEEL ITEMS AND FIXING DEVICES SHALL BE HOT DIP GALVANIZED OR STAINLESS STEEL IF NOTED.

ALL BOLTS AND FASTENERS SHALL BE MINIMUM GRADE 304 STAINLESS STEEL.

HOLD DOWN BOLTS

EXTERNAL WALL BOTTOM PLATE FIXINGS AND HOLD DOWN BOLTS TO BE TO NZS3604:2011

BRACING

THE BOTTOM PLATE FIXINGS FOR INTERNAL BRACING WALLS (SUCH AS GS1-N AND GS2-N THAT DO NOT REQUIRE BOLTED HOLD DOWNS) OR PARTITION WALLS THAT ARE NOT LOAD BEARING SHALL BE AS PER THE MANUFACTURERS SPECIFICATIONS FOR NAIL FIXINGS, OR AS PER NZS3604:2011 (E.G. 75x3.8mm SHOT FIRED FASTENERS WITH 16mm DISC, 50mm AND 300mm FROM EACH END OF THE BRACING ELEMENT AND AT 600mm CRS THEREAFTER). SHOT FIRED FASTENERS AS ABOVE ARE THE PREFERRED METHOD FOR BOTTOM PLATE FIXINGS WHEN APPLICABLE.

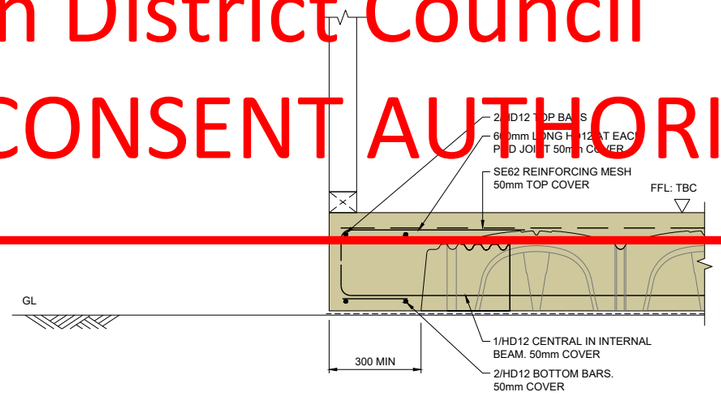
WHERE BOLTED HOLD DOWNS ARE USED A 150mm WIDE THICKENING IS REQUIRED TO REMOVE THE NEED FOR A RIB.

POLISHED CONCRETE FINISH

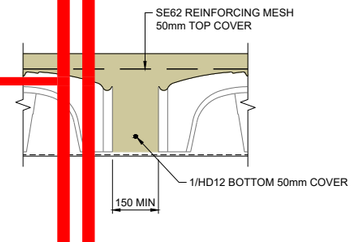
NO ALLOWANCE HAS BEEN MADE FOR POLISHED CONCRETE FLOORS.

UNDERFLOOR HEATING

NO ALLOWANCE HAS BEEN MADE FOR UNDERFLOOR HEATING.




150mm BEAM EDGE DETAIL
SCALE 1:[illegible] A3




150mm BEAM INTERNAL DETAIL
SCALE [illegible]

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Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED
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Tasman District Council
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PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

CGW CONSULTING ENGINEERS
NELSON • CHRISTCHURCH • WANAKA • AUCKLAND
03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: CUPOLEX SOLUTIONS
12,14,16,18,20 , KAHIKATEA WAY
RICHMOND

DRAWING TITLE: CUPOLEX FOUNDATION DETAILS

DESIGNED BY: ANDY MA
DRAFTED BY: ANDY MA

| REV | DATE | REVISION | CHD | APD |
|---|---|---|---|---|
| A | 10.08.21 | FIRST ISSUE | AF | RLC |

FOR CONSTRUCTION

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| PROJECT NO | TYPE | SHEET | REV |
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| 21628 | DWG | S-01-03 | A |

Original Sheet Size A3 (420x297) File Path: C:\12dS\data\APP-SERVER\21628 - Lot 366, The Meadows, Richmond_12080\5 - Drawings\CAD\Cupolex Template TC1 - Updated 2021.07.01.dwg - S-01-03

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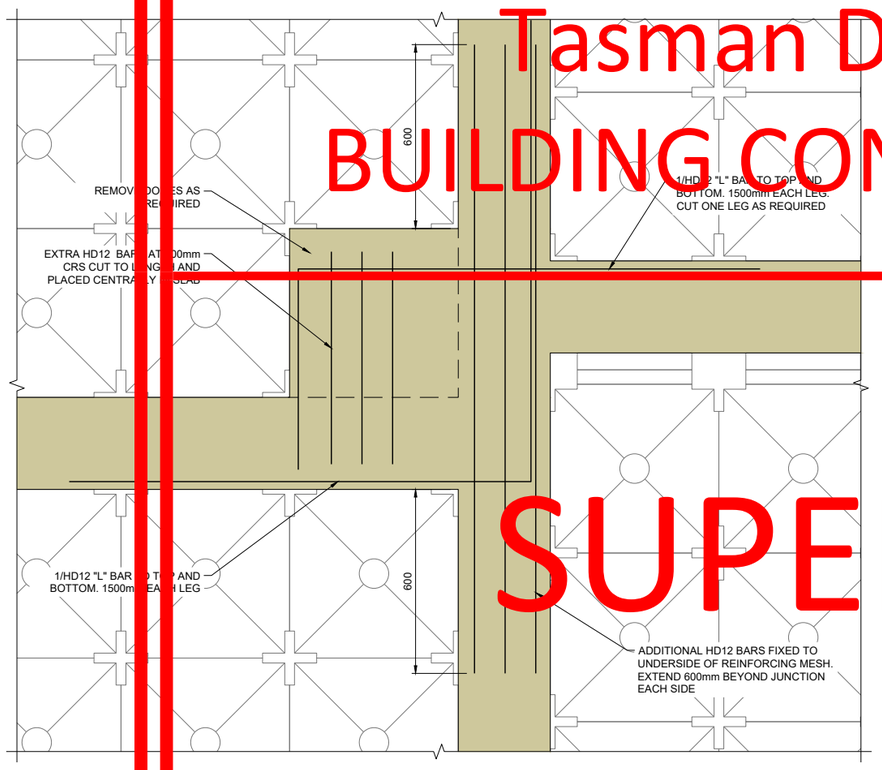


DOUBLE OFFSET JUNCTION
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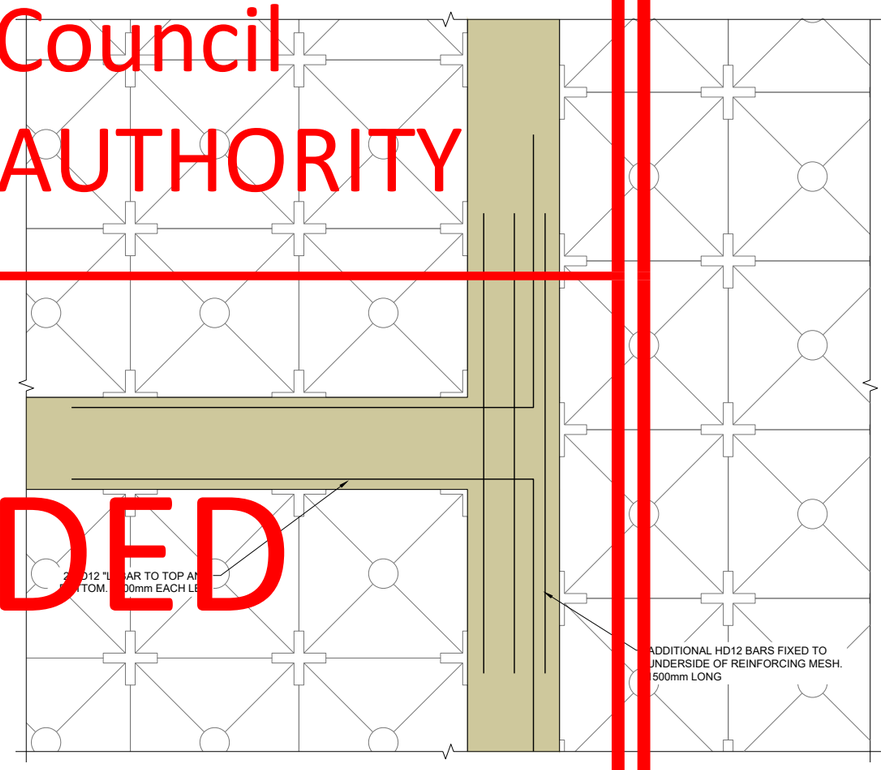


SINGLE JUNCTION
SCALE 1:20 A3

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BUILDING CONSENT AUTHORITY

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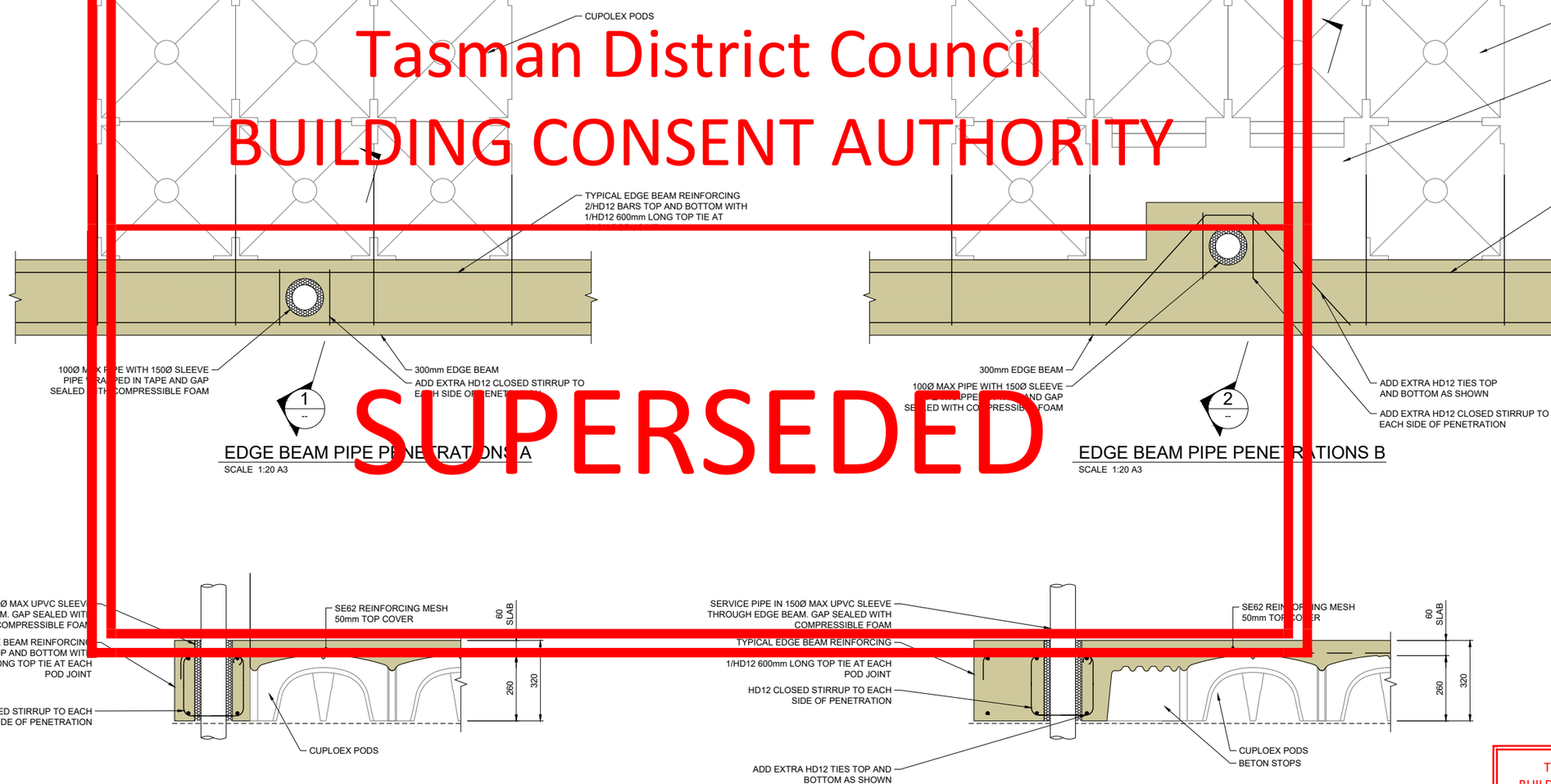
BUILDING CONSENT AUTHORITY
SUPERSEDED

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BUILDING CONSENT AUTHORITY
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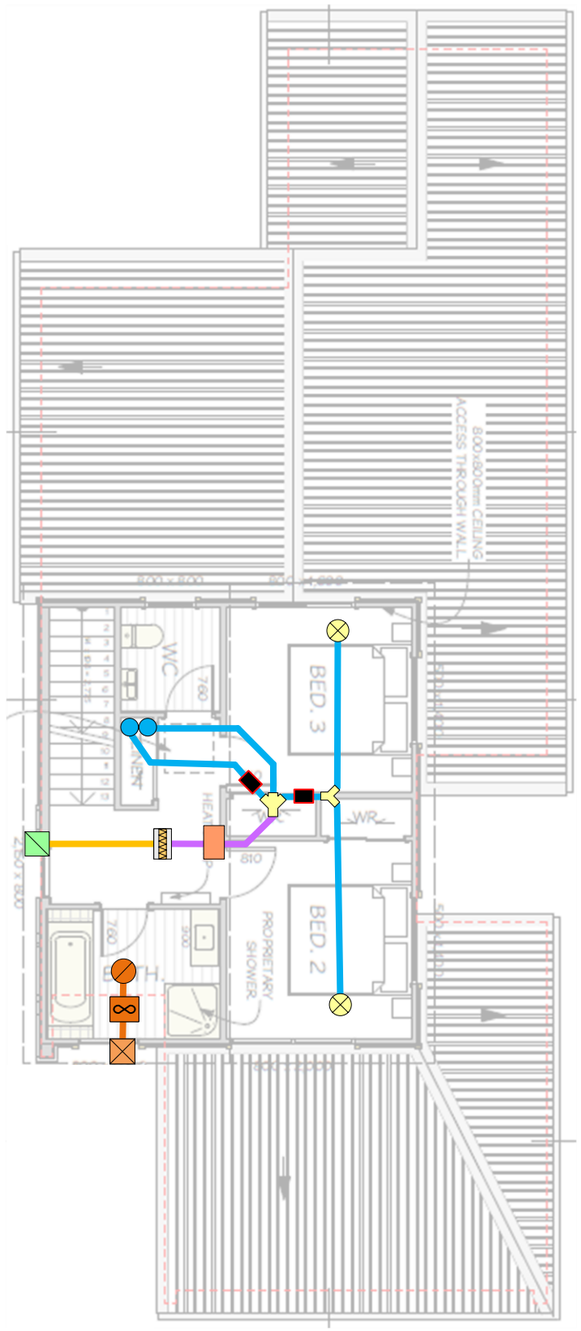
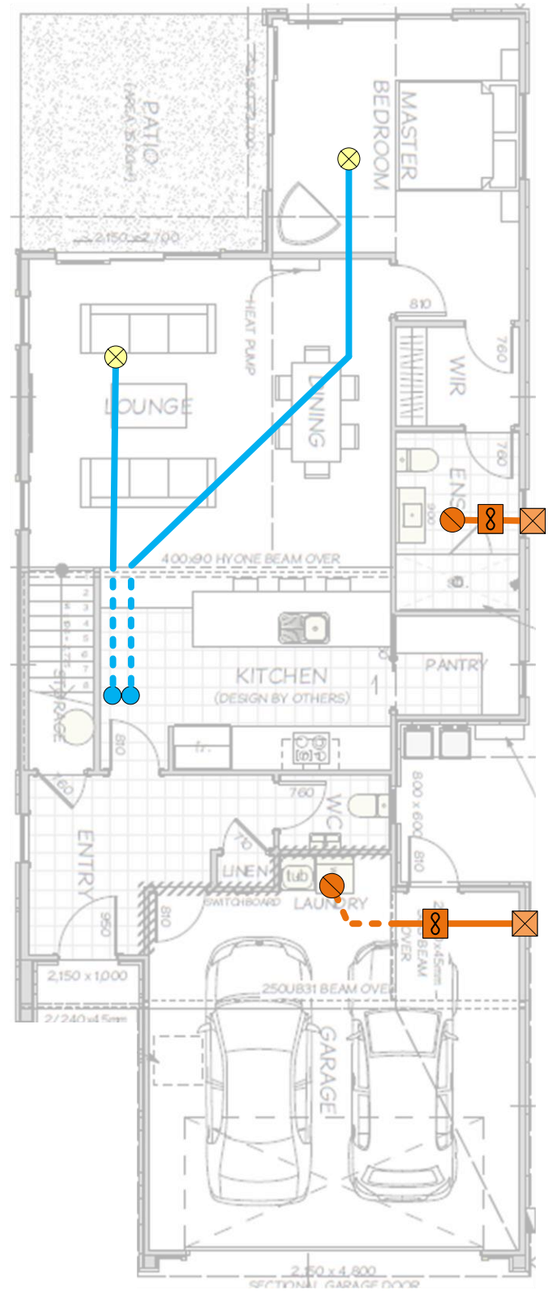
| 21628 | DWG | S-01-05 | A |

Original Sheet Size A3 (420x297) File Path: C:\12dS\data\APP-SERVER\21628 - Lot 366, The Meadows, Richmond_12080\5 - Drawings\CAD\Cupolex Template TC1 - Updated 2021.07.01.dwg - S-01-05




LEVEL 1




GROUND LEVEL

SmartVent positive

- Grille (Outside)
- F7 Filter
- Fan
- Diffuser
- Y Branch
- Double Branch
- 200mm Insulated Duct
- 150mm Acoustic Duct
- 200mm Nude Duct
- Manual Damper
- Penetration
- Expected duct run

Tasman District Council / AlphaOne Multiproof Approval – 107

| | | | | |
|---|---|---|---|---|
| Simx Limited<br>1 Haliday Place East Tamaki 2013<br>PO Box 14347 Panmure Auckland 1741<br>**P:** +64 9 259 1660 \| **F:** +64 9 259 1661<br>technical@simx.co.nz \| www.simx.co.nz | PROJECT/ADDRESS:<br>(Lots 363 - 367) 12,14,16,18, & 20, Kahikatea Way, Richmond | DRAWING:<br>Mechanical Ventilation Layout | DRAWN BY<br>**Aiyappa Puliyanda**<br>REFERENCE<br>202107-51877 | DATE<br>**10/29/2021**<br>PAGE<br>**1 OF 3** |

G.J. Gardner. HOMES

# Reports

For

## Multiproof Application

At

## Lot 363-367 DP 561194
## Street address 12,14,16,18,20 Kahikatea Way, Richmond.

For

## G.J Gardner Homes Nelson (LSK Builders 2011 Ltd).

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

APPROVED BUILDING CONSENT DOCUMENTATION

ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

Tasman District Council
BUILDING CONSENT AUTHORITY

SUPERSEDED

CONSULTING ENGINEERS

Tasman District Council / AlphaOne Multiproof Approval – 107

# Building Consent Documentation

Lot 363 to Lot 367, The Meadows, Richmond, New Zealand

The Concrete Company Limited

Document Number: 21628-BCD-301-B

Date: 5 November 2021

Prepared by

Andy Ma

Graduate Structural Engineer

BE

Approved by

Audrey Farreyre

Senior Structural Engineer

MSc, CMEngNZ, CPEng

# Tasman District Council
# BUILDING CONSENT AUTHORITY

CGW CONSULTING ENGINEERS

SUPERSEDED

## Contents

1. Producer Statement – PS1 – Design ..... 3
2. Alternative Solution Schedule for Residential Cupolex Flooring Systems ..... 4
3. B2 (Durability) Compliance ..... 5
4. Memorandum from Licensed Building Practitioner – Certificate of Design Work ..... 6
5. Inspection Schedule ..... 11
6. Drawings ..... 12
7. Supporting Documents ..... 13

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

# 1. Producer Statement – PS1 – Design

Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

Building Code Clause(s) B1

SUPERSEDED

**ISSUED BY:** CGW Consulting Engineers
(Design Firm)

**TO:** The Concrete Company Limited
(Owner/Developer)

**TO BE SUPPLIED TO:** Tasman District Council
(Building consent authority)

**IN RESPECT OF :** Cupolex Foundation
(Description of building work)

**AT:** ...12, 14, 16, 18, 20 Kahikatea Way
(Address)

Town/City: ... Richmond **LOT** 363-367 **DP** 561194 **SO**
(Address)

We have been engaged by the owner/developer referred to above to provide: Engineering design and sketches
(Extent of Engagement)
services in respect of the requirements of Clause(s) B1 of the Building Code for:

☐ All or ☒ Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

☒ Compliance Documents issued by the Ministry of Business, Innovation & Employment B1/VM1/VM4 or
(verification method/acceptable solution)

☒ Alternative solution as per the attached schedule Alternative Solution Schedule for Residential Cupolex Flooring Systems for TC1 and NZS3604:2011 "Good Ground" for Building Code Compliance The proposed building work covered by this producer statement is described on the drawings titled: 12, 14, 16,18,20 Kahikatea Way, Richmond, New Zealand

and numbered Sheet 001-005;
together with the specification, and other documents set out in the schedule attached to this statement.

**On behalf of the Design Firm,** and subject to:
(i) Site verification of the following design assumptions 200kPa UBC as specified in Davis Ogivie Geotechnical report dated 06 September 2021 Ref 37435.
(ii) All proprietary products meeting their performance specification requirements;

**I believe on reasonable grounds** that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation:

☐ CM1 ☒ CM2 ☐ CM3 ☐ CM4 ☐ CM5 (Engineering Categories)

I, Audrey Farreyre am: ☒ CPEng 1009889
(Name of Design Review Professional)

I am a Member of: ☒ Engineering New Zealand and hold the following qualifications: MSc, CMEng, CPEng

The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Design Firm is a member of ACE New Zealand: ☒

**SIGNED BY** ...Audrey Farreyre .(Signature)
(Name of Design Review Professional)
**ON BEHALF OF** ...CGW Consulting Engineers Date: 5/11/2021
(Design Review Firm)

*Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000*.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACE NEW ZEALAND ENGINEERING NEW ZEALAND

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council

BUILDING CONSENT AUTHORITY

**2. Alternative Solution Schedule for Residential Cupolex Flooring Systems**

SUPERSEDED

Tasman District Council / AlphaOne Multiproof Approval – 107

# Tasman District Council
# BUILDING CONSENT AUTHORITY

CGW CONSULTING ENGINEERS

**RE: Alternative Solution Schedule for Residential Cupolex Flooring Systems for TC1 and NZS3604:2011 "Good Ground" for Building Code Compliance**

SUPERSEDED

On the 1st December 2005, Auckland UniServices conducted a series of tests on the Cupolex® flooring system to confirm its compliance under AS/NZS1170.1:2002 loading requirements. The Cupolex® flooring system was tested using 260mm deep modules with a 40mm minimum topping and a variety of reinforcing layout including 668 mesh. This system was founded on a 50mm polystyrene sheet.

The test samples were 2170 mm by 2170 mm consisting of 9 domes, 95 mm of Beton Stop® and 150 mm of perimeter beam. The point load was applied over a square with sides of 300mm and the central pillar of the Cupolex beneath this load was shortened by 50 mm to simulate the slab on an uneven surface.

The results were as follows:

- An elastic load of 60 kN
- An ultimate load of 102 kN

On the basis of these results CGW consider that the system meets the requirement of the 13KN as required for garages under AS/NZS1170.2002.

CGW has carried out bearing capacity calculations for the Cupolex® modules and found that the system can handle domestic and garage loads on soils with bearing capacities no less than 200 kPa. Though this bearing capacity was not implicitly accounted for by UniServices' test regime, they included polystyrene under the Cupolex; this test configuration simulates the flexibility and limited bearing capacity.

UniServices recorded a deflection of 0.25 mm under the 13 kN point load.

The following design assumptions and limitations have been made for the Cupolex beams:

1. The shear reduction factor for a beam without shear reinforcing has been taken equal to 0.85 instead of the 0.5 value suggested by NZS3101:2006.
2. The design has been carried out so that no ULS point load greater than 23kN may be applied to any one place along the main foundation beam.
3. Maximum bracing capacity for proprietary not SED bracing system fixed to the Cupolex is to be limited to 7.5kN/m or 150BU/m.

Tasman District Council / AlphaOne Multiproof Approval – 107

# Tasman District Council
# BUILDING CONSENT AUTHORITY

SUPERSEDED

The above assumptions are justified by the low risk imposed to the people inside the building or adjacent structures by failure of the foundation under a ULS.

On the basis of the above, as Chartered Professional Engineers the Cupolex System for residential application meets the performance requirement of the Building Code.

We believe this document supplies evidence for the Territorial or Building Consent Authority to be satisfied on Reasonable grounds that the design complies with the Building Code.

Yours faithfully,

Prepared by

Domenico Sclofani

Technical Lead Structural

ME(Structural), CPEng, CMEngNZ

Reviewed by

Andy Wilton

Director

BE CMEngNZ CPEng IntPE DipMS

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

**3. B2 (Durability) Compliance**

SUPERSEDED

Tasman District Council / AlphaOne Multiproof Approval – 107

# Tasman District Council
# BUILDING CONSENT AUTHORITY

CGW Ref: 19129-LET-001-A

Date: 10 July 2020

Tasman District Council
189 Queen Street
Richmond

SUPERSEDED

Dear Sir/Madam,

**RE: B2 (Durability) Compliance**

Your council has requested a Producer Statement for Design (PS1) Design for Clause B2 (Structural Durability) of the Building Code.

Producer statements are a statement from a professional designer, that may be used by the council as part of their reasonable grounds for accepting a design.

Engineers typically supply producer statements to cover elements of the design work that is justified by means of a verification method (ie. B1/VM4 for foundations).

We are not able to provide a producer statement stating B2 compliance, as currently there is not an effective verification method contained within the building code to specifically design for durability and we do not intend to be attempting to justify durability outside of the acceptable solutions presented in the building code.

We can however confirm that, where present in our documentation:

**Concrete** mix and covers have been selected in accordance with NZS 3101 (Concrete Structures) part 1 section 3 – Again, this is an acceptable solution, not a verification method.

Yours faithfully,

Prepared by

Audrey Farreyre

Senior Structural Engineer

Reviewed

Domenico Sclofani

Senior Structural Engineer

Tasman District Council / AlphaOne Multiproof Approval – 107

**Consulting Civil, Structural, Environmental & Geotechnical Engineers**
**Directors:** V.J. Anderson BE C&M • R.A. Puklowski NZCE (Civil) REA MEngNZ • C.F. Short BBS PG Dip Man • A.R. Wilton BE CMEngNZ CPEng IntPE DipMS

**Cameron Gibson & Wells Limited**
**Nelson Office** Level 4, 241 Hardy Street, PO Box 711, Nelson • Tel: +64 3 548 8259
**Christchurch Office** Level 2, 124 Peterborough Street, PO Box 21441, Edgeware, Christchurch • Tel: +64 3 348 1000
**Wanaka Office** 4 Helwick St, PO Box 169, Wanaka • Tel: +64 3 548 8259
**office@cgwl.co.nz • www.cgwl.co.nz**

Tasman District Council
BUILDING CONSENT AUTHORITY

CGW CONSULTING ENGINEERS

## 4. Memorandum from Licensed Building Practitioner – Certificate of Design Work

### Section 45 and Section 30C, Building Act 2004

SUPERSEDED

Please fill in the form as fully and correctly as possible.
If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

| The Building | | | |
|---|---|---|---|
| Address: | 12, 14, 16,18,20 Kahikatea Way, Richmond, New Zealand | | |
| Town/City: | | Postcode: | |

| The Owner(s) | | | |
|---|---|---|---|
| Name(s): | | | |
| Mailing Address: | 12, 14, 16,18,20 Kahikatea Way, Richmond, New Zealand | | |
| Suburb: | | | |
| Town/City: | | Postcode: | |
| Email address: | | Phone Number: | |

| Basis For Providing This Memorandum | |
|---|---|
| I am providing this memorandum in my role as the: (Please tick the option that applies) | |
| ☐ | sole designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design myself – no other person will be providing any additional memoranda for the project |
| ☐ | lead designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and no other person will be providing any additional memoranda for the project |
| ☐ | lead designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the other designers will provide their own memoranda relating to their specific RBW design |
| ☒ | specialist designer who supervised the design of specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work |

| Identification of Design Work That is Restricted Building Work (RBW) |
|---|
| I Audrey Farreyre supervised the following design work that is restricted building work. |

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

CGW CONSULTING ENGINEERS

| Design Work That is RBW | Description of RBW (if appropriate) | Carried out or supervised | Reference to plans and specifications (if appropriate) |
|---|---|---|---|
| **Primary Structure: B1** | | | |
| Foundations and subfloor framing<br>☒ Included<br>☐ Excluded | Cubolex Foundation | ☐ Carried Out<br>☒ Supervised | CGW Sketches Titled 12, 14, 16, 18,20 Kohikatea Way, Richmond, New Zealand' Sheet 001-005 |
| Walls<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Roof<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Columns and beams<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Bracing<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Other<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |

SUPERSEDED

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Tasman District Council
BUILDING CONSENT AUTHORITY

CGW CONSULTING ENGINEERS

| Design Work That is RBW | Description of RBW (if appropriate) | Carried out or supervised | Reference to plans and specifications (if appropriate) |
|---|---|---|---|
| **External Moisture Management Systems: E2** | | | |
| Damp Proofing<br>☒ Included<br>☐ Excluded | DPM under slab | ☐ Carried Out<br>☒ Supervised | CGW Sketches Titled 12, 14, 16, 18,20 Kohikatea Way, Richmond, New Zealand' Sheet 001-005 |
| Roof cladding or roof cladding system<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Ventilation system (for example subfloor or cavity)<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Wall cladding or wall cladding system<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Waterproofing<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Other<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |

SUPERSEDED

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

CGW CONSULTING ENGINEERS

| Design Work That is RBW | Description of RBW (if appropriate) | Carried out or supervised | Reference to plans and specifications (if appropriate) |
|---|---|---|---|
| **Fire Safety Systems: C1 – C6** | | | |
| Emergency warning systems<br>Evacuation and fire service operation systems<br>Suppressions control systems<br>Other<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011 | | | |

SUPERSEDED

| Waivers and Modifications | |
|---|---|
| Waivers or modifications of the Building Code are required: ☐ Yes ☒ No | |
| If Yes, provide details of the waivers or modifications below: | |
| **Clause**<br>List relevant clause numbers of building code | **Waiver/modification required**<br>Specify nature of waiver or modification of building code required |
| | |
| | |
| | |

Tasman District Council / AlphaOne Multiproof Approval – 107

# Tasman District Council
# BUILDING CONSENT AUTHORITY

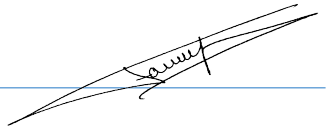
SUPERSEDED

| Issued By | | | |
|---|---|---|---|
| **Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work** | | | |
| Name: | Audrey Farreyre | LBP or Registration Number: | 1009889 |
| The practitioner is: ☐ Design LBP ☐ Registered architect ☒ Chartered Professional Engineer | | | |
| Design Entity or Company: Cameron Gibson and Wells Ltd | | | |
| Mailing address (if different from below): | | | |
| Street Address/Registered Office: Level 4, 241 Hardy Street | | | |
| Suburb: Nelson City | | Town/City: Nelson | |
| Phone number: (03) 548 8259 | | Mobile: | |
| After Hours: | | Fax: | |
| Email address: audrey@cgwl.co.nz | | Website: www.cgwl.co.nz | |

## Declaration

I, Audrey Farreyre, LBP, state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code, or
- Complies with the building code subject to any waiver or modification of the building code recorded on this form

Signature: 

Date: 5/11/2021

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

CGW CONSULTING ENGINEERS

## 5. Inspection Schedule

Job Number: **21628**

Date: **5/11/21**

Job Description: **Cupolex Foundation**

Job Location: **12, 14, 16, 18, 20 Kahikatea Way, Richmond**

Client: **The Concrete Company Limited**

SUPERSEDED

- CGW Consulting Engineers have been engaged by the client to carry out the site inspections listed in the attached schedule of inspections.
- It is a requirement of the building consent that these inspections are carried out.
- On completion of the inspections and the satisfactory completion of the work on site, Cameron Gibson & Wells Ltd will issue a Producer Statement for Construction Review covering the work inspected.
- If we are not notified of an inspection, or our engagement is terminated, or our ability to issue a Producer Statement for Construction Review is otherwise affected, then we will notify the controlling Territorial Authority.
- If we are unable to issue a Producer Statement for Construction Review, then the controlling Territorial Authority will not be able to issue a Code Compliance Certificate for the works until they are satisfied that the work complies with the New Zealand Building Code.

| Inspections | | | |
|---|---|---|---|
| **No** | **Description** | **Date Inspected** | **Carried Out By** |
| 1 | Subgrade inspection once all topsoil and organic material has been removed from the excavation. | TBC | Geotechnical Engineer |
| 2 | Inspection of fill, or NDT/Clegg testing if fill is required. | TBC | Geotechnical Engineer |
| 3 | Pre-pour inspection. | TBC | Structural Engineer |

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

Tasman District Council
BUILDING CONSENT AUTHORITY

**6. Drawings**

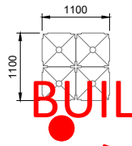
# SUPERSEDED

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022
Page 253 / 1401

Tasman District Council
BUILDING CONSENT AUTHORITY

## LEGEND:




CUPOLEX MODULE LAYOUT

SET OUT POINT FOR CUPOLEX MODULES

2/HD12 x 1500mm LONG TIED TO UNDERSIDE OF MESH

300mm WIDE CONCRETE BEAM

150mm WIDE CONCRETE BEAM

CONCRETE PACKERS

200mm DEEP CUPOLEX MODULE FOR SHOWER REBATES

FLOOR AREA: 135m$^2$

SUPERSEDED

## NOTES:

1. CHECK THE BUILDING CONSENT DOCUMENTATION FOR ANY INSPECTIONS THAT ARE REQUIRED BY THE BUILDING CONSENT AUTHORITY.
2. FOUNDATION LAYOUT DIMENSIONS PROVIDED FOR INFORMATION ONLY. ARCHITECTS FOUNDATION DIMENSIONS TO TAKE PRECEDENCE.
3. REFER TO ARCHITECTS DRAWINGS FOR ALL SLAB REBATE DIMENSIONS AND LOCATIONS.
4. DESIGN BASED ON 200kPA UBC AS SPECIFIED IN DAVIS OBIVIE GEOTECHNICAL REPORT DATE 06 SEPTEMBER 2021, REF 37435. ENGINEER TO CONFIRM SOIL BEARING CAPACITY IS CONSISTENT WITH THE DESIGN ASSUMPTIONS ON SITE.
5. WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.
6. TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE PODS SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 60mm THICK TOPPING FOR THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENTS.
7. FOR SET-OUT DIMENSIONS AND SITE LEVELS REFER ARCHITECTS DRAWINGS.
8. CONCRETE TO BE 25MPa AT 28 DAYS.
9. SLAB REINFORCING TO BE SE62 WITH MIN LAPS OF 225mm. OR 665 MESH FOR SUBSITUTION.
10. LOAD BEARING PADS TO BE REINFORCED WITH HD12's @ 200mm CRS EACH WAY TOP & BOTTOM.
11. ALL SAWCUTS TO BE AS PER NZS3604:2011 SECTION 7.
12. REFER TO SPECIFICATION ON SHEET 003 FOR BOTTOM PLATE FIXINGS.

## INSPECTIONS:

IN ORDER FOR CGW CONSULTING ENGINEERS TO PROVIDE A PS4, AT A MINIMUM WE MUST UNDERTAKE THE FOLLOWING INSPECTIONS:

1. SUBGRADE INSPECTION ONCE ALL TOPSOIL AND ORGANIC MATERIAL HAVE BEEN REMOVED FROM THE EXCAVATION.
2. INSPECTION OF FILL MATERIALS AND TESTING AS REQUIRED.
3. PRE POUR INSPECTION.

WE REQUIRE 24HRS NOTICE BEFORE ANY INSPECTION.

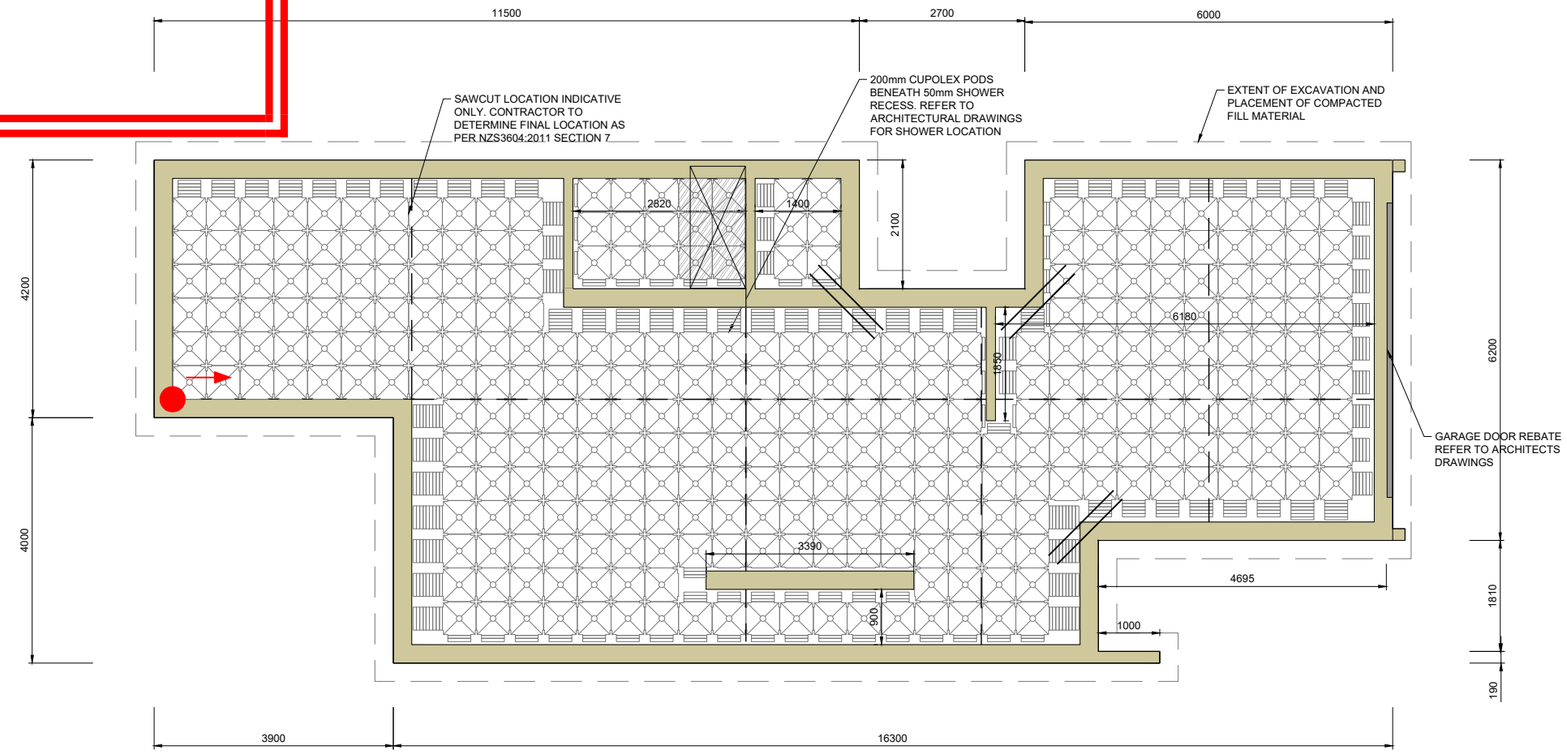
TO BOOK AN INSPECTION CALL: 03 548-8259
AND QUOTE THIS NUMBER: 21628

NOTE: THIS DESIGN HAS BEEN PRODUCED PRIOR TO DRAINAGE PLANS BEING AVAILABLE. IT IS THE CONTRACTORS RESPONSIBILITY TO CHECK FOR THE LOCATION OF ALL COUNCIL PIPES AND SOAKPITS TO ENSURE THEY DO NOT CLASH WITH THE SLAB DESIGN. SHOULD EITHER OF THESE BE FOUND ON SITE AND THE HOUSE FOOTPRINT BE LOCATED WITHIN THE ZONE OF INFLUENCE (TYPICALLY 45 DEGREES FROM THE PIPE INVERT) THEN CGW SHALL BE CONTACTED FOR COMMENT PRIOR TO CONSTRUCTION.

| GENERAL NOTES | A3 |
|---|---|

1. THE INFORMATION CONTAINED ON THIS DOCUMENT IS COPYRIGHT AND MAY NOT BE COPIED, DISSEMINATED OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT FOR WHICH IT HAS BEEN PROVIDED WITHOUT THE WRITTEN PERMISSION OF CAMERON GIBSON AND WELLS
2. VERIFY ALL DIMENSIONS ON SITE
3. DO NOT SCALE FROM DRAWINGS
4. THE ADEQUACY OF THE DESIGN INCORPORATED ON THE PLANS IS SUBJECT TO THE REQUIREMENTS INCLUDED IN THE SPECIFICATION FOR THE WORKS AND THE DESIGN ASSUMPTIONS INCORPORATED IN THE CALCULATIONS AND REPORTS FOR THE PROJECT

REFER TO NOTE 9 FOR MESH SUBSTITUTION.




CUPOLEX FOUNDATION LAYOUT PLAN
SCALE 1:100 A3

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

CGW CONSULTING ENGINEERS
NELSON • CHRISTCHURCH • WANAKA • AUCKLAND
03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: CUPOLEX SOLUTIONS
12,14,16,18,20 , KAHIKATEA WAY
RICHMOND

DRAWING TITLE: FOUNDATION PLAN AND SPECIFICATION

DESIGNED BY: ANDY MA
DRAFTED BY: ANDY MA

| REV | DATE | REVISION | CHD | APD |
|---|---|---|---|---|
| A | 10.08.21 | FIRST ISSUE | AF | RLC |

FOR CONSTRUCTION

| SCALE | | | SIZE |
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| AS SHOWN | | | A3 |
| PROJECT NO | TYPE | SHEET | REV |
| 21628 | DWG | S-01-01 | A |

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

GENERAL NOTES A3

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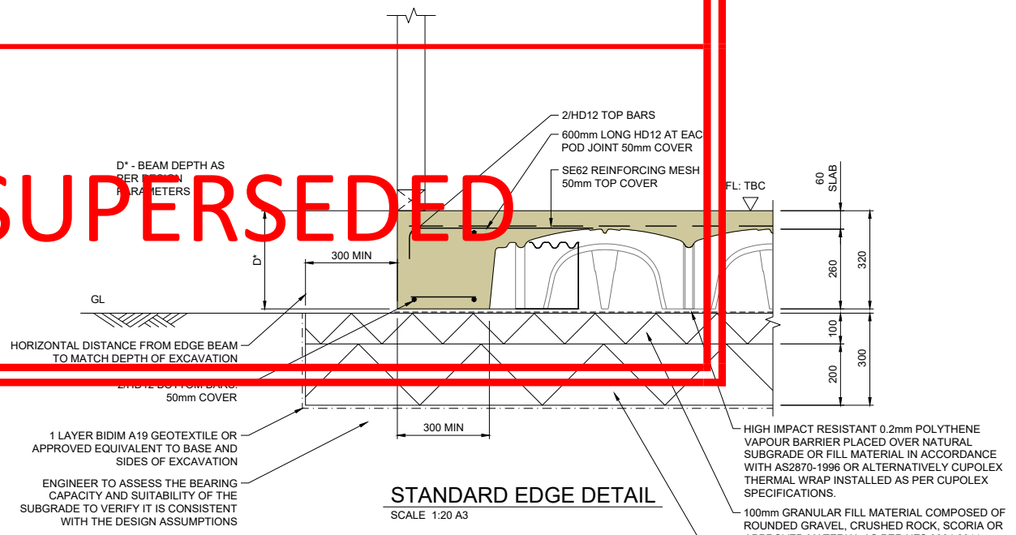
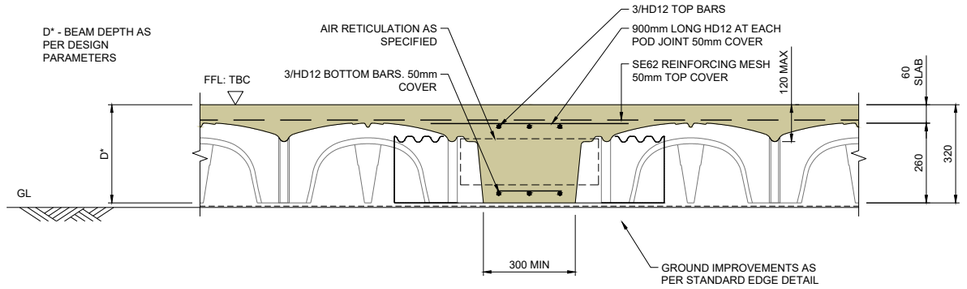
4. THE ADEQUACY OF THE DESIGN INCORPORATED ON THE PLANS IS SUBJECT TO THE REQUIREMENTS INCLUDED IN THE SPECIFICATION FOR THE WORKS AND THE DESIGN ASSUMPTIONS INCORPORATED IN THE CALCULATIONS AND REPORTS FOR THE PROJECT




## STANDARD EDGE DETAIL
SCALE 1:20 A3

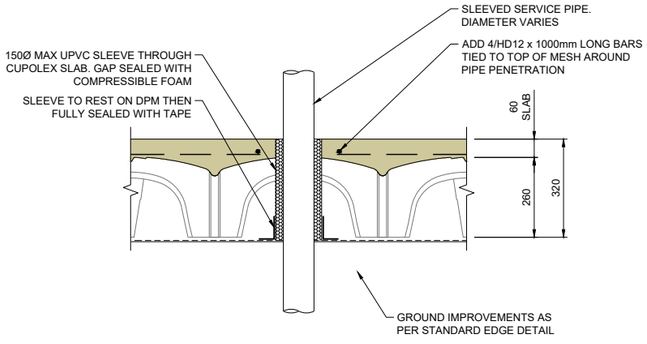
NOTE: DEPTH OF GRAVEL RAFT IS INDICATIVE ONLY. GRAVEL DEPTH TO BE THE MAXIMUM OF;
- 75mm OF GRANULAR FILL MATERIAL COMPOSED OF ROUNDED GRAVEL, CRUSHED ROCK, SCORIA OR APPROVED MATERIAL AS PER NZS 3604:2011 CLAUSE 7.5.3.2 TO ACHIEVE A LEVEL SURFACE,
- TOPSOIL DEPTH,
- DEPTH TO 200kPA SOIL
- OR AS OTHERWISE SPECIFIED IN THE GEOTECHNICAL REPORT.

FILL MAY BE SWAPPED OUT WITH APPROVED EQUIVALENT BY GEOTECHNICAL ENGINEER INSPECTING SITE CUT.

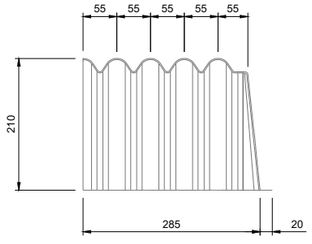



## 300mm INTERNAL BEAM DETAIL
SCALE 1:20 A3

FILL COMPACTION NOTES:
- CHECK THE BUILDING CONSENT CONDITIONS BEFORE COMMENCING CONSTRUCTION. IF COUNCIL REQUIRES A PS4, CONTACT A CONSULTING ENGINEER BEFORE STARTING EARTHWORKS. NO INSPECTION = NO PS4.
- ANY FILL DEPTH OVER 300mm NOT CONFINED BY A FOUNDATION WALL WILL NEED TO BE TESTED. CONTACT AN ENGINEER BEFORE STARTING WORKS.
- AS A GUIDE THE FOLLOWING COMPACTION METHOD MAY BE USED:
  1. MINIMUM 350 KG PLATE COMPACTOR TO BE USED TO COMPACT FILL.
  2. MINIMUM OF 6 PASSES OF PLATE COMPACTOR WITH SUFFICIENT WATER TO MEET SELECTED FILL MOISTURE REQUIREMENTS.
  3. FILL TO BE PLACED IN MAXIMUM 150mm THICK LAYERS.
  4. REFER TO SUBGRADE NOTES ON THE SPECIFICATION PAGE OF THESE DRAWINGS REGARDING THE USE OF ALTERNATE MATERIALS. CONTACT THE GEOTECHNICAL ENGINEER IF YOU INTEND TO USE SOMETHING DIFFERENT THAN THE MATERIALS SPECIFIED




## PIPE PENETRATION DETAIL
SCALE 1:20 A3




## BETON STOP DETAIL
SCALE 1:10 A3

Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

Tasman District Council / AlphaOne Multiproof Approval – 107

CGW CONSULTING ENGINEERS
NELSON • CHRISTCHURCH • WANAKA • AUCKLAND
03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: CUPOLEX SOLUTIONS
12,14,16,18,20 , KAHIKATEA WAY
RICHMOND

DRAWING TITLE: CUPOLEX FOUNDATION DETAILS

DESIGNED BY: ANDY MA
DRAFTED BY: ANDY MA

| REV | DATE | REVISION | CHD | APD |
|---|---|---|---|---|
| A | 10.08.21 | FIRST ISSUE | AF | RLC |

FOR CONSTRUCTION

| SCALE | | | SIZE |
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| AS SHOWN | | | A3 |
| PROJECT NO | TYPE | SHEET | REV |
| 21628 | DWG | S-01-02 | A |

Original Sheet Size A3 (420x297) File Path: C:\12dS\data\APP-SERVER\21628 - Lot 366, The Meadows, Richmond_12080\5 - Drawings\CAD\Cupolex Template TC1 - Updated 2021.07.01.dwg - S-01-02

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022
Page 255 / 1401

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

## SPECIFICATION:

GENERAL

CHECK THE BUILDING CONSENT DOCUMENTATION FOR ANY INSPECTIONS THAT ARE REQUIRED BY THE "BUILDING CONSENT AUTHORITY".

FOR SET-OUT DIMENSIONS AND SITE LEVELS REFER ARCHITECTS DRAWINGS

SUBGRADE

DESIGN BASED ON 200 kPa UBC AS PER NZS3604:2011 AS SPECIFIED IN DAVIS OBIVIE GEOTECHNICAL REPORT DATE 06 SEPTEMBER 2021, REF 37435. ENGINEER TO CONFIRM SOIL BEARING CAPACITY IS CONSISTENT WITH THE DESIGN ASSUMPTIONS ON SITE.

WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.

UNLESS SPECIFIED, HARDFILL SHALL BE TNZ M4/AP40 COMPACTED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY.

THE CONTRACTOR MAY SUBMIT ALTERNATIVES FOR CONSTRUCTION MATERIALS AS A MEANS OF COMPLIANCE TO THESE DRAWINGS AND SPECIFICATIONS. THESE SHALL BE SUBSTANTIATED WITH PAST PERFORMANCE RESULTS AND SUPPORTING EVIDENCE THAT THE ALTERNATIVES WILL ACHIEVE THE REQUIRED RESULTS BEFORE APPROVAL WILL BE GIVEN BY THE ENGINEER FOR THEIR USE.

BLINDING

MAXIMUM 25mm OF COMPACTED GAP 7 OR CRUSHER DUST.

CONCRETE

ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH NZS:3109:1997.

ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH F'C OF 25MPA AT 28 DAYS.

ALL CONCRETE SHALL BE SUPPLIED FROM A READY MIXED CONCRETE BATCHING PLANT WHICH HOLDS A MINIMUM OF "HIGH GRADE" PRODUCTION STANDARD AS DEFINED BY NZS3109.

ALL CONCRETE SHALL BE FULLY COMPACTED BY APPROVED VIBRATION EQUIPMENT.

VIBRATION SHALL BE APPLIED IN A UNIFORM PATTERN WITH CARE TAKEN NOT TO OVER-VIBRATE.

THE FLOOR SLAB SHALL BE PLACED CONTINUOUSLY AND WITH STRICT ATTENTION TO AVOIDANCE OF COLD JOINTS AND PLASTIC SHRINKAGE.

SHOULD DELAYS OCCUR WITH CONCRETE SUPPLY, THE UNFORMED EDGES OF FRESHLY PLACED CONCRETE SHALL BE COATED WITH AN EVAPORATION RETARDANT (SIKAFILM OR SIMILAR APPROVED) AND JOINS SHALL BE SUITABLY VIBRATED UPON CONTINUATION OF PLACING.

EVAPORATION RETARDANT SHALL BE APPLIED GENERALLY TO FLOOR SURFACE TO PREVENT PLASTIC SHRINKAGE UNDER ADVERSE AMBIENT CONDITIONS (IE, CAUSING RAPID BLEED WATER EVAPORATION).

THE FLOOR SLAB SHALL BE MOIST CURED BY COMPLETE FLOODING WITH WATER ONCE CONCRETE HAS ACHIEVED INITIAL SET. FLOODING SHALL BE TO SUFFICIENT DEPTH TO PREVENT FROST ICE FORMING ON THE CONCRETE SURFACE AND SHALL BE APPLIED FOR AS LONG AS POSSIBLE BUT NOT LESS THAN 7 DAYS. ALTERNATIVELY SPECIALIST SUPPORT SHALL BE SOUGHT FROM MARKHAM AND THEIR DESIGN TEAM TO ASCERTAIN THAT A CURING AGENT SUCH AS 'AQURON 2000' OR SIMILAR PRODUCT IS A FEASIBLE ALTERNATIVE FOR THE PROJECT.

CONCRETE SURFACE FINISHES SHALL BE IN ACCORDANCE WITH NZS3114, AS FOLLOWS:

| | |
|---|---|
| FOOTING | U2 (WOOD) |
| FLOOR SLAB | U3 (STEEL FLOAT) |
| PRECAST | F5 / U3 (STEEL TROWEL) |

REINFORCING

ALL REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF AS/NZS4671:2001.

SLAB REINFORCING TO BE SE62 WITH MIN LAPS OF 225mm. OR 665 MESH FOR SUBSTITUTION.

LOAD BEARING PADS TO BE REINFORCED WITH HD12'S @ 200mm CRS EACH WAY TOP & BOTTOM.

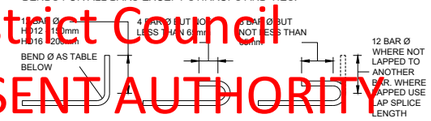
MINIMUM 50mm COVER TO BE MAINTAINED TO REINFORCING ON OUTER FACES. 30mm ELSEWHERE UNLESS SPECIFIED ON DRAWINGS.

SPLICING OF REINFORCEMENT WHETHER BY LAPPING, WELDING OR MECHANICAL SPLICE, SHALL BE AS SHOWN ON THE DRAWINGS OR AS SPECIFICALLY APPROVED BY THE ENGINEER.

TOP REINFORCEMENT SHALL BE SUPPORTED BY BAR CHAIRS OR OTHER APPROVED METHODS.

DEFORMED BARS SHALL BE OF SEISMIC GRADE MICRO-ALLOY STEEL, (GRADE 300E & GRADE 500E MA) AS MANUFACTURED BY PACIFIC STEEL LTD.

BENDS FOR ALL BARS EXCEPT STIRRUPS AND TIES:




STANDARD HOOK STANDARD 180° HOOK WALL OR SLAB BAR BENT AROUND ANOTHER BAR

| STEEL GRADE | BAR DIA (mm) | MINIMUM DIA. OF BEND |
|---|---|---|
| GRADE 300E/500E | 6-20 | 5x BAR DIA. |
| GRADE 300E/500E | 25-40 | 6x BAR DIA. |

ALL HOOKS ON STIRRUPS AND TIES MUST FIT CLOSELY AROUND MAIN BARS.

THE FIRST STIRRUP SHALL NOT TO BE PLACED FURTHER THAN THE LESSER OF 1/2 STIRRUP SPACING OR 50mm FROM SUPPORT FACE.

BENDS FOR STIRRUPS AND TIES:

STANDARD STIRRUP & TIE HOOKS

| STEEL GRADE | BAR DIA (mm) | MINIMUM DIA. OF BEND | |
|---|---|---|---|
| | | PLAIN BARS | DEFORMED BARS |
| GRADE 300E/500E | 6-20 | 2 BAR DIA. | 4 BAR DIA. |
| GRADE 300E/500E | 25-40 | 3 BAR DIA. | 6 BAR DIA. |

BAR SPLICE LENGTHS (Ldb)

| BAR SIZE | CONCRETE STRENGTH | MIN LAP LENGTH |
|---|---|---|
| HD12 | 25MPa | 550mm |
| HD16 | 25MPa | 700mm |
| HD20 | 25MPa | 900mm |

RECESSED SHOWERS

TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE PODS SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 60mm THICK TOPPING FOR THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENTS.

SEALANT'S

ALL SEALANT'S AND WATERSTOPS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS.

STEEL

ALL EXPOSED STEEL ITEMS AND FIXING DEVICES SHALL BE HOT DIP GALVANIZED OR STAINLESS STEEL IF NOTED.

IMMERSED BOLTS AND FASTENERS SHALL BE MINIMUM GRADE 304 STAINLESS STEEL.

HOLD DOWN BOLTS

EXTERNAL WALL BOTTOM PLATE FIXINGS AND HOLD DOWN BOLTS TO BE TO NZS3604:2011

BRACING

THE BOTTOM PLATE FIXINGS FOR INTERNAL BRACING WALLS (SUCH AS GS1-N AND GS2-N THAT DO NOT REQUIRE BOLTED HOLD DOWNS) OR PARTITION WALLS THAT ARE NOT LOAD BEARING SHALL BE AS PER THE MANUFACTURERS SPECIFICATIONS FOR NAIL FIXINGS, OR AS PER NZS3604:2011 (E.G. 75x3.8mm SHOT FIRED FASTENERS WITH 16mm DISC, 150mm AND 300mm FROM EACH END OF THE BRACING ELEMENT AND AT 600mm CRS THEREAFTER). SHOT FIRED FASTENERS AS ABOVE ARE THE PREFERRED METHOD FOR BOTTOM PLATE FIXINGS WHEN APPLICABLE.

WHERE BOLTED HOLD DOWNS ARE USED A 150mm WIDE THICKENING IS REQUIRED BELOW. THE BOLT MAY BE SED TO REDUCE EMBEDMENT AND REMOVE THE NEED FOR A RIB.

POLISHED CONCRETE FINISH

NO ALLOWANCE HAS BEEN MADE FOR POLISHED CONCRETE FLOORS.

UNDERFLOOR HEATING

NO ALLOWANCE HAS BEEN MADE FOR UNDERFLOOR HEATING.

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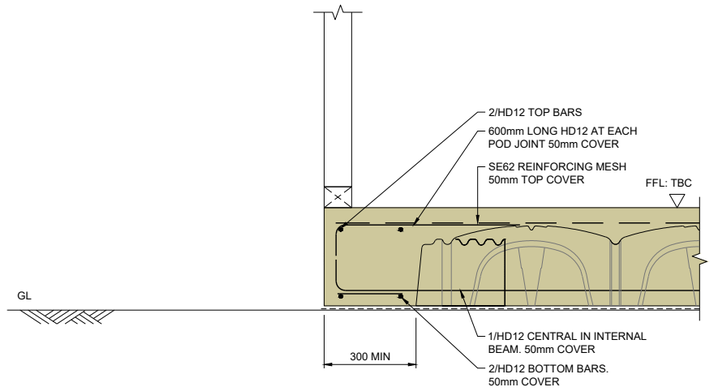
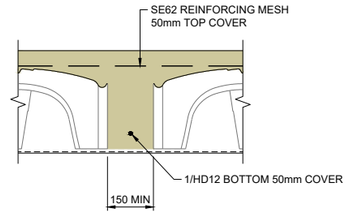



150mm BEAM EDGE DETAIL
SCALE 1:20 A3




150mm BEAM INTERNAL DETAIL
SCALE 1:20 A3

Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

Tasman District Council / AlphaOne Multiproof Approval – 107

CGW CONSULTING ENGINEERS
NELSON • CHRISTCHURCH • WANAKA • AUCKLAND
03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: CUPOLEX SOLUTIONS 12,14,16,18,20 , KAHIKATEA WAY RICHMOND

DRAWING TITLE: CUPOLEX FOUNDATION DETAILS

DESIGNED BY: ANDY MA
DRAFTED BY: ANDY MA

| REV | DATE | REVISION | CHD | APD |
|---|---|---|---|---|
| A | 10.08.21 | FIRST ISSUE | AF | RLC |

FOR CONSTRUCTION

| SCALE | SIZE |
|---|---|
| AS SHOWN | A3 |

| PROJECT NO | TYPE | SHEET | REV |
|---|---|---|---|
| 21628 | DWG | S-01-03 | A |

Original Sheet Size A3 (420x297) File Path: C:\12dS\data\APP-SERVER\21628 - Lot 366, The Meadows, Richmond_12080\5 - Drawings\CAD\Cupolex Template TC1 - Updated 2021.07.01.dwg - S-01-03

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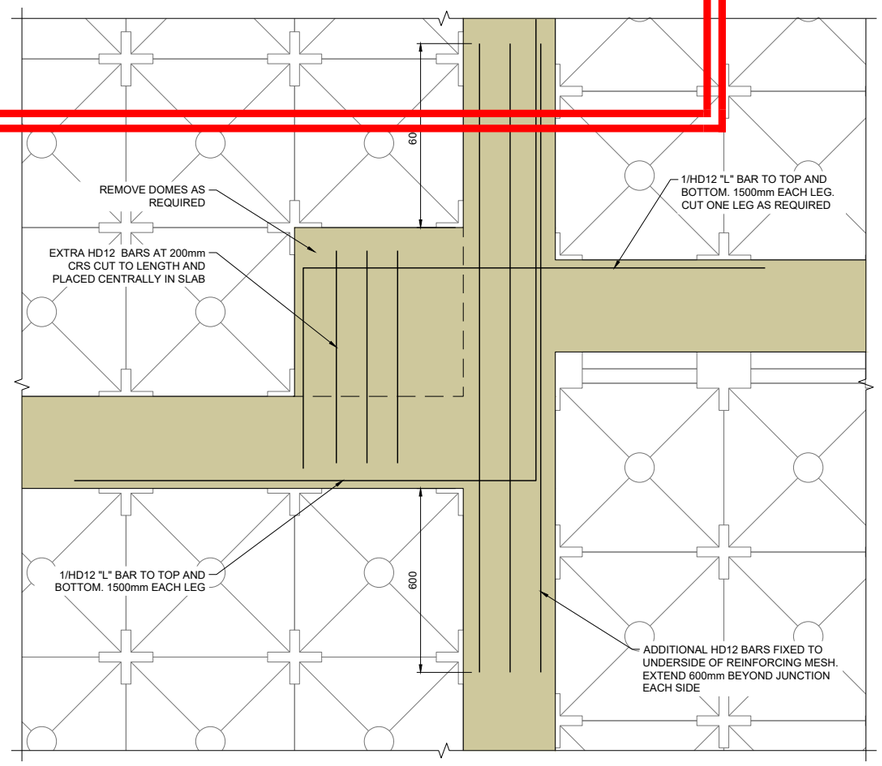
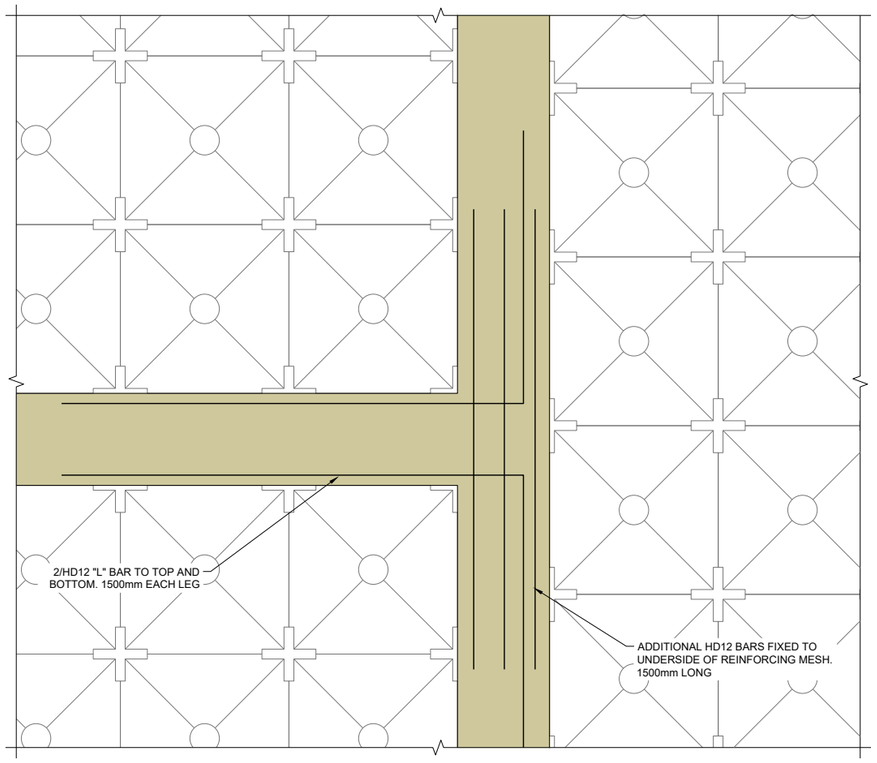



DOUBLE OFFSET JUNCTION
SCALE 1:20 A3




SINGLE JUNCTION
SCALE 1:20 A3

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|---|---|---|---|
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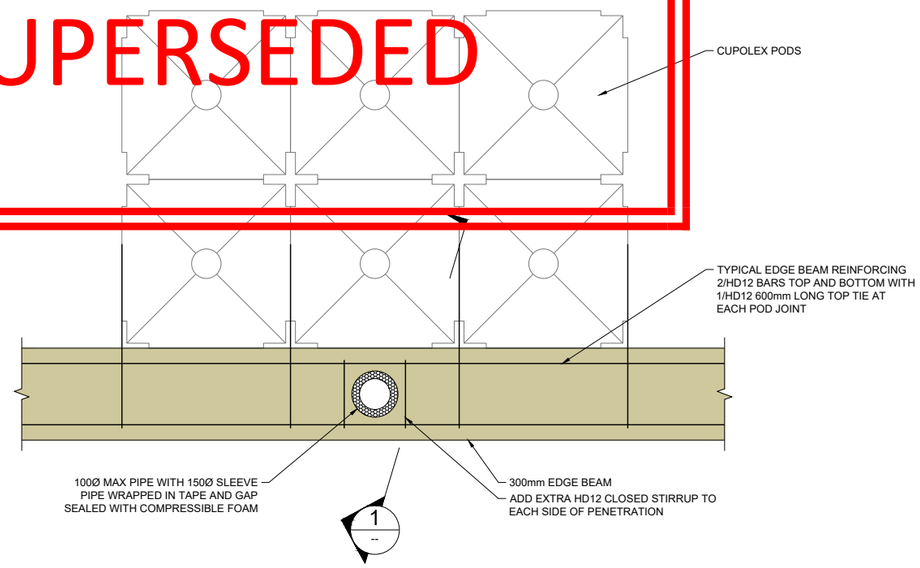
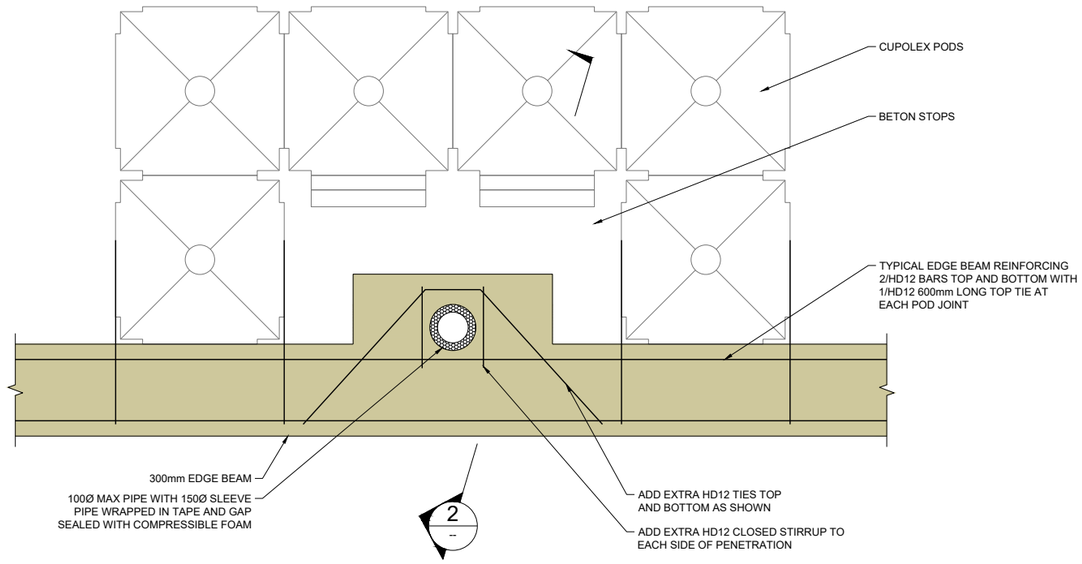
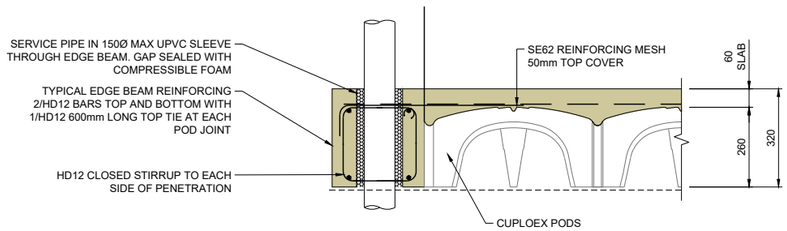



EDGE BEAM PIPE PENETRATIONS A
SCALE 1:20 A3




EDGE BEAM PIPE PENETRATIONS B
SCALE 1:20 A3

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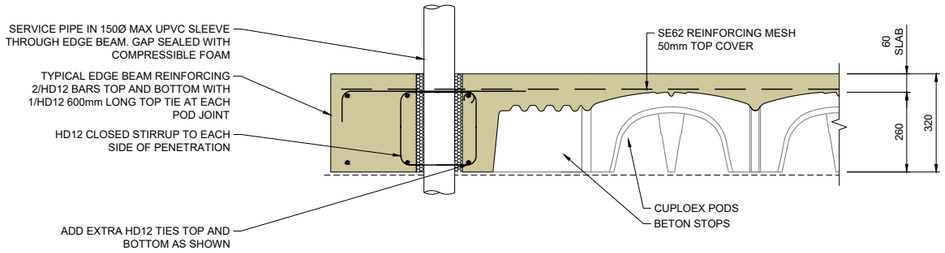


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Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

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# Tasman District Council
# BUILDING CONSENT AUTHORITY

## 7. Supporting Documents

### 7.1. Calculations

# SUPERSEDED

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

Date : 10.08.2021
Designer : AM
Checker : AF
Job Number : 21628

# Cupolex Design

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : SLAB

## Loadings

**General Working Areas**

Dead:

| | | | |
|---|---|---|---|
| Cupolex ID | = | C1026 | |
| Self weight | = | 0.83 | kPa |
| Slab Thickness | = | 60 | mm |
| Slab Dead Load | = | 1.44 | kPa |
| Superimposed Deal Load | = | 0.25 | kPa |
| Total Dead Load | = | 2.52 | kPa |

Live:

| | | | |
|---|---|---|---|
| Live | = | 1.50 | kPa |

Combinations:

| | | | |
|---|---|---|---|
| 1.2G+1.5Q | = | 5.27 | kPa |

## Demand

Ultimate Moment:

| | | | |
|---|---|---|---|
| M* | = | $wl^2/16$ | kNm/m |
| | = | 0.10 | kNm/m |

## Capacity

Capacity:

| | | | | |
|---|---|---|---|---|
| ΦMn | = | ΦAsfy(d'-a/2) | | |
| Mesh ID | = | SE62 | | |
| diameter | = | 6 | mm | |
| As | = | 146 | $mm^2$ | |
| b | = | 560 | mm | |
| d' | = | 51 | mm | |
| Φ | = | 0.85 | | |
| f'c | = | 25 | MPa | |
| fy | = | 500 | MPa | |
| alpha | = | 0.85 | | |
| a | = | 6.13 | | |
| ΦMn | = | 2.97 | kNm/m | **OK** |

## Other Checks

Skrinkage:

| | | | | |
|---|---|---|---|---|
| 0.7/fy | = | 0.0014 | | **OK** |
| As/Ac | = | 0.0043 | | **OK** |

Punching Shear:

| | | | | |
|---|---|---|---|---|
| $b_o$ | = | $(\sqrt{(350mm^2)}+2xd_{eff})x4$ | | |
| | = | 458.83 | | |
| $v_n$ | = | $(V_Q*1.5)/(0.75*d_{eff}*b_o)$ | | |
| | = | 0.16 | MPa | |
| $v_c$ | = | 1.67 | MPa | **OK** |

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY
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Date : 10.08.2021
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Checker : AF
Job Number : 21628

**Cupolex Design**

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : SLAB

## Loadings

**Garage Area**

Dead:

| | | | |
|---|---|---|---|
| Cupolex ID | = | C1026 | |
| Self weight | = | 0.83 | kPa |
| Garage Slab Thickness | = | 60 | mm |
| Dead Load | = | 1.44 | kPa |
| Total Dead Load | = | 2.27 | kPa |

Live:

| | | | |
|---|---|---|---|
| $Live_{Pressure}$ | = | 2.50 | kPa |
| $Live_{Point}$ | = | 10 | kN |

Combinations:

| | | | |
|---|---|---|---|
| $1.2G+1.5Q_{Pressure}$ | = | 6.47 | kPa |
| $1.2G+1.5Q_{Point}$ | = | See Below | |

## Demand

Ultimate Moment:

| | | | |
|---|---|---|---|
| $M^*_{UDL}$ | = | $wl^2/16$ | |
| | = | 0.13 | kNm |
| $M^*_{UDL+Point}$ | = | $(1.2*wl^2/16+1.5*Pl/8)$ | |
| | = | 0.055 | kNm |

## Capacity

Capacity:

| | | | | |
|---|---|---|---|---|
| ΦMn | = | ΦAsfy(d'-a/2) | | |
| Mesh ID | = | SE62 | | |
| As | = | 146 | $mm^2$ | |
| Diameter | = | 6 | mm | |
| b | = | 560 | mm | |
| d' | = | 51 | mm | |
| Φ | = | 0.85 | | |
| f'c | = | 25 | MPa | |
| fy | = | 500 | MPa | |
| alpha | = | 0.85 | | |
| a | = | 6.13 | | |
| ΦMn | = | 2.97 | kNm | **OK** |

## Other Checks

Skrinkage:

| | | | | |
|---|---|---|---|---|
| 0.7/fy | = | 0.0014 | | **OK** |
| As/Ac | = | 0.0043 | | **OK** |

Punching Shear:

| | | | | |
|---|---|---|---|---|
| $b_o$ | = | $(\sqrt{(350mm^2)}+2xd_{eff})x4$ | | |
| | = | 458.83 | | |
| $v_n$ | = | $(V_Q*1.5)/(0.75*d_{eff}*b_o)$ | | |
| | = | 1.18 | MPa | |
| $v_c$ | = | 1.67 | MPa | **OK** |

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

Date : 10.08.2021
Designer : AM
Checker : AF
Job Number : 21628

## Cupolex Design

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : SLAB

## Bearing

Geotech Information:

| | | | |
|---|---|---|---|
| Scala Bearing Capacity | = | 200 | kPa |
| Correction Factor | = | 1.5 | |
| Corrected Bearing Capacity | = | 300 | kPa |
| Ultimate Bearing Capacity | = | 180 | kPa |
| Allowable Bearing Capacity | = | 100 | kPa |

Cupolex Properties:

| | | | |
|---|---|---|---|
| Bearing area of leg | = | 0.0144 | $m^2$ |
| Bearing area of central leg | = | 0.00062 | $m^2$ |
| Bearing area of plate | = | | $m^2$ |
| Total bearing area | = | 0.0150 | $m^2$ |

Bearing Loads:

| | | | | |
|---|---|---|---|---|
| Working Area Load | = | 110.1 | kPa | |
| FS | = | 1.63 | | **OK** |
| Garage Area $Load_{Pressure}$ | = | 135.2 | kPa | |
| FS | = | 1.33 | | **OK** |
| Garage Area $Load_{Point}$ | = | 180.0 | kPa | |
| FS | = | 1.00 | | **OK** |

Settlement:

Working Area

| | | | | |
|---|---|---|---|---|
| G+0.4Q | = | 3.12 | kPa | |
| Working Area Load | = | 65.2 | kPa | |
| FS | = | 1.53 | | **OK** |

Garage Area

| | | | | |
|---|---|---|---|---|
| $G+0.4Q_{UDL}$ | = | 2.44 | kPa | |
| Working Area Load | = | 51.0 | kPa | |
| FS | = | 1.96 | | **OK** |
| $G+0.4Q_{Point}$ | = | 13.45 | kN | |
| Working Area Load | = | 99.54 | kPa | |
| FS | = | 1.00 | | **OK** |

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

Date : 10.08.2021
Designer : AM
Checker : AF
Job Number : 21627

**Cupolex Design**

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : EDGE BEAM

## Loadings

*Upper Wall must be Timber*

**WALLS**

Lower: Timber

(North/South Taupo)

| | | | |
|---|---|---|---|
| | = | 50 | kg/m$^2$ |
| | = | 0.49 | kPa |
| Height | = | 2.50 | m |
| Load/m | = | 1.23 | kN/m |

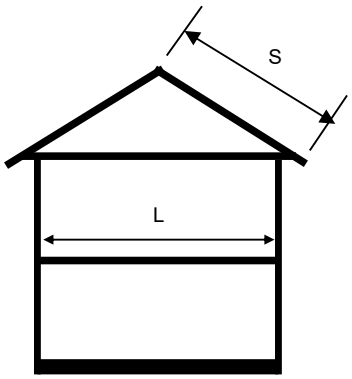
Upper: Timber

(North/South Taupo)

| | | | |
|---|---|---|---|
| | = | 50.00 | kg/m$^2$ |
| | = | 0.49 | kPa |
| Height | = | 2.40 | m |
| Load/m | = | 1.18 | kN/m |

Other (Specify Wall Weight)

| | | | | |
|---|---|---|---|---|
| Weight | = | 50 | kg/m$^2$ | ** |
| | = | 0.49 | kPa | |
| Height | = | | m | ** |
| Load | = | | kN/m | |




Tributary Roof and Floor Lengths

**SUSPENDED MID-FLOOR** Tributary Length L/2

| | | | |
|---|---|---|---|
| Unit/Floor | = | Timber | |
| Topping | = | N/A | |
| | = | 0.38 | kPa |
| Live Loading | = | 1.50 | kPa |
| Super Imposed Dead | = | | kPa |
| Tributary Span | = | 2.74 | m |
| Dead Load/m | = | 1.04 | kN/m |
| Live Load/m | = | 4.11 | kN/m |

**ROOF** Light Tributary Length = S

| | | | | |
|---|---|---|---|---|
| | = | 0.46 | kPa | |
| Live Loading | | 0.25 | kPa | |
| Tributary Span | = | 3.80 | m | ** |
| Dead Load/m | = | 1.75 | kN/m | |
| Live Load/m | = | | kN/m | |

## Loadings Summary

| | | | |
|---|---|---|---|
| Walls | 2.40 | kN/m | Dead |
| Mid Floors | 1.04 | kN/m | Dead |
| | 4.11 | kN/m | Live |
| Slab* | 3.17 | kN/m | Dead+SDL |
| | 0.90 | kN/m | Live |
| Roof | 1.75 | kN/m | Dead |
| | | kN/m | Live^ |
| Extra Dead | | kN/m | Dead |
| Extra Live | | kN/m | Live |

* Includes Edge Beam Weight, SDL = 0.5 kPa LL = 1.5 kPa

^ Roof LL not added if midfloor exists else LL = 0.25 kPa

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

Date : 10.08.2021
Designer : AM
Checker : AF
Job Number : 21627

## Cupolex Design

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : EDGE BEAM

SUPERSEDED

### Working Loads

| | | | | |
|---|---|---|---|---|
| | Dead | | 8.36 | kN/m |
| | Live | | 5.01 | kN/m |
| Ultimate Loads (1.2G + 1.5Q) | Dead | | 10.03 | kN/m |
| | Live | | 7.52 | kN/m |
| Total Ultimate Load on Edge | | w = | 17.55 | kN/m |

### Edge Beam Details

Wall Construction Type: Timber Clad Frame min beam width 200mm

| | | |
|---|---|---|
| Beam Width = | 300 | mm |
| Cupolex Depth = | 260 | mm |
| Top slab Depth = | 60 | mm |
| Self Weight = | 2.30 | kN/m |
| Construction Type = | Standard | |

### Bearing Check

| | | |
|---|---|---|
| Dependable bearing capacity: | 100 | kPa |
| Bearing Check = | OK! | |
| Working Pressure = | 36 | kPa |

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

Date : 10.08.2021
Designer : AM
Checker : AF
Job Number : 21627

Cupolex Design

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : INTERNAL RIB

## Loadings

**WALLS**

Lower: Timber | | Internal (North/South Taupo)

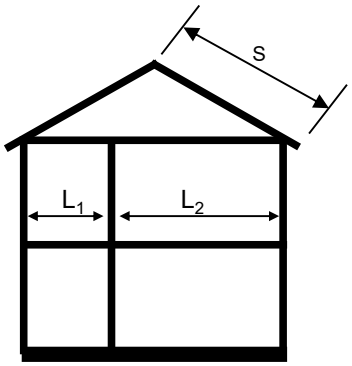
| | | | |
|---|---|---|---|
| | = | 30 | kg/m$^2$ |
| | = | 0.29 | kPa |
| Height | = | 2.50 | m |
| Load/m | = | 0.74 | kN/m |

Upper: Timber | | Internal (North/South Taupo)

| | | | |
|---|---|---|---|
| | = | 30 | kg/m$^2$ |
| | = | 0.29 | kPa |
| Height | = | 2.40 | m |
| Load/m | = | 0.71 | kN/m |

Other (Specify Wall Weight)

| | | | | |
|---|---|---|---|---|
| Weight | = | 30 | kg/m$^2$ | ** |
| | = | 0.29 | kPa | |
| Height | = | | m | ** |
| Load | = | | kN/m | |



Tributary Roof and Floor Lengths

**SUSPENDED MID-FLOOR** Tributary Length = $(L_1+L_2)/2$

| | | | |
|---|---|---|---|
| Unit/Floor | = | Timber | |
| Topping | = | N/A | |
| | = | 0.38 | kPa |
| Live Loading | = | 1.50 | kPa |
| Super Imposed Dead | = | | kPa |
| Tributary Span | = | 2.40 | m |
| Dead Load/m | = | 0.91 | kN/m |
| Live Load/m | = | 3.60 | kN/m |

**ROOF** Tributary Length = S (Check if Rafter or Truss)

| | | | | |
|---|---|---|---|---|
| Light | = | 0.46 | kPa | |
| Live Loading | | 0.25 | kPa | |
| Tributary Span | = | 4.30 | m | ** |
| Dead Load/m | = | 1.98 | kN/m | |
| Live Load/m | = | | kN/m | |

## Loadings Summary

| | | | |
|---|---|---|---|
| Walls | 1.44 | kN/m | Dead |
| Mid Floors | 0.91 | kN/m | Dead |
| | 3.60 | kN/m | Live |
| Slab* | 4.03 | kN/m | Dead+SDL |
| | 1.80 | kN/m | Live |
| Roof | 1.98 | kN/m | Dead |
| | | kN/m | Live^ |
| Extra Dead | | kN/m | Dead |
| Extra Live | | kN/m | Live |

* Includes Internal Rib Weight, LL = 1.5 kPa

^ Roof LL not added if midfloor exists else LL = 0.25 kPa

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

Date : 10.08.2021
Designer : AM
Checker : AF
Job Number : 21627

# Cupolex Design

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : INTERNAL RIB

SUPERSEDED

## Working Loads

| | | | |
|---|---|---|---|
| | Dead | 8.36 | kN/m |
| | Live | 5.40 | kN/m |
| Ultimate Loads (1.2G + 1.5Q) | Dead | 10.04 | kN/m |
| | Live | 8.10 | kN/m |
| Total Ultimate Load on Internal | w = | 8.14 | kN/m |

## Internal Rib Details

| | | |
|---|---|---|
| Rib Width = | 300 | mm |
| Cupolex Depth = | 260 | mm |
| Top slab Depth = | 60 | mm |
| Self Weight = | 2.30 | kN/m |
| Construction Type | Standard | |

## Bearing Check

| | | |
|---|---|---|
| Dependable bearing capacity: | 100 | kPa |
| Bearing Check = | OK! | |
| Working Pressure = | 37 | kPa |

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

Date : 10.08.2021
Designer : AM
Checker : AP
Job Number : 21627

Cupolex Design

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : SLIDING RESITANCE

SUPERSEDED

## Calculation of Shear Pile Requirements

Use AS1170 design philosphy of preventing damaging movement up to an SLS event,and thereafter accepting increasing levels of damage as the event increases.

Assumed Class C soil

| | | |
|---|---|---|
| City/town: | Richmond | |
| C(t) = Ch(t) Z R N(T,D) | | |
| Ch(t) | 2.36 | |
| Z | 0.27 | |
| Rs (25 yr RP) | 0.25 | |
| Ru 500yr | 1 | Assume T1 = 0.4 |
| N(T,D) | 1 SLS | ku = 1 + (u-1)T1/0.7 |
| C(t) SLS | 0.16 | ku = 1 |
| C(t) ULS | 0.64 | |

Cd(T1) = C(t) Sp/ku — For base sliding Sp = 1.0

SLS Cd(T1) = 0.16 — Note for Class D soil SLS Cd(t1) = 0.20
ULS Cd(T1) = 0.56 — ULS Cd(t1) = 0.71

Testing by Dr McManus University of Canterbury (Geotechnical Society Symposium, 2003) found the friction co-efficient of slab on polythene on sand had peak friction co-efficients of 0.42 for an unloaded slab and 0.53 for a loaded slab. Residual friction coefficient were 0.38 and 0.49 respectively.

These values are some what lower than that published by other sources, normally 0.7 peak and 0.5 residual.

Even using the lower values there will be no relative movement between the slab and the ground at SLS level event on either Class C or D. At ULS level event there may be relative movement between the slab and the ground, this may break services to the house, but will also serve to reduce the forces transferred to the structure of the house. This is acceptable within the intent of NZS 1170.5 2004.

Therefore, based on the above, shear key piles are unnecessary.

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

LUMBERLOK®

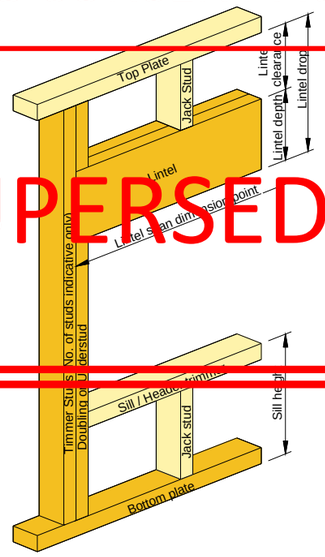
# LINTEL FIXING OPTIONS

**TYPE E 1.4 kN**

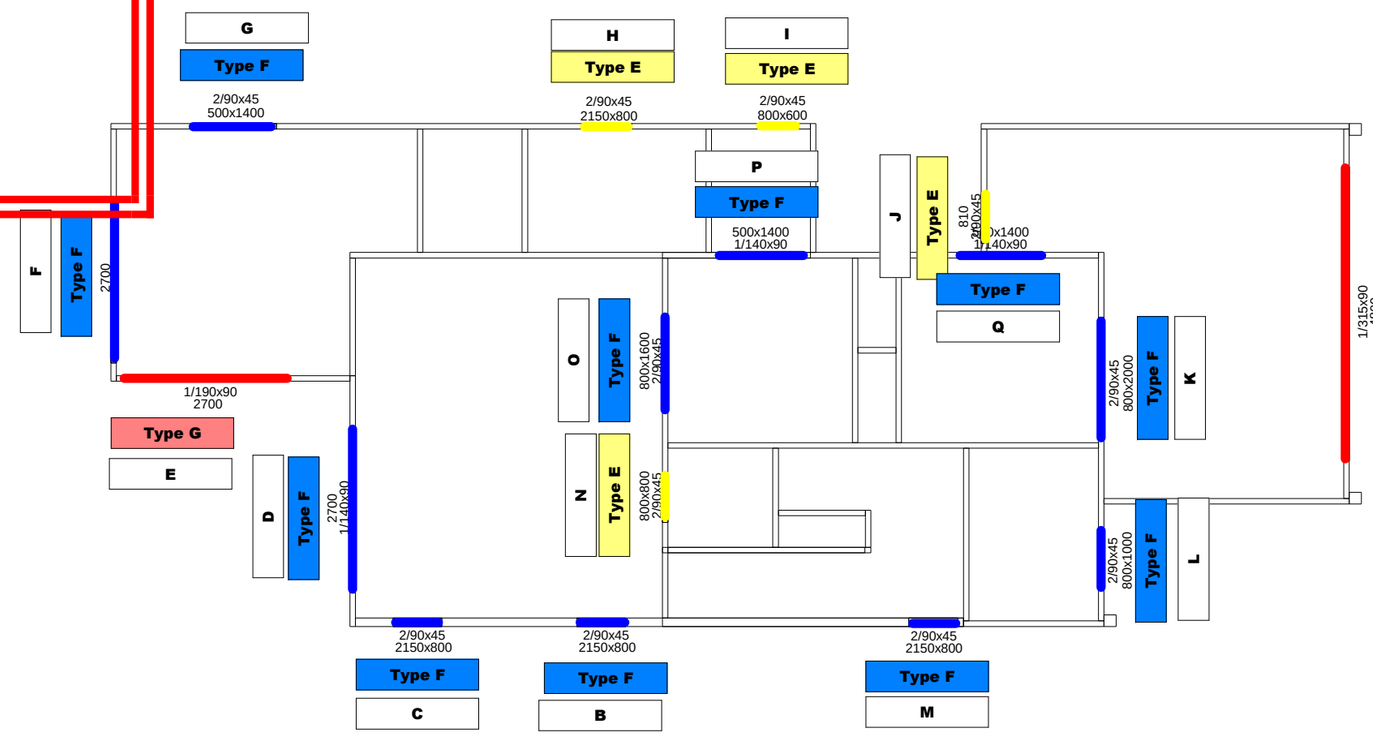
**TYPE F 4.0 kN**

**TYPE G 7.5 kN**

**TYPE H 13.5 kN**




NO SED FIXING REQUIRE




**Refer to:**
LUMBERLOK Lintel Fixing Schedule 10/2011
MiTek Structural Fixings **On-Site Guide** for Building Code Compliance
(Alternative to Table 8.14 & Figure 8.12 NZS 3604:2011)

Tasman District Council / AlphaOne Multiproof Approval – 107

PrimeCad v4.7.334

Site Address :
Ford
Lot 366 The Meadows
Richmond

Sheet Title :
For Building Consent
Lintel Fixing

Date : 19 Jul,2021
Drawn : Standard
Scale : 1: 100
System : MiTek 20/20

Job Details:

| | | | |
|---|---|---|---|
| Roof Pitch | : 7.00deg | Truss Centres | : 900mm |
| Roof Material | : Galv Iron .5mm | Roof Live Load | : 0.250kPa |
| Ceiling Material | : Gib Board 13mm | Floor Live Load | : |
| Wind Zone | : High | Wind Speed | : 44m/s |
| Roof Snow Load | : 0.400kPa | Overhang | : 600mm |

Job Title : P9456
Sheet : 2
Revision Number :

Tasman District Council
BUILDING CONSENT AUTHORITY

BOWMAC®

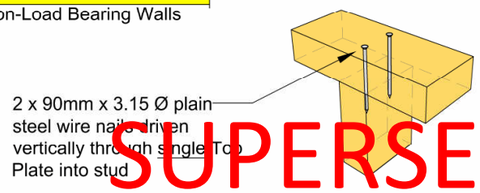
# STUD-LOK

## STUD TO TOP PLATE FIXING OPTIONS

*Images are indicitive only. Timber sizes may vary.

### TYPE A - 0.7 kN

Non-Load Bearing Walls

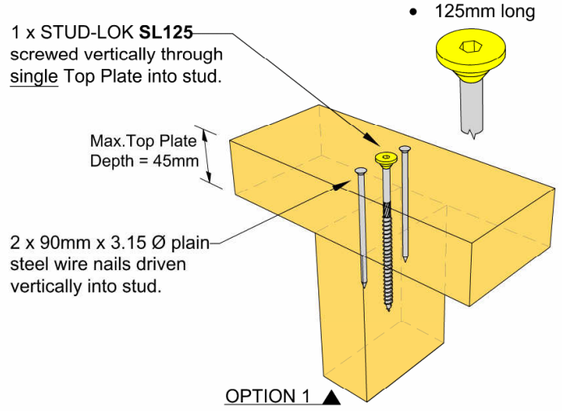



SUPERSEDED

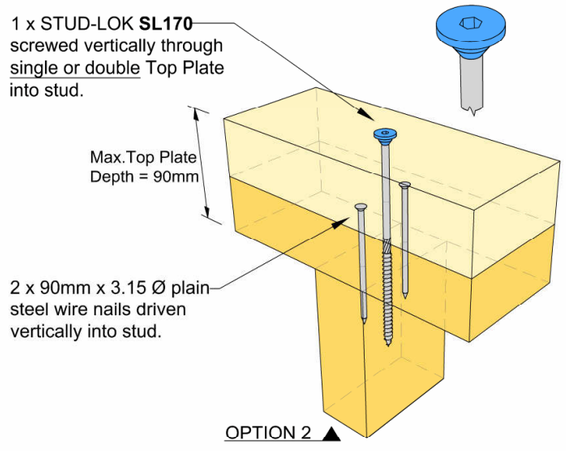
### TYPE B - 4.7 kN

Load Bearing Walls

**STUD-LOK SL125**
- Yellow Head
- 125mm long

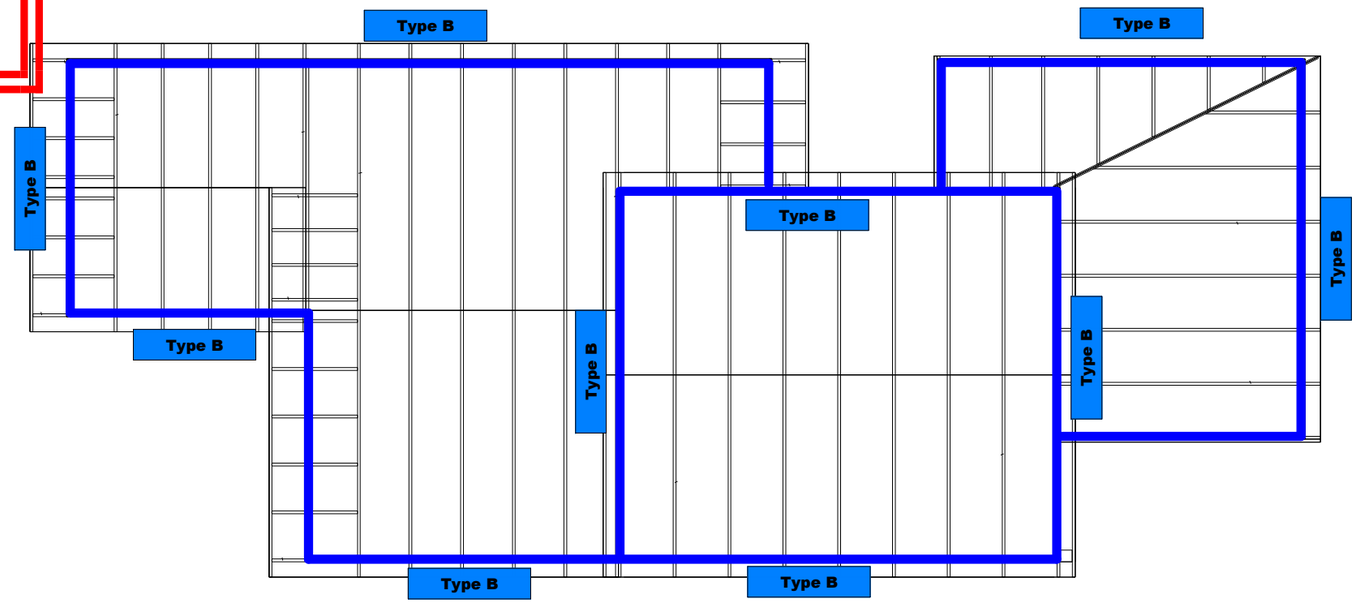



**STUD-LOK SL170**
- Blue Head
- 170mm long




(Alternative to NZS 3604:2011 Section 8)

FIRST FLOOR LBW




Tasman District Council / AlphaOne Multiproof Approval – 107

PlaceMakers Know how. Can do. FRAME & TRUSS

FTMA NEW ZEALAND

Site Address :
Ford
Lot 366 The Meadows
Richmond

Sheet Title :
For Building Consent
Stud To Top Plate Fixing

Date : 19 Jul,2021 | Drawn : Standard
Scale : 1: 100 | System : MiTek 20/20

Job Details:

| | | | |
|---|---|---|---|
| Roof Pitch | : 7.00deg | Truss Centres | : 900mm |
| Roof Material | : Galv Iron .5mm | Roof Live Load | : 0.250kPa |
| Ceiling Material | : Gib Board 13mm | Floor Live Load | : |
| Wind Zone | : High | Wind Speed | : 44m/s |
| Roof Snow Load | : 0.400kPa | Overhang | : 600mm |

PrimeCad v4.7.334

MiTek™

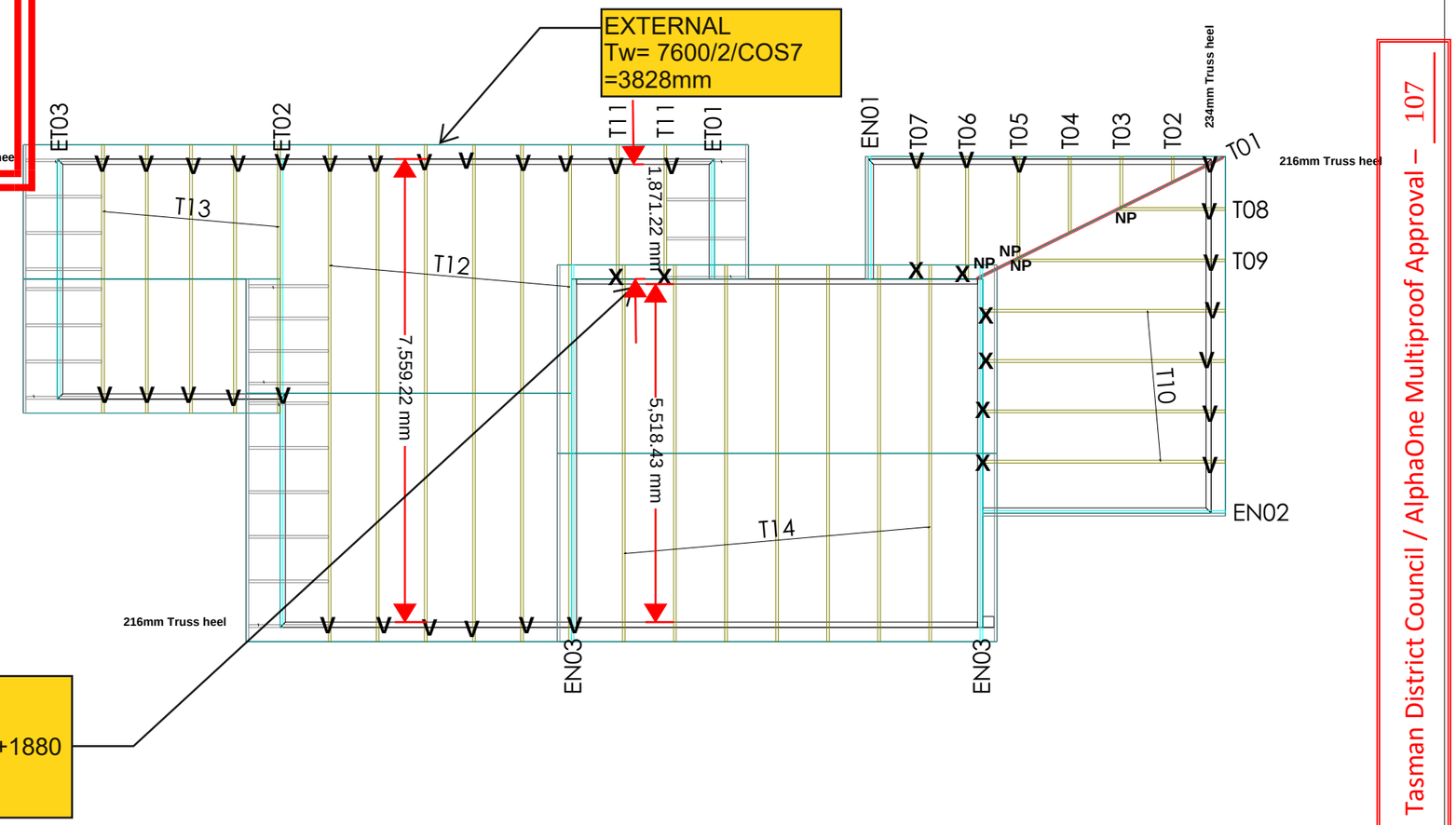
Job Title : P9456
Sheet : 3
Revision Number :

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

**ALSO SUPPLY:**

**14 L\H Z NAILS**
**14 R\H Z NAILS**
**3 PKTS NAILS**
**8 90x47mm JOIST HANGERS**
**34 CPC40**
**4 320mm NAILON PLATES**

**BASED ON PLANS 12/07/2021 pg 1-9**



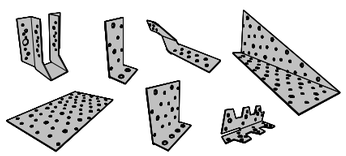

## LUMBERLOK® TRUSS FIXINGS

D - Pair of Wire Dogs and 2 x 90mm 3.15mm skew nails
X - LUMBERLOK JH47x90 Joist Hanger
Z - LUMBERLOK JH47x120 Joist Hanger
P - LUMBERLOK JH47x190 Joist Hanger
E - LUMBERLOK JH95x165 Joist Hanger
T - LUMBERLOK CT200 Ceiling Tie
O - Pair of LUMBERLOK CT200 Ceiling Ties
H - LUMBERLOK CT400 Cyclone Tie
B - LUMBERLOK CT600 Cyclone Tie
4 - LUMBERLOK Multi Grip
M - Pair of LUMBERLOK Multi Grips
NP - LUMBERLOK Nailon Plate
N - LUMBERLOK N21 Diagonal Cleat
V - LUMBERLOK CPC40 Cleat
W - Pair of LUMBERLOK CPC40 Cleats
K - LUMBERLOK TTP 16kN Truss to Top Plate set
G - LUMBERLOK TTP 9kN Truss to Top Plate set

**Joist Hanger** Installation

**CT200 Truss to Top Plate Fixing** Installation

**16kN & 9kN Truss to Top Plate Fixing** Installation



**Notes:**
All other areas must have the minimum 2 x 90mm 3.15mm skew nails and 2 x wire dogs for truss to top plate connections
**Refer to:**
LUMBERLOK Timber Connectors Characteristic Loadings Data Brochure 08/2014

Tasman District Council / AlphaOne Multiproof Approval – 107

PrimeCad v4.7.334

Site Address :
Ford
Lot 366 The Meadows
Richmond

Sheet Title :
For Building Consent
Truss Fixings

Date : 19 Jul,2021 | Drawn : Standard
Scale : 1: 100 | System : MiTek 20/20

Job Details:

| | | | |
|---|---|---|---|
| Roof Pitch | : 7.00deg | Truss Centres | : 900mm |
| Roof Material | : Galv Iron .5mm | Roof Live Load | : 0.250kPa |
| Ceiling Material | : Gib Board 13mm | Floor Live Load | : |
| Wind Zone | : High | Wind Speed | : 44m/s |
| Roof Snow Load | : 0.400kPa | Overhang | : 600mm |

Job Title : P9456
Sheet : 4
Revision Number :

BC220131

Tasman District Council - APPROVED DOCUMENTS

23/02/2022

Page 2/67 1401

PRELIMINARY DESIGN - This drawing represents a design concept only. Do not scale off drawing(s).

The Meadows

Love Where You Live

Tasman District Council

DRAFT

BUILDING CONSENT AUTHORITY

## NOTES

### DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

### HOT WATER CYLINDER

HOT WATER CYLINDER SHALL BE 250L ELECTRIC HOT WATER CYLINDER COMPLETE WITH PRESSURE REDUCING & RELIEF VALVES & TEMPERING VALVE 20Ø COPPER SLUDGE PIPE TO DISCHARGE OVER THE NEAREST GULLY TRAP. SECURE WITH SEISMIC RESTRAINTS AS PER ACCEPTABLE SOLUTION G12/AS1 (WATER SUPPLIES) FIGURE 14.

### TIMBER FRAMING

LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS UNLESS OTHERWISE SHOWN. WALL FRAMING IN LOWER OF TWO STOREYS TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

### LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

### WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

### RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE C.A. RATED.

### CEILING INSULATION CLEARANCE

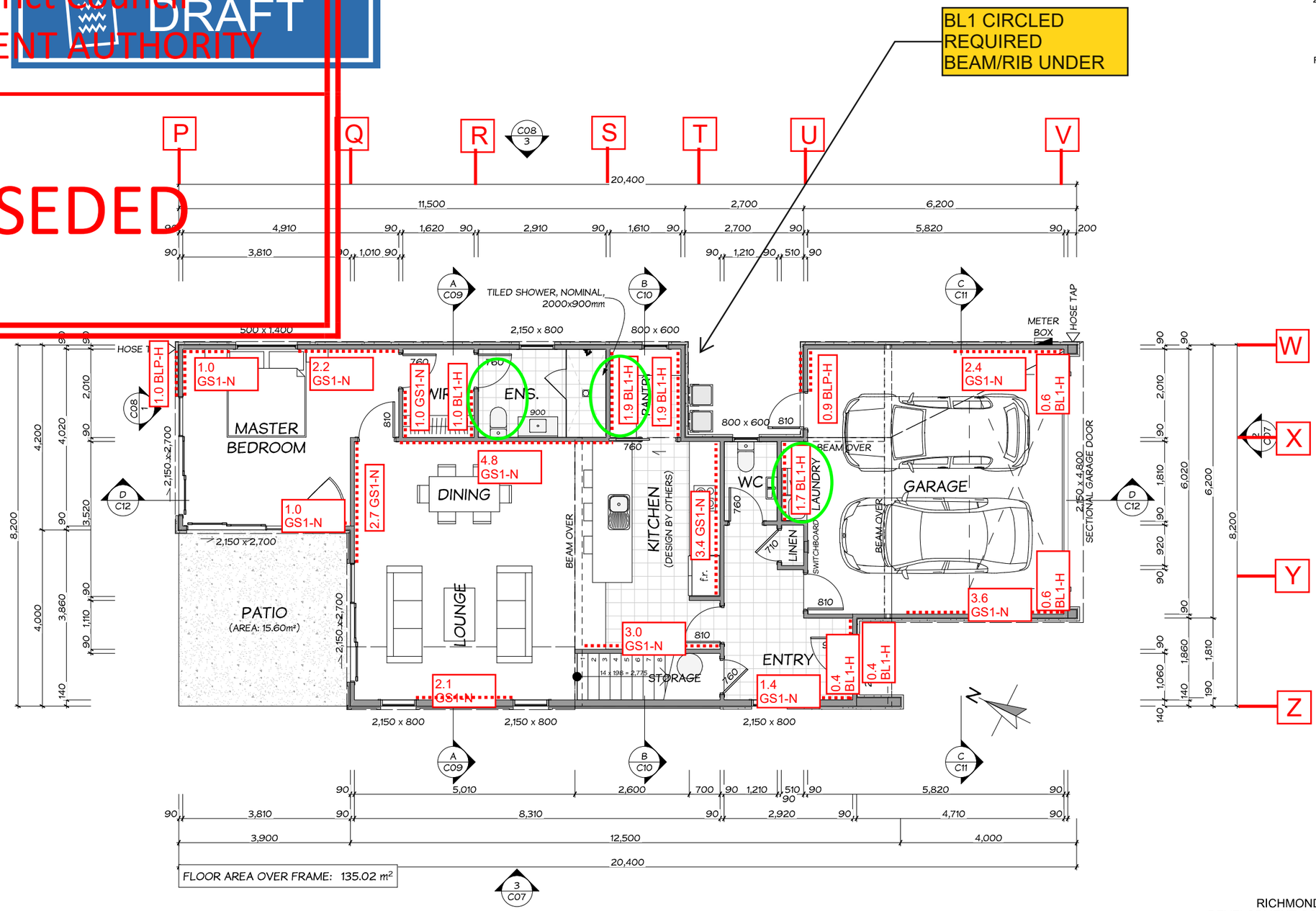
TRUSSED CEILINGS TO BE INSULATED WITH R3.6 BATTS, TRIM BATTS WHERE NECESSARY TO ACHIEVE 25mm AIR GAP AT EAVE/TOP PLATE JUNCTION. REFER TO PINK BATTS ROOF UNDERLAY AND INSULATION CLEARANCE MANUAL FOR FURTHER DETAILS.

POTIUS CEILINGS TO BE COMPLETE WITH 85mm SPRAYFOAM INSULATION TO ACHEIVE R3.6 INSTALLED BY POTIUS.

### FAN VENTILATION

MANROSE SF150 INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL WC, BATHROOM AND ENSUITE. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS.

SUPERSEDED




PRELIMINARY

These drawings are for preliminary discussions only. They are subject to Territorial Authority approvals, engineering, and New Zealand Building Code requirements.

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| | |
|---|---|
| C04 | SHEET : original A3 |
| PRICING | REVISION : |
| 22/09/2020 | DATE : |
| 1:100 | SCALE : |
| JR | DRAWN : |
| REVISIONS | DATE |

Job No. 20196

RICHMOND WEST DEVELOPMENT COMPANY — CLIENT :

STAGE 6 TOWNHOUSES — PROJECT :

STAGE 6 - THE MEADOWS, RICHMOND — LOCATION :

GROUND FLOOR PLAN — DRAWING :

PREMIER SERVICES
Architectural Design Plus

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

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Tasman District Council
BUILDING CONSENT AUTHORITY

PREMIER SERVICES
Architectural Design Plus

SUPERSEDED

# BUILDING CONSENT DRAWINGS

## KAHIKATEA TOWNHOUSE FOR LSK BUILDERS 2011 LTD.
## AT 12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND

| Sheet Index | | |
|---|---|---|
| **Layout ID** | **Layout Name** | Transmittal Set ID |
| 00 | COVER SHEET | A |
| A01 | DRAINAGE PLAN | A |
| A02 | PLUMBING ISOMETRIC | A |
| A03 | SLAB PLAN | A |
| A04 | GROUND FLOOR PLAN | A |
| A05 | MID-FLOOR PLAN | A |
| A06 | FIRST FLOOR PLAN | A |
| A07 | BRACING PLANS | A |
| A08 | ROOF PLAN | A |
| A09 | ELEVATIONS | A |
| A10 | ELEVATIONS | A |
| A11 | CROSS SECTION A-A | A |
| A12 | CROSS SECTION B-B | A |
| A13 | CROSS SECTION C-C | A |
| A14 | CROSS SECTION D-D | A |
| A15 | DETAILS | A |
| A16 | DETAILS | A |
| A17 | DETAILS | A |
| A18 | DETAILS | A |
| A19 | DETAILS | A |
| A20 | DETAILS | A |
| A21 | DETAILS | A |
| A22 | JUNCTION DETAILS | A |
| A23 | JUNCTION DETAILS | A |
| A24 | JUNCTION DETAILS | A |
| A25 | OPENING DETAILS | A |
| A26 | OPENING DETAILS | A |
| A27 | OPENING DETAILS | A |
| A28 | SHOWER DETAILS | A |
| A29 | SHOWER DETAILS | A |
| A30 | BATH DETAILS | A |
| A31 | FIXTURE LAYOUT PLAN | A |

### GENERAL NOTES

**DIMENSIONS NOTED ON THESE DRAWINGS ARE FROM STRUCTURAL SURFACES UNLESS OTHERWISE INDICATED. ALL DIMENSIONS ARE GIVEN IN MILLIMETERS.**

The Contractor is responsible for the correct setting out of the building on site. Boundary pegs are to be located, and setting out points are to be verified on site against information provided prior. All levels/dimensions are to be confirmed onsite before commencing any work and any discrepancies are to be brought to the attention of the Premier Services Limited.

Where available, Engineering drawings are to be read in conjunction with this documentation, any discrepancies to be reported to Premier Services Limited.

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PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

Job No. 21106-21110

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022
Page 272 of 401

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

## NOTES

### DOWNPIPE CALCULATIONS

65m² MAXIMUM ROOF PLAN AREA PER 80Ø DOWNPIPE TO COMPLY WITH THE NEW ZEALAND BUILDING CODE ACCEPTABLE SOLUTION E1/AS1 (SURFACE WATER) FOR 0-25° ROOF PITCH

CONTRIBUTORY HOUSE PLAN ROOF AREA: 230.17m². MIN. NUMBER OF DOWNPIPES REQUIRED: "3". ACTUAL NUMBER OF DOWNPIPES USED "4"

### HOT WATER CYLINDER

HOT WATER CYLINDER SHALL BE 250L ELECTRIC HOT WATER CYLINDER COMPLETE WITH PRESSURE REDUCING & RELIEF VALVES & TEMPERING VALVE 20Ø COPPER SLUDGE PIPE TO DISCHARGE OVER THE NEAREST GULLY TRAP. SECURE WITH SEISMIC RESTRAINTS AS PER ACCEPTABLE SOLUTION G12/AS1 (WATER SUPPLIES) FIGURE 1.

### HOT WATER CYLINDER DISCHARGE PIPES

WC TO HAVE 15mm COLDWATER LINE FEEDING FWG TO SAFETRAY & 15mm COPPER PIPE, CONNECTING TO 20mm COPPER PIPE AND BOTH DISCHARGING TO GT WITH 4 WAY RISER. REFER TO DETAILS FOR FURTHER GUIDANCE.

### STORAGE WATER HEATER PIPE INSULATION

PIPING ASSOCIATED WITH STORAGE WATER HEATER SHALL BE THERMALLY INSULATED TO NZS4305. PROVIDE 25mm OF CLOSED CELL POLYMER (R0.6) INSULATION TO THE VENT PIPE FOR 300mm ABOVE THE STANDING WATER LEVEL AND THE FIRST 2m OF THE DISTRIBUTION PIPE.

### SAFE TRAYS

FREE WATER FROM ACCIDENTAL OVERFLOW FROM SANITARY FIXTURES OR SANITARY APPLIANCES MUST BE DISPOSED OF IN A WAY THAT AVOIDS LOSS OF AMENITY OR DAMAGE TO HOUSEHOLD UNITS OR OTHER PROPERTY. AN ACCEPTABLE METHOD OF PREVENTING WATER DAMAGE IS TO LOCATE A SAFE TRAY BELOW THE WATER TANK WITH AN INCORPORATED DRAIN WITH A MINIMUM DIAMETER OF 40mm.

OVERFLOW PIPE TO DISCHARGE ANY OVERFLOW TO A VISIBLE PLACE WITHIN THE SAME PROPERTY THAT DOES NOT CREATE A NUISANCE OR DAMAGE TO BUILDING ELEMENTS.

### WATER SUPPLY

ALL COLD-WATER SUPPLY PIPEWORK SHALL BE MEDIUM/HIGH-DENSITY POLYETHYLENE (MDPE/HDPE), ARRANGED AND FIXED SO THAT ALL JOINTS ARE IN A FULLY 'RELAXED' CONDITION, WITHOUT ANY STRESS OR TENSION.

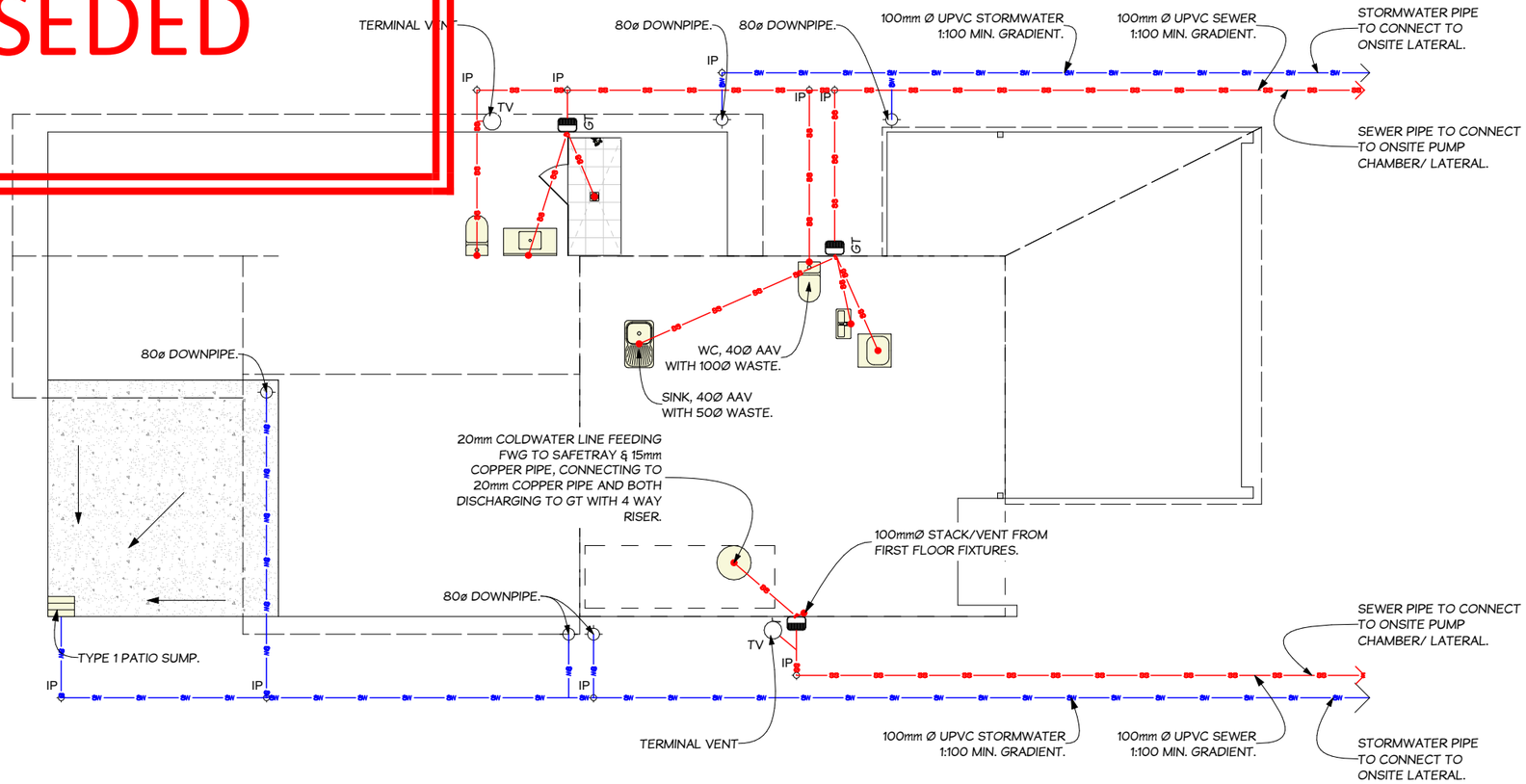
INSTALL CONVENIENTLY LOCATED ISOLATING VALVES TO TURN OFF EACH GROUP OF FITTINGS, AND INSTALL A SMALL ISOLATING VALVE ALONGSIDE EACH TOILET CISTERN NOT INTEGRALLY FITTED WITH ONE.

### FOUL WATER/SANITARY PLUMBING

SANITARY DRAINAGE SYSTEM TO NEW ZEALAND BUILDING CODE CLAUSE G13/AS1 (FOUL WATER)

FIXTURE DISCHARGE PIPE SIZES AND GRADIENT

| SANITARY FIXTURE OR APPLIANCE | DISCHARGE PIPE (mm) | MINIMUM GRADIENT |
|---|---|---|
| Basin/Vanity | 40ø | 1:40 |
| Bathtub | 40ø | 1:40 |
| Shower | 40ø | 1:40 |
| Water Closet Pan | 100ø | 1:40 |
| Kitchen Sink | 50ø | 1:40 |
| Laundry Tub | 50ø | 1:40 |




**PRELIMINARY**

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Tasman District Council / AlphaOne Multiproof Approval – 107

A01
BUILDING CONSENT
9/09/2021
1:100
#Contact Full Name

SHEET : original A3
REVISION :
DATE :
SCALE :
DRAWN :
Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

DRAINAGE PLAN — DRAWING :

PREMIER SERVICES
Architectural Design Plus

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022
Page 273 / 1401

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

FOUL WATER/SANITARY PLUMBING

SANITARY DRAINAGE SYSTEM TO NEW ZEALAND BUILDING CODE CLAUSE G13/AS1 (FOUL WATER)

FIXTURE DISCHARGE PIPE SIZES AND GRADIENT

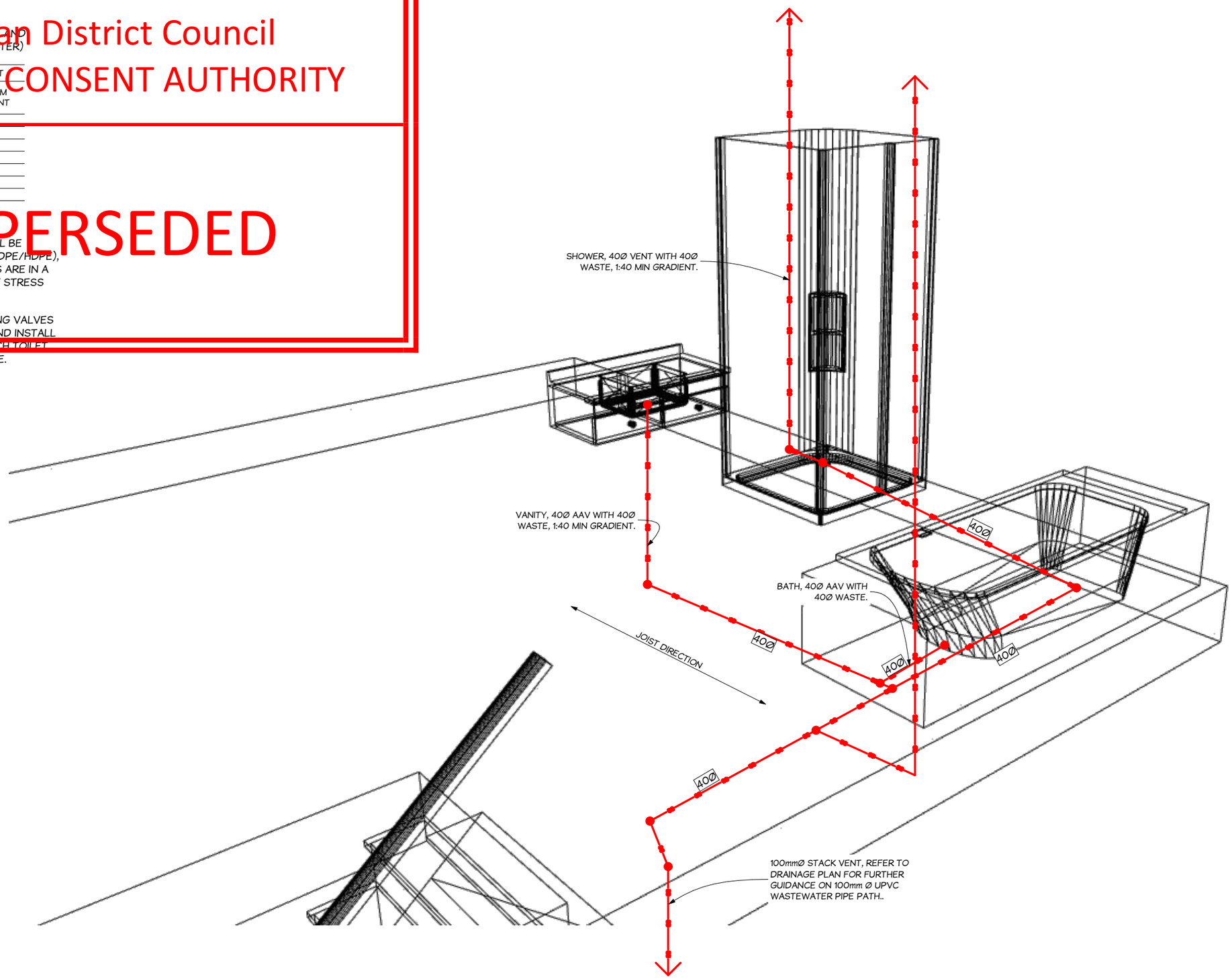
| SANITARY FIXTURE OR APPLIANCE | DISCHARGE PIPE (mm) | MINIMUM GRADIENT |
|---|---|---|
| Basin/Vanity | 40ø | 1:40 |
| Bathtub | 40ø | 1:40 |
| Shower | 40ø | 1:40 |
| Water Closet Pan | 100ø | 1:40 |
| Kitchen Sink | 50ø | 1:40 |
| Laundry Tub | 50ø | 1:40 |

WATER SUPPLY

ALL COLD-WATER SUPPLY PIPEWORK SHALL BE MEDIUM/HIGH-DENSITY POLYETHYLENE (MDPE/HDPE), ARRANGED AND FIXED SO THAT ALL JOINTS ARE IN A FULLY 'RELAXED' CONDITION, WITHOUT ANY STRESS OR TENSION.

INSTALL CONVENIENTLY LOCATED ISOLATING VALVES TO TURN OFF EACH GROUP OF FITTINGS, AND INSTALL A SMALL ISOLATING VALVE ALONGSIDE EACH TOILET CISTERN NOT INTEGRALLY FITTED WITH ONE.

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED




Tasman District Council / AlphaOne Multiproof Approval – 107

A02
BUILDING CONSENT
9/09/2021
1:66.2070
#Contact Full Name

SHEET : original A3
REVISION :
DATE :
SCALE :
DRAWN :
Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

PLUMBING ISOMETRIC — DRAWING :

**PRELIMINARY**

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PREMIER SERVICES
Architectural Design Plus

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BC220131

Tasman District Council - APPROVED DOCUMENTS

23/02/2022



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Tasman District Council

BUILDING CONSENT AUTHORITY

SUPERSEDED

NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

CUPOLEX BUILDING SYSTEM

CUPOLEX FLOOR SLAB REINFORCED WITH FLETCHERS DUCTILE MESH SE62. UNLESS NOTED OTHERWISE PERIMETER FOUNDATION BEAM TO BE 300mm WIDE x 320mm DEEP REINFORCED WITH 2/HD12 TO BOTTOM & 2/HD12 TO UNDERSIDE OF DUCTILE MESH. REFER TO CUPOLEX RIBRAFT FOUNDATION LAYOUT PLAN FOR FURTHER GUIDANCE.

(A) WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.

(B) TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE PODS SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 60mm THICK TOPPING FOR THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENTS.

(C) CONCRETE TO BE 25MPa AT 28 DAYS.

(D) SLAB REINFORCING TO BE SE62 WITH MIN LAPS OF 225mm.

(E) LOAD BEARING PADS TO BE REINFORCED WITH HD12's @ 200mm CRS EACH WAY TOP & BOTTOM.

(F) ALL SAWCUTS TO BE AS PER NZS3604:2011 SECTION 7.

STEEL REINGFORCING COVER

FLOOR SLAB REINFORCING SHALL EXTEND TO A MINIMUM EXTERNAL COVER OF:

(A) AGAINST GROUND 75mm
(B) AGAINST FORMWORK 50mm
(C) TOP COVER TO MESH 30mm

STEEL REINFORCING MESH SHALL HAVE A COVER OF 30mm MINIMUM FROM THE TOP SURFACE OF THE GROUND SLAB AND SHALL BE PLACED IN SUCH A MANNER AS TO AVOID DAMAGE TO THE DPM ON PROPRIETARY CHAIRS. REINFORCING MESH SHALL COMPLY WITH NZS 3422.

KITCHEN DESIGN

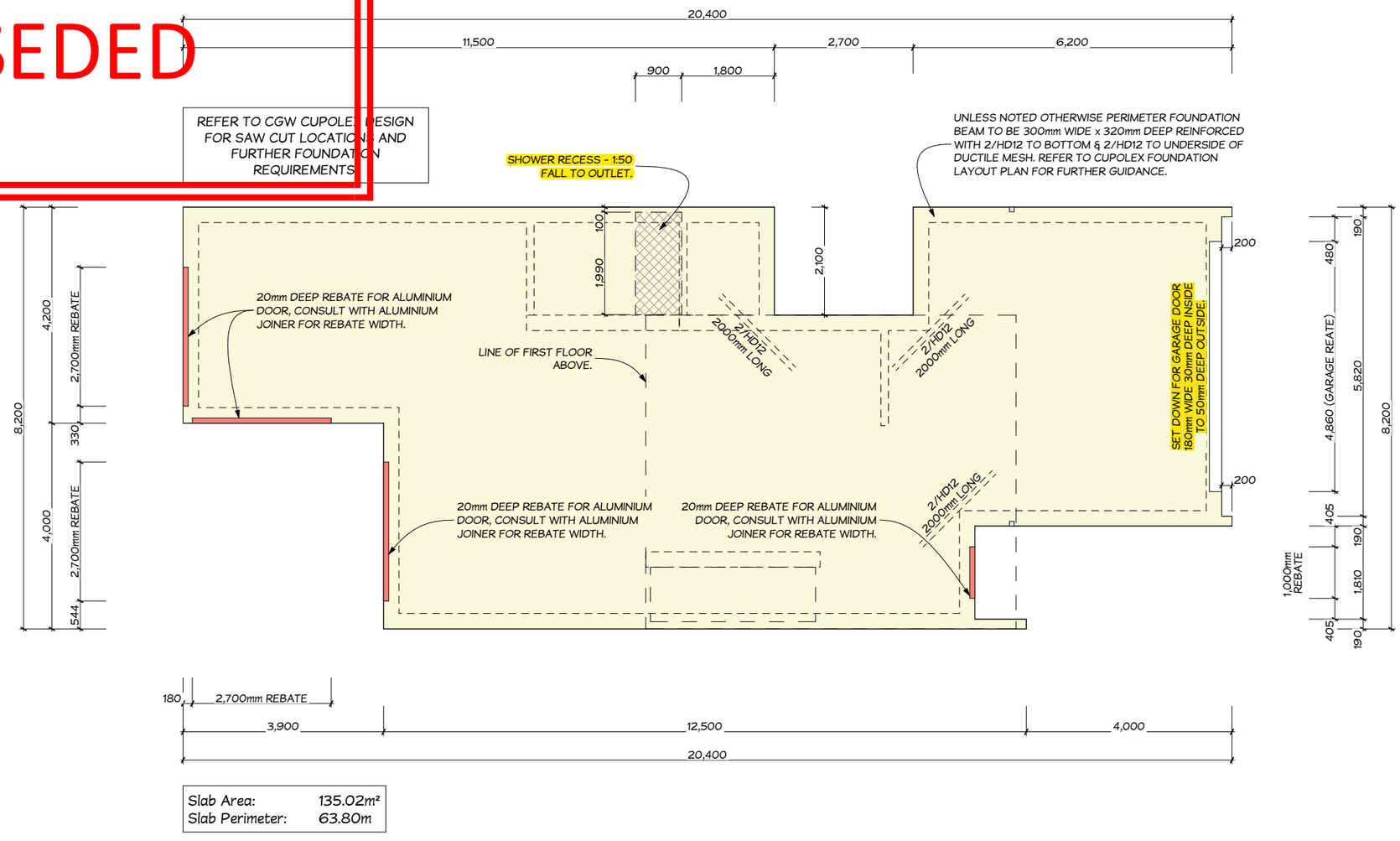
KITCHEN DESIGN SHALL BE IN ACCORDANCE WITH SEPARATE KITCHEN PLANS. CONFIRM POSITION OF WASTE PIPES PRIOR TO POURING THE FLOOR SLAB.

ALUMINIOUM DOOR REBATES

ALLOW FOR 20mm DEEP REBATE FOR EXTERNAL ALUMINIUM DOOR. DEPTHS OF REBATES TO BE AS FOLLOWS:

(A) SINGLE SLIDER – 45mm WIDE
(B) DOUBLE/STACKER SLIDER - 70mm WIDE
(C) DOUBLE/STACKER SLIDER (BRICK VENEER) – 90mm WIDE

CONFIRM ONSITE WITH ALUMINIUM JOINER PRIOR TO POURING FLOOR SLAB.




| | |
|---|---|
| Slab Area: | 135.02m² |
| Slab Perimeter: | 63.80m |

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|---|---|
| A03 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 9/09/2021 | DATE : |
| 1:100 | SCALE : |
| #Contact Full Name | DRAWN : |

Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

Tasman District Council / AlphaOne Multiproof Approval – 107

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

SLAB PLAN — DRAWING :

PREMIER SERVICES
Architectural Design Plus

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Tasman District Council - APPROVED DOCUMENTS
23/02/2022
Page 275 / 1401

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Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE C.A. RATED.

CEILING INSULATION CLEARANCE

R3.6 BATTS TO ENTIRE CEILING OF INSULATED ENVELOPE, TRIM BATTS WHERE NECESSARY TO ACHIEVE 25mm AIR GAP AT EAVE/TOP PLATE JUNCTION. REFER TO PINK BATTS ROOF UNDERLAY AND INSULATION CLEARANCE MANUAL FOR FURTHER DETAILS.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICE 12078412.9

PUMP CHAMBER CONTROL PANEL

POWER SUPPLY AND CONTROL PANEL FOR SEWER PRESSURIZED PUMP TO BE LOCATED ON EXTERIOR WALL ON DWELLING ADJACENT TO GARAGE.

## LEGEND

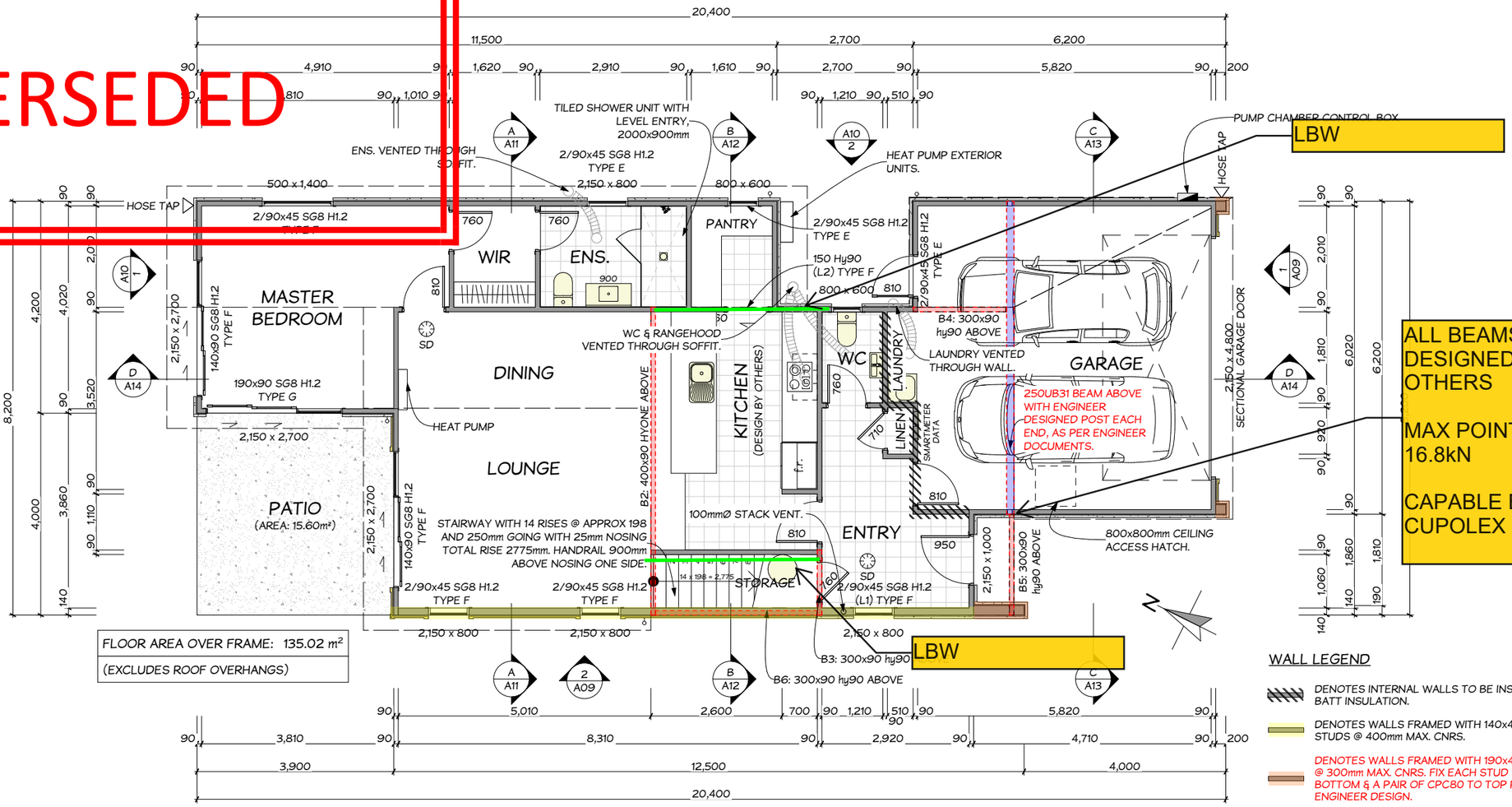
SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE C — LINTEL FIXING TYPE
190x90 — LINTEL SIZE
2125x1800 — OPENING SIZE (H x W)

Tasman District Council / AlphaOne Multiproof Approval – 107

PRELIMINARY
These drawings are for preliminary discussions only. They are subject to Territorial Authority approvals, engineering, and compliance with Building Code requirements.

TOWNHOUSE AS CONSENTED BY SH180022V2
APPROVED PLANS (APPENDIX A)




ALL BEAMS ARE DESIGNED BY OTHERS

MAX POINT LOAD 16.8kN

CAPABLE BY CUPOLEX

WALL LEGEND

DENOTES INTERNAL WALLS TO BE INSULATED WITH R2.6 BATT INSULATION.

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

A04
BUILDING CONSENT
9/09/2021
1:100
#Contact Full Name

SHEET : original A3
REVISION :
DATE :
SCALE :
DRAWN :
Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

GROUND FLOOR PLAN — DRAWING :

PREMIER SERVICES
Architectural Design Plus

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BC220131

Tasman District Council - APPROVED DOCUMENTS

23/02/2022



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NOTES

DIMENSIONS

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STRANDBOARD FLOORING

20mm STRANDBOARD FLOORING TO BE FIXED WITH 10G x 45mm STAINLESS STEEL SCREWS. PROTECT FRAMING FROM EXCESSIVE MOISTURE AND GROUND CONTACT WITH MOISTURE LEVELS BETWEEN 12% TO 16% MAXIMUM. FIXINGS AT STANDARD FIXING PATTERN 150mm CRS AT SHEET EDGES AND WITHIN THE PANEL AT NO MORE THAN 300mm CRS.

BLOCKING TO JOISTS

PROVIDE PARTIAL BLOCKING TO JOISTS AS NECESSARY.

FIXTURE DRAINAGE

REFER TO GROUND FLOOR DRAINAGE PLAN & PLUMBING ISOMETRIC FOR FURTHER DETAILS.

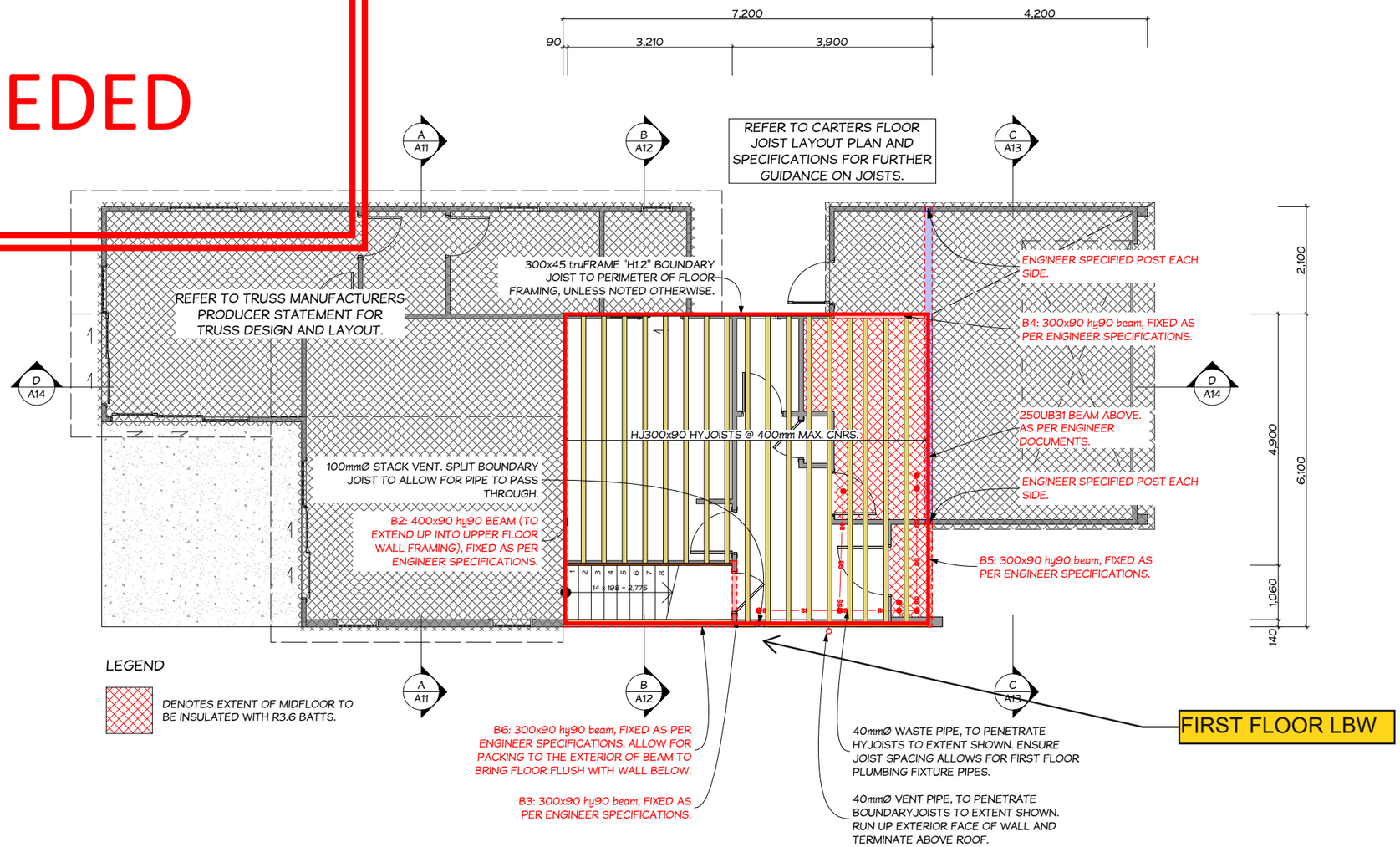
STRUCTURAL ENGINEER

SAM LYONS
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

INSPECTIONS
RON O'HARA
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED




Tasman District Council / AlphaOne Multiproof Approval – 107

A05 | SHEET : original A3
BUILDING CONSENT | REVISION :
9/09/2021 | DATE :
1:100 | SCALE :
#Contact Full Name | DRAWN :
Job No. 21106-21110

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|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. | CLIENT :

KAHIKATEA TOWNHOUSE | PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND | LOCATION :

MID-FLOOR PLAN | DRAWING :

**PRELIMINARY**

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PREMIER SERVICES
Architectural Design Plus

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23/02/2022



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## NOTES

Tasman District Council

BUILDING CONSENT AUTHORITY

SUPERSEDED

DIMENSIONS

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TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE C.A. RATED.

CEILING INSULATION CLEARANCE

R3.6 BATTS TO ENTIRE CEILING OF INSULATED ENVELOPE, TRIM BATTS WHERE NECESSARY TO ACHIEVE 25mm AIR GAP AT EAVE/TOP PLATE JUNCTION. REFER TO PINK BATTS ROOF UNDERLAY AND INSULATION CLEARANCE MANUAL FOR FURTHER DETAILS.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICE 12078412.9

## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE C = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2125x1800 = OPENING SIZE (H x W)

**PRELIMINARY**

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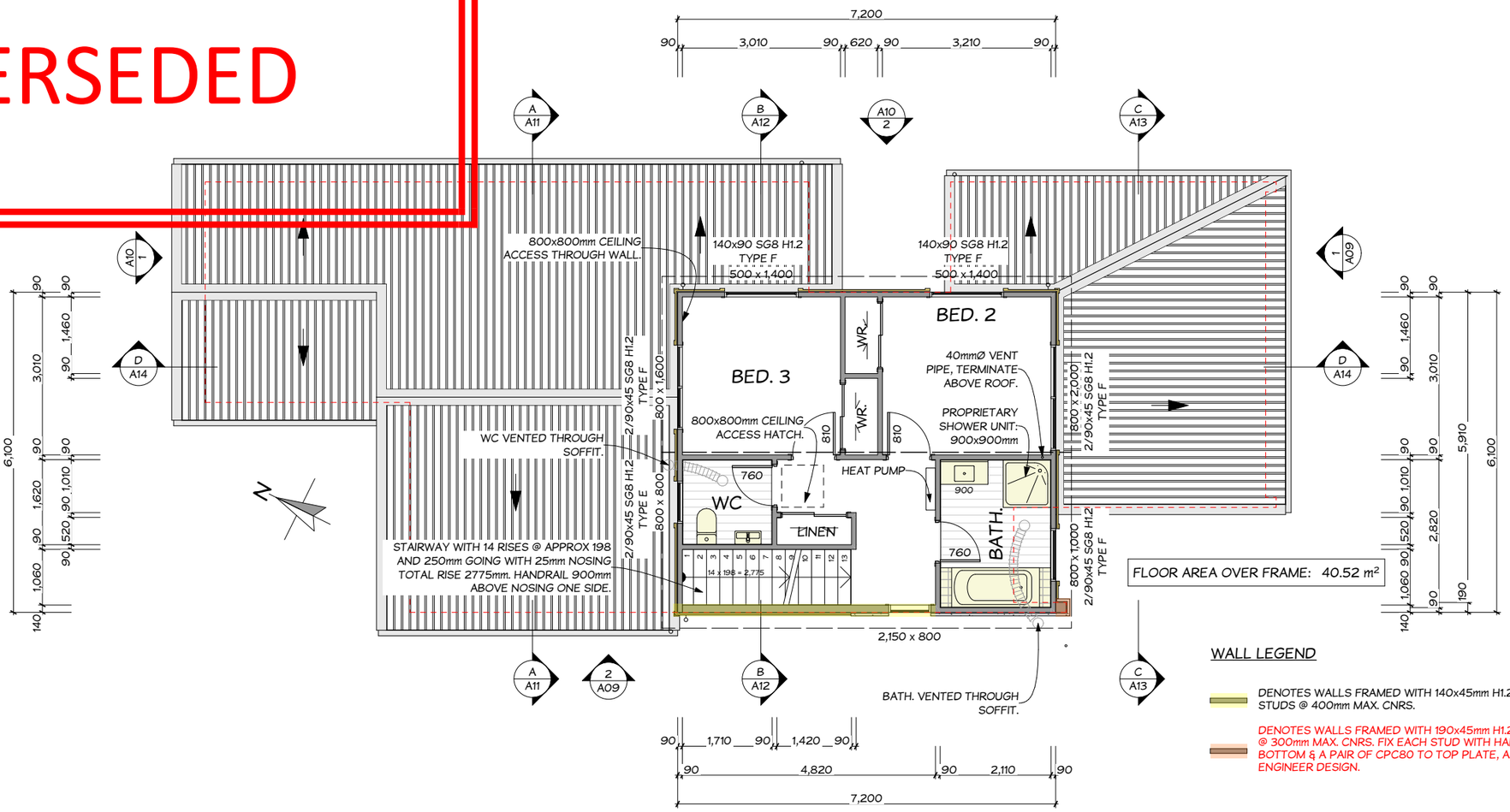
TOWNHOUSE AS CONSENTED BY SH180022V2 APPROVED PLANS (APPENDIX A)




WALL LEGEND

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| SHEET : original A3 | A06 |
| REVISION : | BUILDING CONSENT |
| DATE : | 9/09/2021 |
| SCALE : | 1:100 |
| DRAWN : | #Contact Full Name |

Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | Work in Progress | |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

| | |
|---|---|
| CLIENT : | LSK BUILDERS 2011 LTD. |
| PROJECT : | KAHIKATEA TOWNHOUSE |
| LOCATION : | 12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND |
| DRAWING : | FIRST FLOOR PLAN |

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Architectural Design Plus

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Tasman District Council - APPROVED DOCUMENTS

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Tasman District Council

BUILDING CONSENT AUTHORITY

SUPERSEDED

NOTES

DIMENSIONS

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BRACING NOTES

BRACED PANELS SHALL BE CONSTRUCTED TO COMPLY WITH RELEVANT "BRANZ" APPRAISAL CERTIFICATES. GIB EZYBRACE SYSTEMS 2016 HAVE BEEN APPRAISED BY THE BUILDING RESEARCH ASSOCIATION OF NEW ZEALAND (BRANZ), APPRAISAL NO. 928 (2016) GIB EZYBRACE®SYSTEMS, 2016. IT IS OF PRIME IMPORTANCE TO COMPLY WITH THE DETAILS OF DESIGN, CONSTRUCTION AND WORKMANSHIP IN THE EZYBRACE SYSTEMS SPECIFICATION AND INSTALLATION MANUAL.

STRUCTURAL ENGINEER

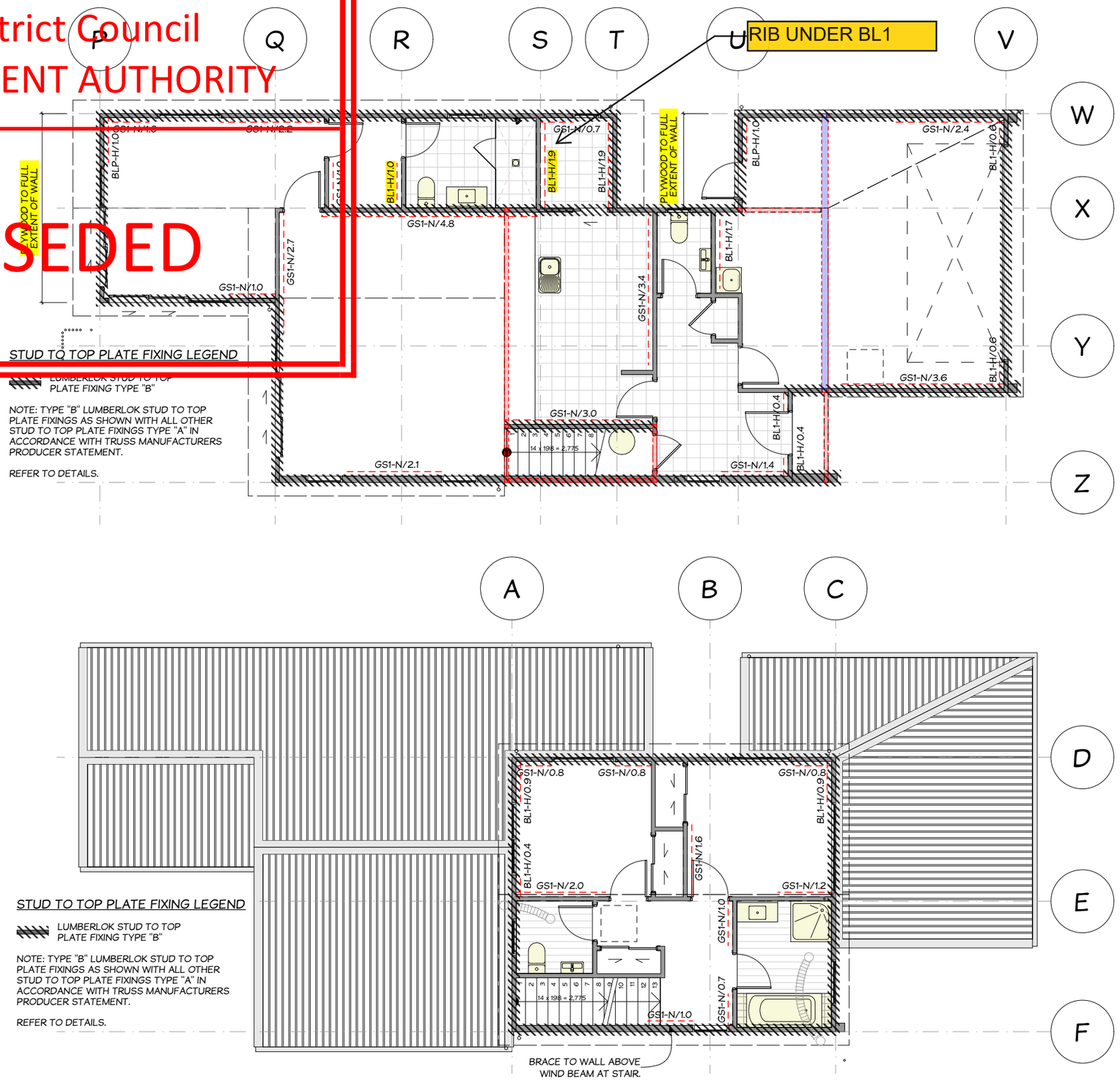
SAM YONG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

INSPECTIONS
RON O'HARA
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.

**ENGINEER DESIGN**

BRACING COVERED BY ENGINEER PS1, REFER TO ENGINEER DOCUMENTS FOR FURTHER GUIDANCE ON BRACING SPECIFICATIONS.




STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS AS SHOWN WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

REFER TO DETAILS.

STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS AS SHOWN WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

REFER TO DETAILS.

**PRELIMINARY**

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Tasman District Council / AlphaOne Multiproof Approval – 107

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| A07 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 9/09/2021 | DATE : |
| 1:100 | SCALE : |
| #Contact Full Name | DRAWN : |

Job No. 21106-21110

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LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

BRACING PLANS — DRAWING :

PREMIER SERVICES
Architectural Design Plus

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Tasman District Council - APPROVED DOCUMENTS
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Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

ROOF CLADDING

HIGH WIND ZONE - 0.4mm BMT "6-RIB COLORSTEEL" ROOFING FIXED OVER SELF SUPPORTING ROOF UNDERLAY OVER CYCLONE GALV. WIRE NETTING (WIRE NETTING ON ROOFS THAT HAVE LESS THAN 10°) TO 70x45mm "H1.2" SG8 PURLINS @ 900mm MAX. CRS (600mm CRS TO RIDGE & GUTTER). PURLINS CONNECTED TO TRUSSES/RAFTERS WITH 1/14g SELF DRILLING SCREW 80mm MINIMUM LONG. (2.4kN FIXING CAPACITY) WITH "T1" FIXING PATTERN AS SPEC NZBC E2/AS1 TABLE 14 (T1 FIXING PATTERN IS - IN EVERY CREST...).

DOWNPIPE CALCULATIONS

25m² MAXIMUM ROOF PLAN AREA PER 80Ø DOWNPIPE TO COMPLY WITH THE NEW ZEALAND BUILDING CODE ACCEPTABLE SOLUTION E1/AS1 (SURFACE WATER) FOR 10-25° ROOF PITCH

CONTRIBUTORY FIRST FLOOR AREA A+B: 47.72m². MIN. NUMBER OF DOWNPIPES REQUIRED: "1". ACTUAL NUMBER OF DOWNPIPES USED "1"

CONTRIBUTORY FIRST FLOOR AREA C+D: 57.35m². MIN. NUMBER OF DOWNPIPES REQUIRED: "1". ACTUAL NUMBER OF DOWNPIPES USED "1"

CONTRIBUTORY GROUND FLOOR AREA E: 11.45m². MIN. NUMBER OF DOWNPIPES REQUIRED: "1". ACTUAL NUMBER OF DOWNPIPES USED "1"

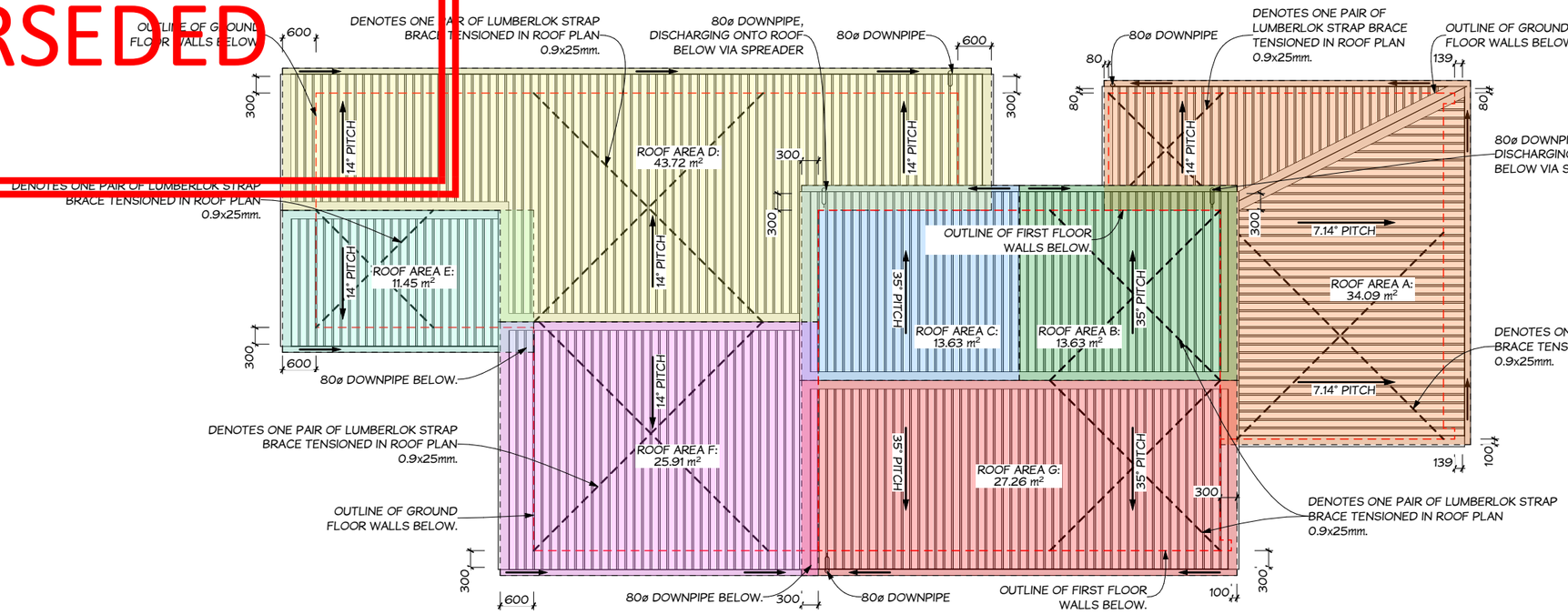
CONTRIBUTORY GROUND FLOOR AREA F: 25.91m². MIN. NUMBER OF DOWNPIPES REQUIRED: "1". ACTUAL NUMBER OF DOWNPIPES USED "1"

CONTRIBUTORY GROUND FLOOR AREA G: 27.26m². MIN. NUMBER OF DOWNPIPES REQUIRED: "1". ACTUAL NUMBER OF DOWNPIPES USED "1"

ROOF BRACING

ALL GABLE ROOFS SHALL HAVE 1 PAIR OF DIAGONALLY OPPOSED 25 x 0.6mm GALVANISED MILD STEEL STRAPS WITH 8kN TENSIONER FOR EVERY 50m² - REFER TO SPECIFICATION FOR DETAILS.

FOR ROOF PITCHES LESS THAN 10° ROOFING UNDERLAY TO BE SUPPORTED OVER CYCLONE GALV. WIRE NETTING




**PRELIMINARY**

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Tasman District Council / AlphaOne Multiproof Approval – 107

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| A08 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 9/09/2021 | DATE : |
| 1:100 | SCALE : |
| #Contact Full Name | DRAWN : |

Job No. 21106-21110

| Rev ID | Rev Name | Change Note | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

ROOF PLAN — DRAWING :

PREMIER SERVICES
Architectural Design Plus

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Tasman District Council - APPROVED DOCUMENTS

23/02/2022

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All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

NOTES

POWDER COATED ALUMINIUM JOINERY

ALL POWDER COATED ALUMINIUM JOINERY UNITS TO BE DOUBLE GLAZED WITH THE EXCEPTION OF THE GARAGE. ALL GLAZING SHALL COMPLY WITH NZS4223. ALL SIZES GIVEN FOR WINDOWS AND DOORS ARE ROUGH OPENING SIZES ONLY. CONTRACTOR TO COMFIRM ALL OPENING SIZES WITH JOINERY MANUFACTURER PRIOR TO FABRICATION.

O DENOTES OBSCURE GLAZED JOINERY.
SG DENOTES GRADE "A" SAFETY GLAZING.

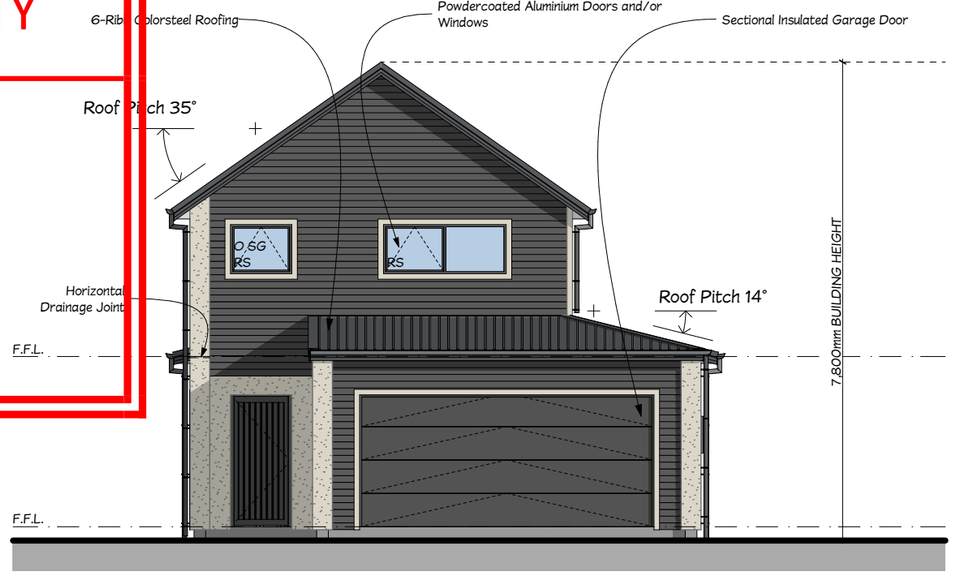
ANY SILL HEIGHTS ARE MEASURED FROM FINISHED FLOOR LEVEL. ALL WINDOWS TO BE FINISHED AT SOFFIT LEVEL UNLESS OTHERWISE SHOWN.

BARRIERS TO AIRFLOW

WHERE WALLS ARE NOT LINED, SUCH AS ATTIC SPACES AT GABLE ENDS AND UNLINED GARAGE SPACESMARSHALL INNOVATIONS "TEKTON BUILDING WRAP" (BRANZ APPRAISAL NO.548). OR A RIGID SHEATHING COMPLYING WITH NZBC ACCEPTABLE SOLUTION E2/AS1, TABLE 23 MUST BE FIXED TO FRAMING PRIOR TO FIXING CLADDING OR CAVITY BATTENS.

IN THE ABSENCE OF INTERNAL LININGS, AN AIR BARRIER IS REQUIRED TO SUPPORT WIND PRESSURES AT SUCH LOCATIONS - ACCEPTABLE SOLUTION E2/AS1 9.1.4. (BARRIERS TO AIRFLOW).

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED




1 Southern Elevation 1:100

2 Western Elevation 1:100

| BUILDING ENVELOPE RISK MATRIX | | |
|---|---|---|
| All Faces (House) | | |
| Risk Factor | Risk Severity | Risk Score |
| Wind zone (per NZS 3604) | High risk | 1 |
| Number of storeys | High risk | 2 |
| Roof/wall intersection design | Very high risk | 5 |
| Eaves width | High risk | 2 |
| Envelope complexity | Medium risk | 1 |
| Deck design | Low risk | 0 |
| Total Risk Score: | | 11 |

TOWNHOUSE AS CONSENTED BY SH180022V2 APPROVED PLANS (APPENDIX A)

ROOF- EBONY
PLASTER- RESENE CARARRA
FEATURE CLADDING – T.B.C.
WINDOW JOINERY – MATT BLACK
DOOR – MATT BLACK
GARAGE DOOR – PITCH BLACK

Tasman District Council / AlphaOne Multiproof Approval – 107

A09
BUILDING CONSENT
9/09/2021
1:100
#Contact Full Name

SHEET : original A3
REVISION :
DATE :
SCALE :
DRAWN :
Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

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LSK BUILDERS 2011 LTD. CLIENT :

KAHIKATEA TOWNHOUSE PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :

ELEVATIONS DRAWING :

PRELIMINARY

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PREMIER SERVICES
Architectural Design Plus

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BC220131

Tasman District Council - APPROVED DOCUMENTS

23/02/2022

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All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

NOTES

POWDER COATED ALUMINIUM JOINERY

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SG DENOTES GRADE "A" SAFETY GLAZING.

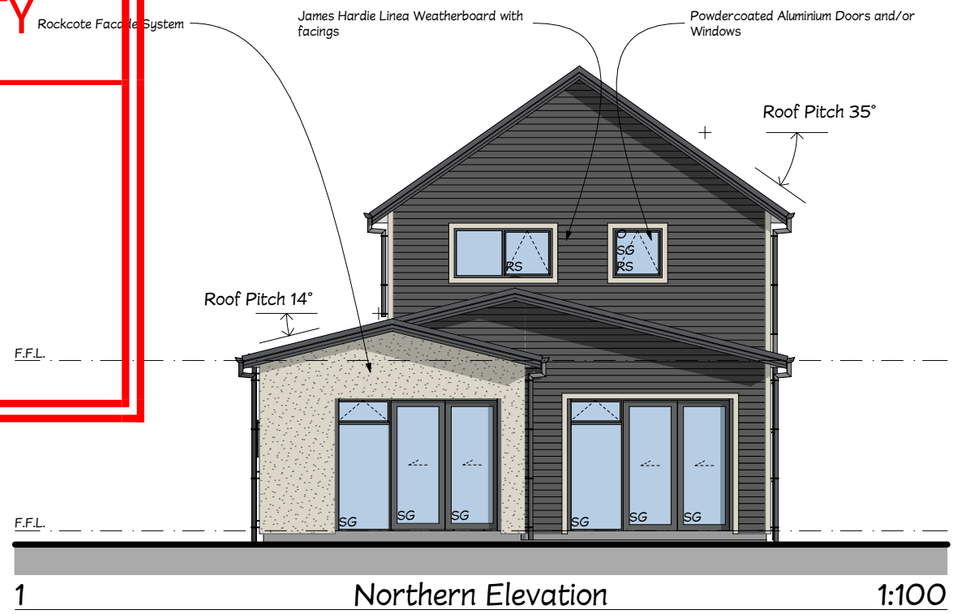
ANY SILL HEIGHTS ARE MEASURED FROM FINISHED FLOOR LEVEL. ALL WINDOWS TO BE FINISHED AT SOFFIT LEVEL UNLESS OTHERWISE SHOWN.

BARRIERS TO AIRFLOW

WHERE WALLS ARE NOT LINED, SUCH AS ATTIC SPACES AT GABLE ENDS AND UNLINED GARAGE SPACESMARSHALL INNOVATIONS "TEKTON BUILDING WRAP" (BRANZ APPRAISAL NO.548), OR A RIGID SHEATHING COMPLYING WITH NZBC ACCEPTABLE SOLUTION E2/AS1, TABLE 23 MUST BE FIXED TO FRAMING PRIOR TO FIXING CLADDING OR CAVITY BATTENS.

IN THE ABSENCE OF INTERNAL LININGS, AN AIR BARRIER IS REQUIRED TO SUPPORT WIND PRESSURES AT SUCH LOCATIONS - ACCEPTABLE SOLUTION E2/AS1 9.1.4. (BARRIERS TO AIRFLOW).

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED




1 Northern Elevation 1:100

2 Eastern Elevation 1:100

| BUILDING ENVELOPE RISK MATRIX | | |
|---|---|---|
| All Faces (House) | | |
| Risk Factor | Risk Severity | Risk Score |
| Wind zone (per NZS 3604) | High risk | 1 |
| Number of storeys | High risk | 2 |
| Roof/wall intersection design | Very high risk | 5 |
| Eaves width | High risk | 2 |
| Envelope complexity | Medium risk | 1 |
| Deck design | Low risk | 0 |
| Total Risk Score: | | 11 |

TOWNHOUSE AS CONSENTED BY SH180022V2
APPROVED PLANS (APPENDIX A)

ROOF- EBONY
PLASTER- RESENE CARARRA
FEATURE CLADDING – T.B.C.
WINDOW JOINERY – MATT BLACK
DOOR – MATT BLACK
GARAGE DOOR – PITCH BLACK

Tasman District Council / AlphaOne Multiproof Approval – 107

A10
BUILDING CONSENT
9/09/2021
1:100
#Contact Full Name

SHEET : original A3
REVISION : 21106-21110
DATE :
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Job No.

| RevID | Rev. Name | Change Name | Date |
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| A - WIP | Building Consent | | Work in Progress |

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LSK BUILDERS 2011 LTD. CLIENT :

KAHIKATEA TOWNHOUSE PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :

ELEVATIONS DRAWING :

PRELIMINARY

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Tasman District Council - APPROVED DOCUMENTS

23/02/2022

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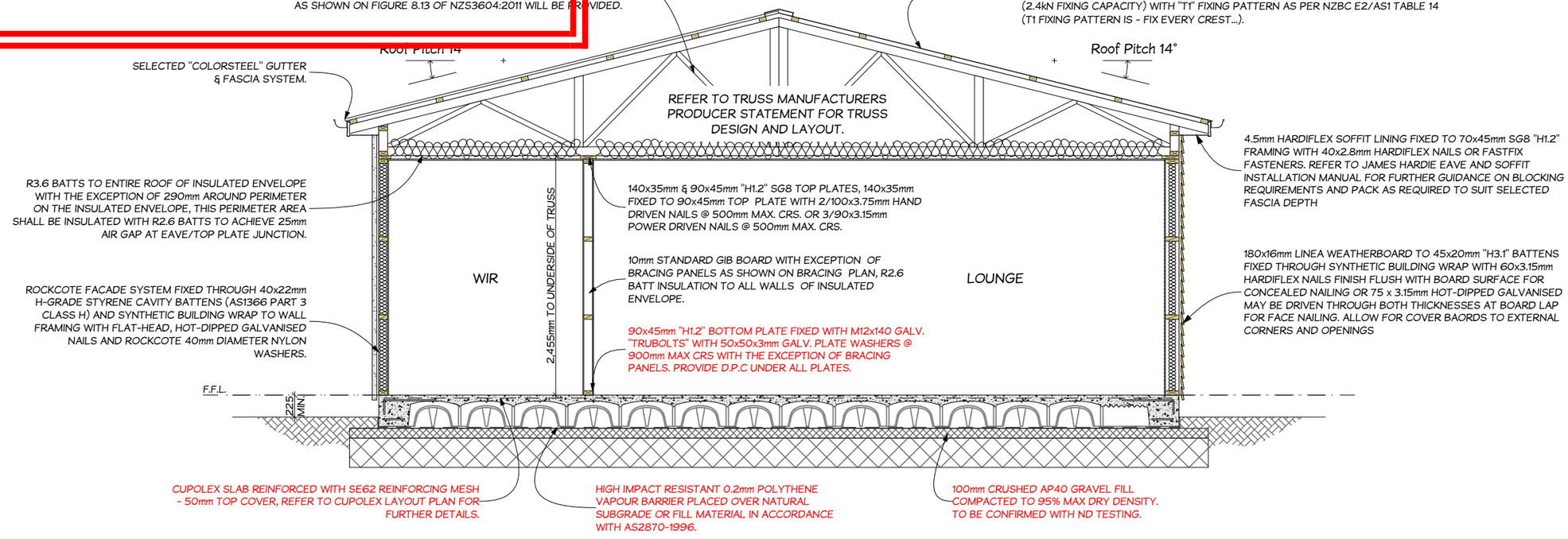
All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

Tasman District Council
BUILDING CONSENT AUTHORITY

SUPERSEDED




## NOTES

STEEL REINFORCING COVER

FLOOR SLAB REINFORCING SHALL EXTEND TO A MINIMUM EXTERNAL COVER OF:

(A) AGAINST GROUND 75mm
(B) AGAINST FORMWORK 50mm
(C) TOP COVER TO MESH 30mm

STEEL REINFORCING MESH SHALL HAVE A COVER OF 30mm MINIMUM FROM THE TOP SURFACE OF THE GROUND SLAB AND SHALL BE PLACED IN SUCH A MANNER AS TO AVOID DAMAGE TO THE DPM ON PROPRIETARY CHAIRS. REINFORCING MESH SHALL COMPLY WITH NZS 3422.

BUILDING WRAP

BUILDING WRAP SHALL BE MARSHALL INNOVATIONS "TEKTON BUILDING WRAP" (BRANZ APPRAISAL NO.548). BUILDING WRAP MUST BE INSTALLED HORIZONTALLY AND BE CONTINUOUS AROUND CORNERS. THE WRAP MUST BE LAPPED 75mm MIN. @ AT HORIZONTAL JOINTS AND 150mm MIN. OVER STUDS @ VERTICAL JOINTS. WHERE STUDS ARE AT GREATER THAN 450mm CRS, POLYPROPYLENE STRAP OR ADDITIONAL VERTICAL CAVITY BATTENS MUST BE INSTALLED @ MAXIMUM 300mm CRS TO PREVENT BULK INSULATION BULGING INTO THE CAVITY.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. AREA OF VERTICAL CEDAR DWANGS @ 400mm MAX. CRS.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

NAILPLATE TRUSSES

TRUSS MANUFACTURER SHALL PROVIDE A PRODUCER STATEMENT PRIOR TO FABRICATION.

PRELIMINARY
Not to be used for construction purposes

This drawing is for Territorial Authority approvals, engineering, and New Zealand Building Code requirements.

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Tasman District Council / AlphaOne Multiproof Approval – 107

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| DATE : | 9/09/2021 |
| SCALE : | 1:50 |
| DRAWN : | #Contact Full Name |

Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

CROSS SECTION A-A — DRAWING :

PREMIER SERVICES
Architectural Design Plus

BC220131

Tasman District Council - APPROVED DOCUMENTS

23/02/2022

Page 283 / 1401

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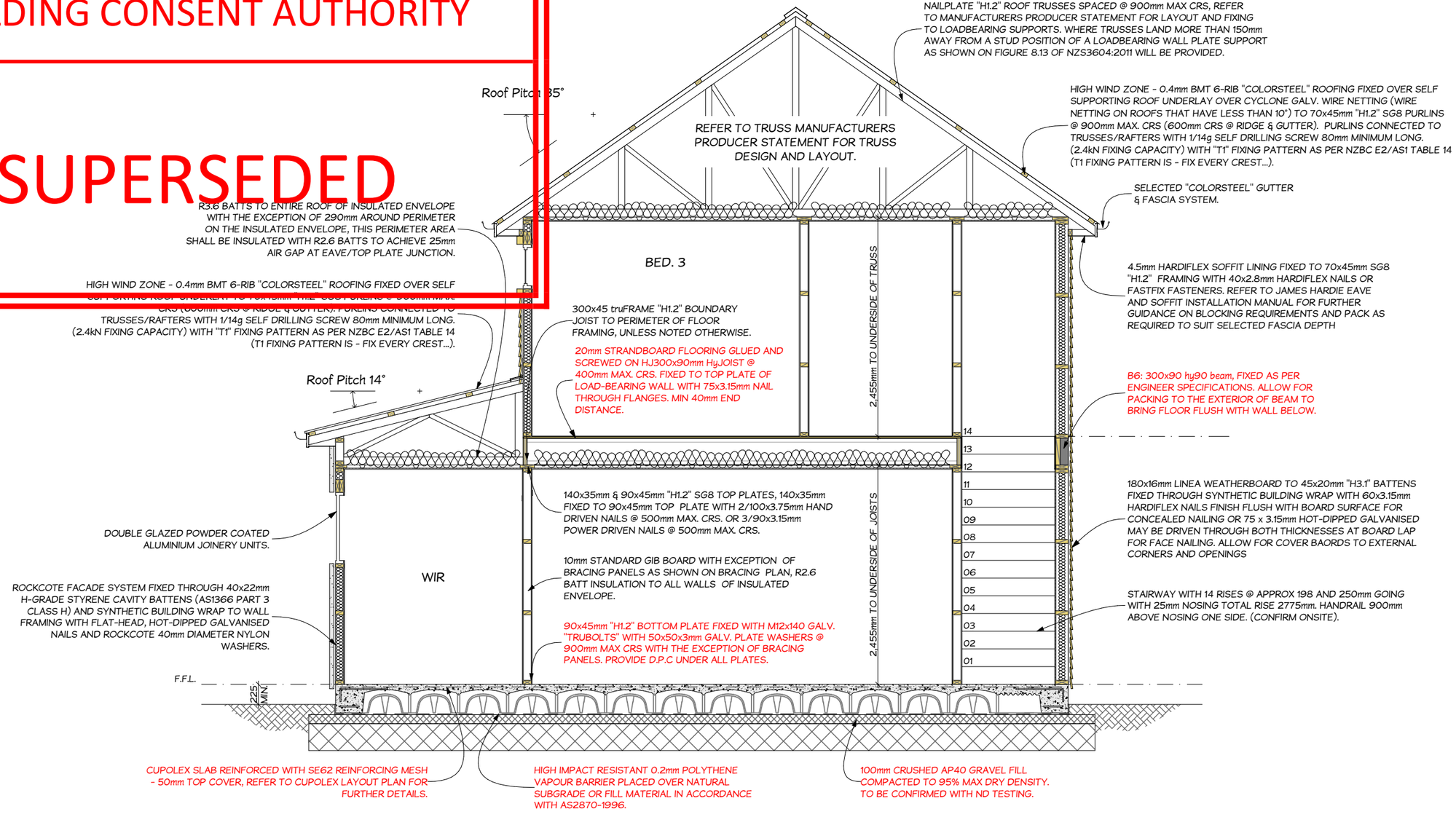
Tasman District Council
BUILDING CONSENT AUTHORITY

SUPERSEDED




## NOTES

STEEL REINFORCING COVER

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BUILDING WRAP

BUILDING WRAP SHALL BE MARSHALL INNOVATIONS "TEKTON BUILDING WRAP" (BRANZ APPRAISAL NO.548). BUILDING WRAP MUST BE INSTALLED HORIZONTALLY AND BE CONTINUOUS AROUND CORNERS. THE WRAP MUST BE LAPPED 75mm MIN. @ AT HORIZONTAL JOINTS AND 150mm MIN. OVER STUDS @ VERTICAL JOINTS. WHERE STUDS ARE AT GREATER THAN 450mm CRS, POLYPROPYLENE STRAP OR ADDITIONAL VERTICAL CAVITY BATTENS MUST BE INSTALLED @ MAXIMUM 300mm CRS TO PREVENT BULK INSULATION BULGING INTO THE CAVITY.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. AREA OF VERTICAL CEDAR DWANGS @ 400mm MAX. CRS.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

NAILPLATE TRUSSES

TRUSS MANUFACTURER SHALL PROVIDE A PRODUCER STATEMENT PRIOR TO FABRICATION.

PRELIMINARY
Timber framing and reinforcing mesh dimensions are subject to Territorial Authority approvals, engineering, and New Zealand Building Code requirements.

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Tasman District Council / AlphaOne Multiproof Approval – 107

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

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| SHEET : original A3 | A12 |
| REVISION : | BUILDING CONSENT |
| DATE : | 9/09/2021 |
| SCALE : | 1:50 |
| DRAWN : | #Contact Full Name |
| Job No. | 21106-21110 |

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | |
| | | | Work in Progress |

CLIENT : LSK BUILDERS 2011 LTD.

PROJECT : KAHIKATEA TOWNHOUSE

LOCATION : 12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND

DRAWING : CROSS SECTION B-B

PREMIER SERVICES
Architectural Design Plus

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Tasman District Council
BUILDING CONSENT AUTHORITY

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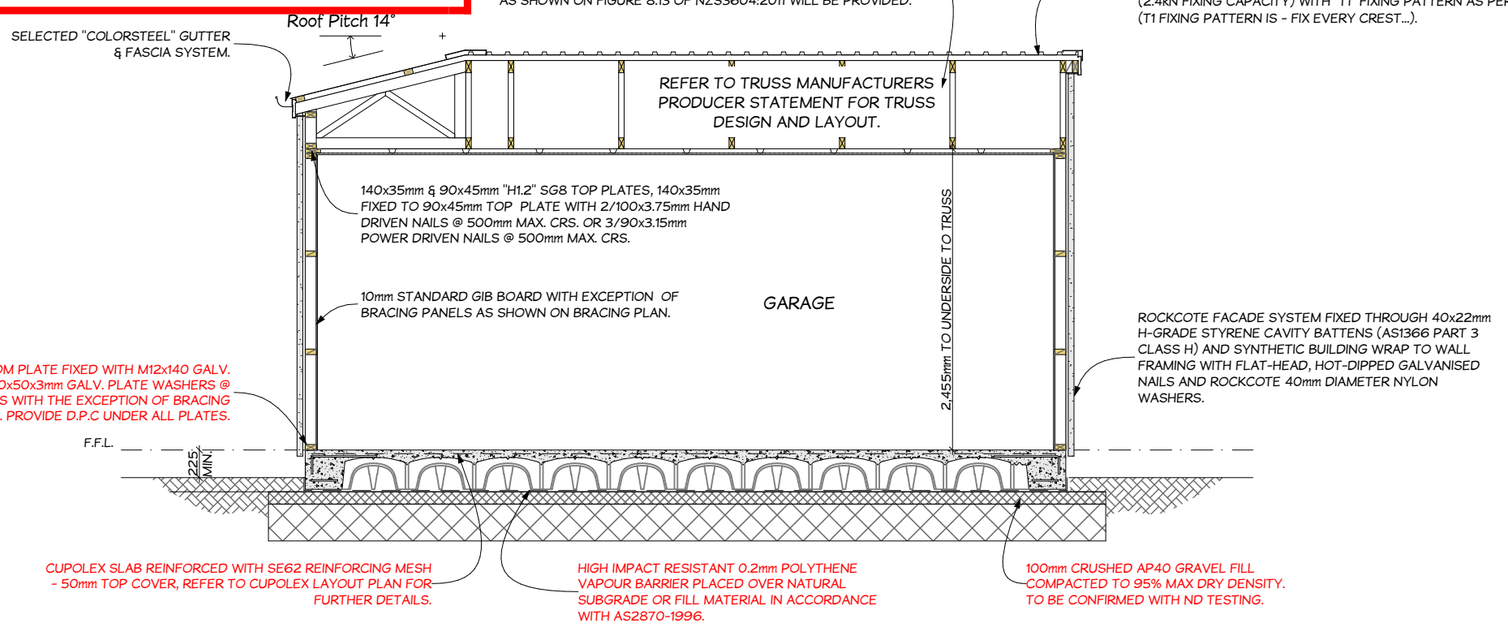


## NOTES

STEEL REINFORCING COVER

FLOOR SLAB REINFORCING SHALL EXTEND TO A MINIMUM EXTERNAL COVER OF:

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BUILDING WRAP

BUILDING WRAP SHALL BE MARSHALL INNOVATIONS "TEKTON BUILDING WRAP" (BRANZ APPRAISAL NO.548). BUILDING WRAP MUST BE INSTALLED HORIZONTALLY AND BE CONTINUOUS AROUND CORNERS. THE WRAP MUST BE LAPPED 75mm MIN. @ AT HORIZONTAL JOINTS AND 150mm MIN. OVER STUDS @ VERTICAL JOINTS. WHERE STUDS ARE AT GREATER THAN 450mm CRS, POLYPROPYLENE STRAP OR ADDITIONAL VERTICAL CAVITY BATTENS MUST BE INSTALLED @ MAXIMUM 300mm CRS TO PREVENT BULK INSULATION BULGING INTO THE CAVITY.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. AREA OF VERTICAL CEDAR DWANGS @ 400mm MAX. CRS.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

NAILPLATE TRUSSES

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PRELIMINARY
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Tasman District Council / AlphaOne Multiproof Approval – 107

| RevID | Rev. Name | Change Name | Date |
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| A - WIP | Building Consent | | Work in Progress |

A13
BUILDING CONSENT
9/09/2021
1:50
#Contact Full Name

SHEET : original A3
REVISION :
DATE :
SCALE :
DRAWN :
Job No. 21106-21110

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LSK BUILDERS 2011 LTD. CLIENT :
KAHIKATEA TOWNHOUSE PROJECT :
12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND LOCATION :
CROSS SECTION C-C DRAWING :

PREMIER SERVICES
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Tasman District Council - APPROVED DOCUMENTS

23/02/2022

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All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

Tasman District Council

BUILDING CONSENT AUTHORITY

SUPERSEDED

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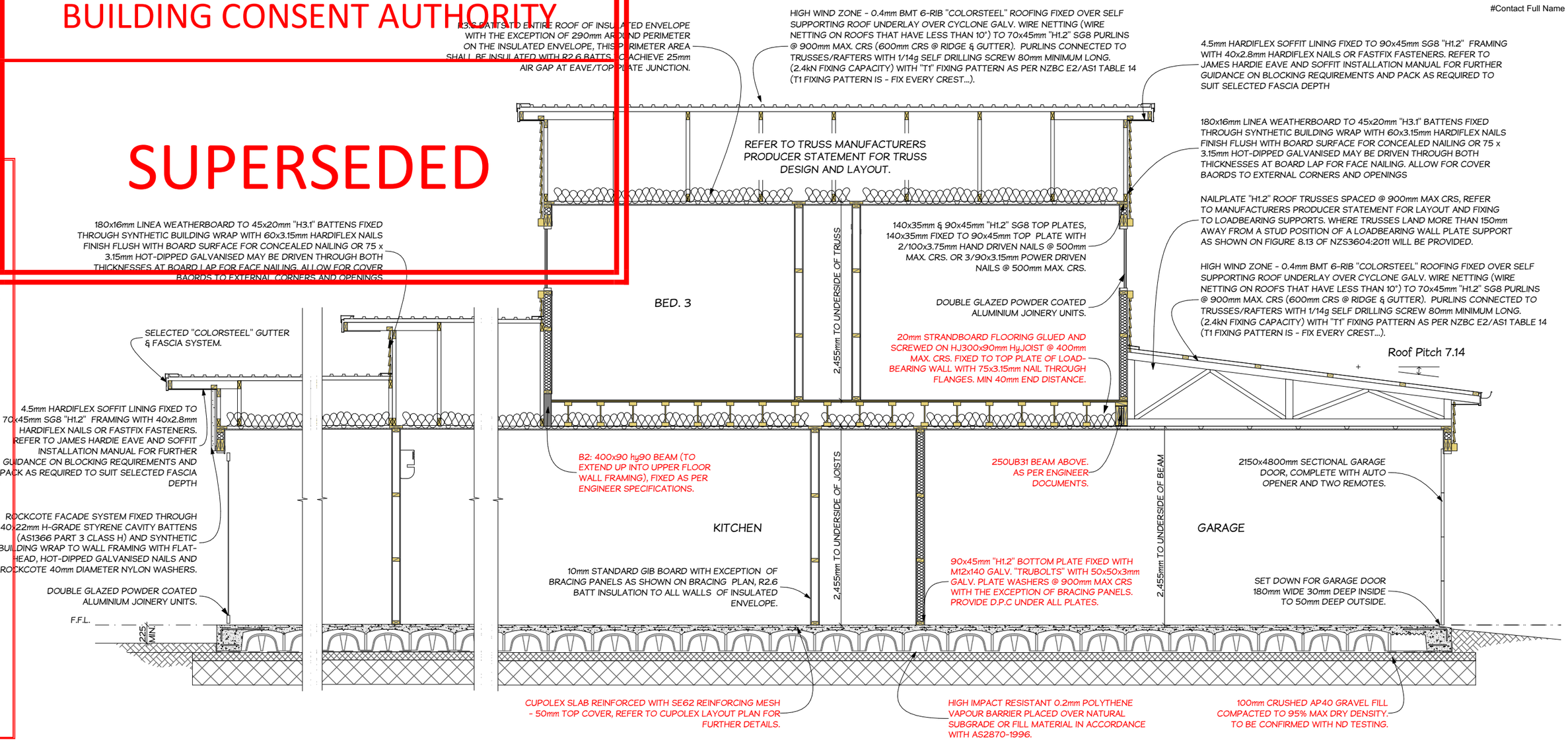


## NOTES

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BUILDING WRAP

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TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. AREA OF VERTICAL CEDAR DWANGS @ 400mm MAX. CRS.

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NAILPLATE TRUSSES

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FOR INFORMATION

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| | |
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| DATE : | 9/09/2021 |
| SCALE : | 1:50 |
| DRAWN : | #Contact Full Name |

Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

CROSS SECTION D-D — DRAWING :

PREMIER SERVICES
Architectural Design Plus

# Tasman District Council
# BUILDING CONSENT AUTHORITY

**7.2. Geotechnical Report**

# SUPERSEDED

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BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

# EARTHWORKS COMPLETION REPORT

37435 / THE MEADOWS SUBDIVISION - STAGES 6 & 7

/ RICHMOND WEST DEVELOPMENT COMPANY LIMITED

Tasman District Council / AlphaOne Multiproof Approval – 107

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Davis Ogilvie & Partners Ltd

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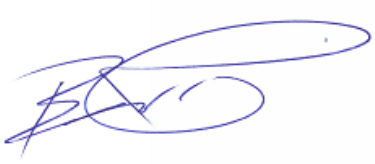
## QUALITY ASSURANCE

| | |
|---|---|
| **Title:** | Earthworks Completion Report<br>The Meadows Subdivision - Stages 6 & 7 |
| **Client:** | Richmond West Development Company Limited |
| **File Location:** | T:\Projects\20000+\37435 – RWDCL – The Meadows/Engineering/006 Reports/15. Completion Report – Stages 6 & 7 |
| **Version:** | 1 |
| **Date:** | 06 September 2021 |
| **Project No:** | 37435 |

| | | |
|---|---|---|
| **Prepared By:** | **Mark Gray**<br>Engineering Geologist<br>BSc, PMEG | **Signature:** |
| **Authorised By:** | **Ben Parry**<br>Senior Engineering Geologist<br>PG Dip, BSc (Tech)<br>CMEngNZ, (PEngGeol) | **Signature:**  |

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## DISCLAIMER

This earthworks completion report has been prepared at the specific instructions of Richmond West Development Company Limited in connection to the residential subdivision known as The Meadows located off McShane Road, Richmond (SH180019). This report provides information on the underlying geotechnical conditions and the earthworks undertaken during the development of the subdivision.

Davis Ogilvie did not perform a complete assessment of all possible conditions or circumstances that may exist at the site. Conditions may exist which were undetectable given the limited investigation of the site. Variations in conditions may occur between test locations, and there may be conditions onsite which have not been revealed by the investigation, which have not been taken into account in the report.

Davis Ogilvie's opinions are based upon information that existed at the time of the production of the document. Assessments made in this report are based on the conditions found onsite and published sources detailing the recommended investigation methodologies described. No warranty is included; either expressed or implied that the actual conditions will conform to the assessments contained in this report.

Davis Ogilvie has provided an opinion based on observations, site investigations, information from external parties and analysis methodologies current at the time of reporting. The report cannot be used to assess the effect of any future changes in the site, or surroundings, the report cannot be used if there are changes in the referenced guidelines, analysis methodologies, laws or regulations.

Only Richmond West Development Company Ltd and the Local and Regional Territorial Authorities are entitled to rely upon this engineering report. Davis Ogilvie & Partners Ltd accepts no liability to anyone other than Richmond West Development Company Ltd in any way in relation to this report and the content of it and any direct or indirect effect this engineering report may have. Davis Ogilvie & Partners Ltd does not contemplate anyone else relying on this report or that it will be used for any other purpose.

Should anyone wish to discuss the content of this report with Davis Ogilvie & Partners Ltd, they are welcome to contact us on (03) 548 4425 or at Level 1, 42 Oxford Street, Richmond.

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**APPENDIX E Davis Ogilvie Preliminary Geotechnical Investigation Report (2018)**

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## 1.0 INTRODUCTION

Davis Ogilvie & Partners Limited (Davis Ogilvie) has been engaged by Richmond West Development Company Limited ('the client'), to provide professional geotechnical conformance testing services for Stages 6 & 7 of The Meadows residential subdivision in Richmond. These services include:

- Provision of an earthworks specification detailing contractor responsibilities, earthworks methodology and fill compaction assessment criteria.
- Earthworks inspections and geotechnical advice during surface stripping and engineered fill placement for residential lots within Stages 6 & 7.
- Geotechnical assessment and certification of engineered fill in accordance with NZS 4431:1989 for those lots which have been subject to filling.
- Certification of geotechnical site suitability in accordance with the New Zealand Standard for Land Development and Subdivision Infrastructure NZS 4404:2010.

Davis Ogilvie was also responsible for survey set out and the design of roading, water, stormwater and wastewater service networks.

The purpose of this report is to provide details of the natural ground conditions underlying the site, earthworks completed and verification testing to assess the suitability of the completed lots for residential development. Lot specific development conditions are also provided. The report addresses (in conjunction with the fill certificate and as-built plans) the geotechnical aspects of the subdivision consent (SH180019) and specifically the following conditions:

- ***60:*** *Prior to any approval under Section 224 of the Resource Management Act 1991, Council requires a statement confirming that those lots which have had earth fill placed on them and any retaining, are suitable for residential development. The statement shall be made in terms of NZS 4431, Appendix 2. The statement shall include any retaining structures and be accompanied by compaction test results for the area of fill and be certified by a suitably qualified chartered professional engineer acceptable to Council.*

- ***61:*** *Certification that a site has been identified on each new allotment suitable for the construction of a residential building shall be submitted from a geoprofessional for each stage of the subdivision. This certificate shall define the area suitable for the construction of residential buildings and shall be in accordance with NZS 4404:2010 Schedule 2A. Any limitations identified in Schedule 2A shall be noted on a consent notice pursuant to Section 221 of the Resource Management Act 1991 required by Condition (68) below, prior to the issue of the Section 224(c)certificate for each stage.*

This report is with regard to the geotechnical works associated with the thirty-nine (39) residential allotments in Stages 6 & 7 only.

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## 2.0 SITE DESCRIPTION

The Meadows development ('the subdivision') comprises approximately 480 residential lots, of which 39 lots form Stages 6 & 7 of the subdivision ('the site'). The site is located approximately 1.5 km north-west of Richmond Town Centre on the southern side of McShane Road.

The site is bound by McShane Road to the west and other stages of the subdivision (completed Stages 4 and 5 and future Stage 8) on all other boundaries.

An open stormwater swale ('the Central Swale'), constructed as part of the wider subdivision infrastructure works, runs through Stages 6 & 7 adjacent to proposed road and recreation reserves and residential lots. The banks of the Central Swale have a design height of 1.8 m and batter slope at 2H:1V[1]. Observations of the completed swale bank onsite indicate that the design geometry has been generally achieved. Prior to earthworks commencing for Stages 6 & 7 a temporary stormwater swale approximately 8.0 m wide by 2.0 m deep ('the Temporary Swale") ran through Stage 6 draining toward Borck Creek. The temporary swale has now been backfilled.

The site is shown in Figure 1 below and in the *Development Criteria Plan* (DWG 530-A) attached to this report (Appendix A).

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[1] Davis Ogilvie (2019) The Meadows - Engineering Design Cross Section Details - Stage 1. Drawing C119 Issue F, dated February 2019.


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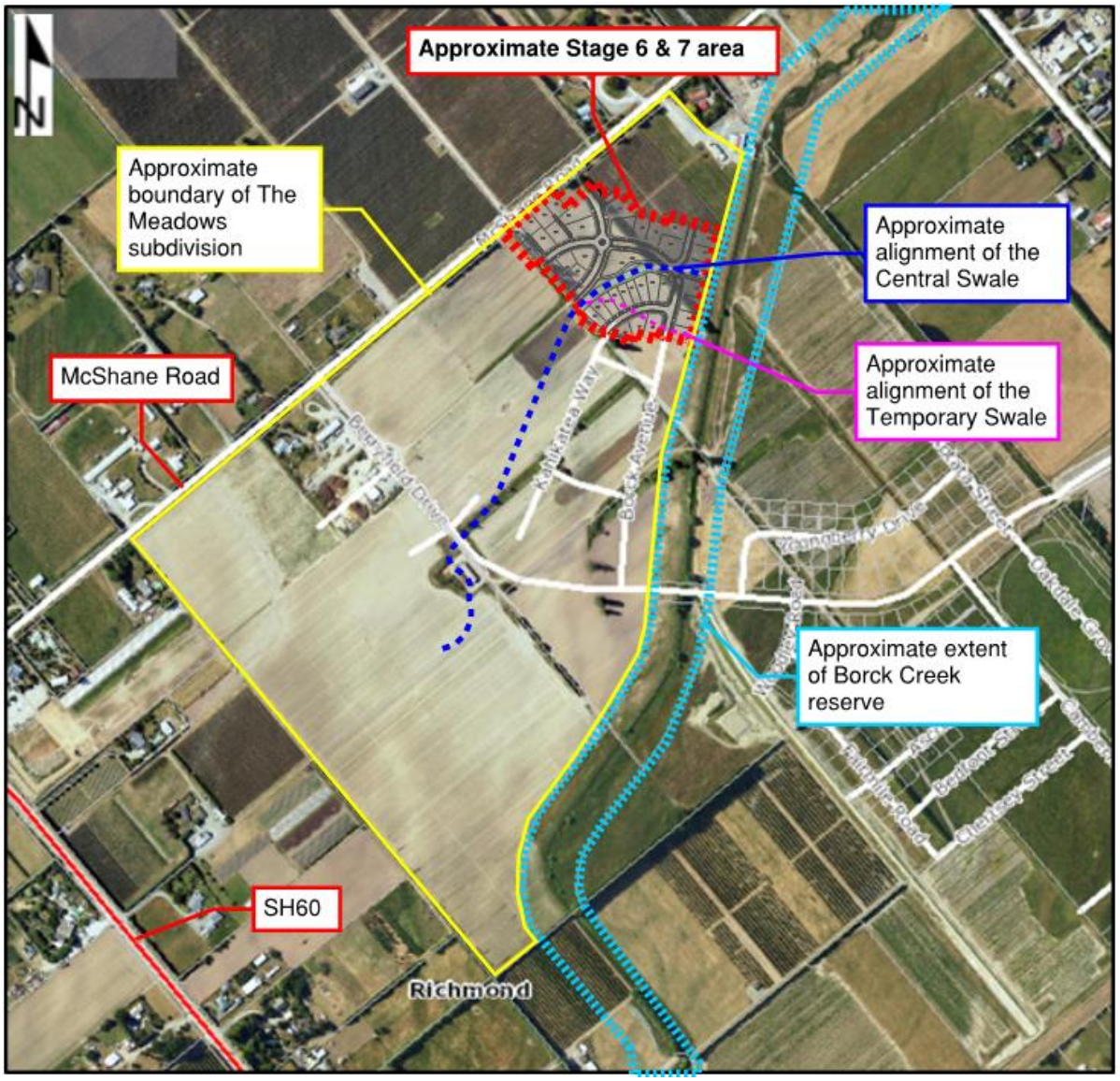


**Figure 1: Annotated aerial photo showing Stages 6 and 7 within the greater areas of The Meadows subdivision, and various site features. Base image obtained from www.topofthesouthmaps.co.nz. Not to Scale.**

## 3.0 SUBDIVISION GEOTECHNICAL INVESTIGATION REPORT

Davis Ogilvie undertook geotechnical investigations and reporting at the Richmond West Development (The Meadows) in 2018[2] to assess the suitability of the site for residential subdivision in accordance with NZS 4404:2010 and to provide a natural hazard assessment in terms of Section 106 of the Resource Management Act (RMA). A copy of this report is provided in Appendix E.

[2] Geotechnical report prepared for Richmond West Development Company Ltd by Davis Ogilvie and Partners Ltd, titled Preliminary Geotechnical Investigation Report, dated 21 August 2018, Reference No. 37435.


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## 4.0 EARTHWORKS

### 4.1 General

Earthworks were undertaken by Ching Contracting Limited (CCL), Donaldson Civil Limited (DCL) and Taylors Contracting Company Limited (TCL) in general accordance with the subdivision earthworks specification[3] and earthworks fill methodology[4] prepared for Stages 6 - 8 by Davis Ogilvie. The approximate areas of fill placed by each contracting company is presented in Figure 2 below.

**Figure 2: Stages 6 and 7 of The Meadows subdivision showing approximate areas of filling by each contracting company: Light blue - DCL, Light Purple - CCL, Green - TCL.**

Subdivision earthworks for Stages 6 & 7 were undertaken between January 2020 and June 2021.

### 4.2 Summary of Physical Works

During earthworks, all lots, including the Temporary Swale, were stripped of topsoil and soft / loose soils or other unsuitable materials. Areas of undercut were subsequently backfilled with engineered fill, placed in general accordance with NZS4431:1989 Code of Practice for Earth Fill for Residential Development. Undercut areas typically included drainage channels and infilled channels identified in the geotechnical assessment report or during earthworks construction observations.

[3] Earthworks specification prepared by Davis Ogilvie for The Meadows Subdivision, dated April 2019, Reference No.:37435
[4] Earthworks fill methodology for The Meadows Stages 6, 7 and 8 prepared by Davis Ogilvie for Richmond West Development Company Ltd., dated September 2020, Reference No.:37435


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## 4.3 Engineered Fill

All lots on the site were stripped, inspected and filled to design levels. Where unsuitable material was removed below the water table and in the base of the Temporary Swale, the excavation was subsequently filled with coarse (i.e. no fines) quarry rock (referred to by the contractors as "bricks") to a level slightly above the water table. This method was adopted to form a self-compacting dense layer below the water table, which allowed for conventional fill to be placed directly above. The coarse quarry rock was covered in a layer of heavy-duty geotextile cloth prior to placement of conventional fill material.

Limited areas where thin, inorganic silt was encountered, received treatment referred to as "raking". The raking involved physical mixing of the in-situ surficial silt deposits and the underlying gravels. Raking was undertaken to a depth of approximately 0.6 m using a ripper blade and digger bucket prior to compaction. Raked areas were subsequently tested and verified as suitable by Davis Ogilvie.

### 4.3.1 Fill Material

Seven fill types were used for the subdivision earthworks. In general, each lot is underlain by one fill type, however, on lots 299 and 300 multiple fill types were placed.

**Fill Type A** – Site won sandy, silty gravel.
**Fill Type B** – Gravel quarry overburden obtained from Marsden Valley Quarry.
**Fill Type C** – In-situ blend of site won sandy, silty gravel and site won silt (suitable for raked areas).
**Fill Type D** - A blend of site won silt and AP150 gravel quarry fill from York Valley Quarry. This was blended at a set ratio of approximately 50% site won silt to 50% of the York Valley Quarry gravel.
**Fill Types E & F** - Well graded, silty gravel sourced from Borck Creek during earthworks to widen the reserve using original (Fill Type E) and updated (Fill Type F) curves. Fill types E and F are a similar material to Fill Type A.
**Fill Type G** - Gravel overburden from Lee Valley Quarry.

Prior to placement of fill, laboratory compaction testing was performed on bulk samples, collected by Civil Engineering Laboratory Services (CELS), at their IANZ accredited laboratory. Fill types B and G were quarry overburden with significant oversize material therefore, the bulk samples were collected from broken down material post-placement.
Compaction testing was completed in accordance with NZS 4402:1986 Test 4.1.2 New Zealand heavy compaction test to establish maximum dry density (MDD) and optimum moisture content (OMC) of each fill type. Compaction results are summarised in Table 1. Laboratory compaction certificates are provided in the Statement of Suitability of Earth Fill for Residential Development (Fill Certificate) in Appendix D.

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| Table 1: Fill material and NZ Compaction Test Results | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Fill Type** | **Fill Material** | **Source** | **CELS Lab Reference** | **Compaction Test** | **Optimum Moisture Content (%)** | **Maximum Dry Density (t/m3)** | **Natural Moisture Content (%)** |
| A | Sandy Silty Gravel | Site-won | 19/691 | NZ Heavy Compaction | 7 | 2.28 | 5.5 |
| B | Hardfill | Marsden Valley Quarry Overburden | 20/672 | NZ Heavy Compaction | 5.5 | 2.34 | Not Tested |
| C | Sandy Silty Gravel / Silt | In-situ Blend | 19/1465 | NZ Heavy Compaction | 10 | 2.16 | 8.5 |
| D | Sandy Silty Gravel | York Valley Quarry - In-situ Blend | 19/1499 | NZ Heavy Compaction | 6 | 2.35 | 10.5 |
| E | Sandy Silty Gravel | Borck Creek Widening | 20/410 | NZ Heavy Compaction | 6 | 2.27 | Not Tested |
| F | Sandy Silty Gravel | Borck Creek Widening | 20/1280 | NZ Heavy Compaction | 6.5 | 2.29 | 7.3 |
| G | Hardfill | Lee Valley Quarry | 20/1536 | NZ Heavy Compaction | 8 | 2.21 | Not Tested |

### 4.4 Equipment and Fill Placement

The lots were stripped of topsoil using a combination of motor-scrapers and hydraulic excavators of varying sizes. Filling by DCL was generally placed using dump trucks and bulldozer prior to initial compaction using a 13 tonne sheepfoot roller and final compaction using a 13 tonne, smooth drum, vibrating roller. Filling by CCL was generally placed using dump trucks and bulldozer then compacted using a 12 tonne, vibrating, smooth drum roller. Filling by TCL was generally placed using either motor-scrapers or dump trucks and bulldozer then compacted using an 11-tonne, vibrating, smooth drum roller.

### 4.5 Inspection and Testing

Multiple site inspections were undertaken by Davis Ogilvie during earthworks. Testing was carried out to comply with the requirements of NZS 4431:1989 code of practice for earth fill for residential development.

Inspections were typically conducted for the following items or activities:

- Subgrade inspection to confirm suitability of stripped surfaces. The inspections confirmed sufficient removal of any vegetation, topsoil and otherwise unsuitable material.
- During placement and compaction of fill.
- Final fill inspection prior to topsoil spreading.
- Final testing of finished ground level.

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Fill compaction was assessed by CELS using a Troxler 3430 Nuclear Densometer (NDM) to the testing frequency requirements as outlined in the subdivision earthworks specification prepared by Davis Ogilvie. In total 147 NDM tests were completed across the filled lots in Stages 6 & 7. A summary table of NDM test results along with the NDM reports from CELS are provided as attachments to the Fill Certificate in Appendix D.

Survey pick-up of the stripped surface was completed by DCL, TCL and Davis Ogilvie and the final as-built surface survey was completed by Davis Ogilvie. Based on the fill plans, and a nominal topsoil thickness of 0.3 m, the majority of the site received less than 1.0 m of fill, however, localised areas received deeper fill up to 2.4 m. There is significant variation in fill thickness over a short distance on Lots 362 to 365, 423, 424,443 and 464 where the temporary swale and a temporary sump have been backfilled. An excerpt from the Davis Ogilvie fill plan is provided in Figure 3 below. The full plans are provided as attachments to the Fill Certificate in Appendix D.

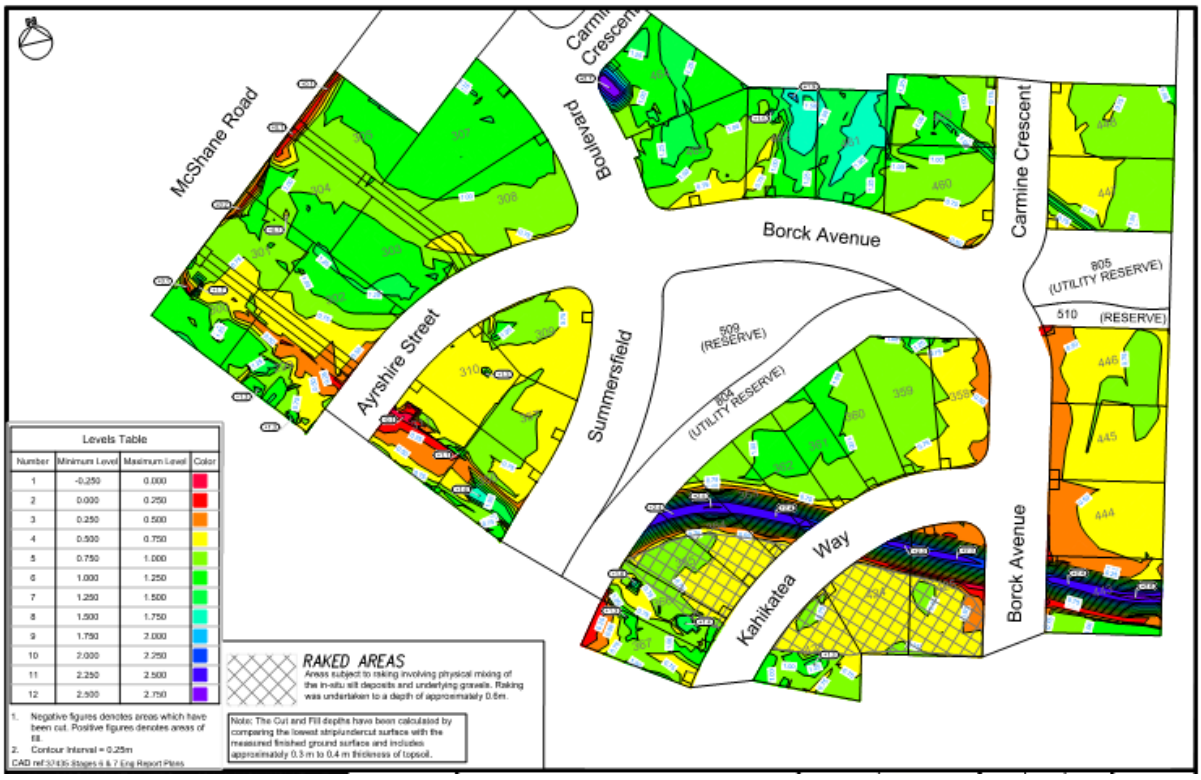


**Figure 3: Excerpt from the Davis Ogilvie fill plan for Stages 6 and 7 of The Meadows subdivision. The full plans are provided as attachments to the Fill Certificate in Appendix D**

## 4.6 Topsoil Thickness

Following stripping and/or filling, previously cut and stockpiled topsoil was re-spread over all lots. Topsoil is expected to be approximately 300 mm to 400 mm thick on each lot, however, the thickness may vary away from test locations and should be confirmed onsite during construction.

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Topsoil is not suitable to remain under any part of the building footprint and shall be removed prior to foundation construction.

### 4.7 Post Earthworks Investigation

On completion of the earthworks Dynamic Cone Penetrometer (DCP) tests were conducted on each lot. DCP test locations are shown on the *Development Criteria Plan* (DWG 530-A) in Appendix A and test results are presented in Appendix B. DCPs were completed following topsoil placement.

In summary, with the exception of four lots (Lots 362 to 365), the soils below the topsoil were found to meet the general requirements of NZS3604:2011 “Good Ground” in terms of geotechnical ultimate bearing capacity (i.e. 300 kPa for the design of shallow foundations).

On Lots 362 to 365, lower strength fill material was encountered. This fill does not meet the requirements of NZS3604:2011 “Good Ground” in terms of geotechnical ultimate bearing capacity. Further information on foundation design options for Lots 362 to 365 is provided in Sections 5.2 and 6.1.

## 5.0 SITE SUITABILITY

An assessment of natural hazards in terms of Section 106 of the RMA is provided in the underlying geotechnical investigation report. A copy of this report is provided in Appendix E. The following information is presented with regards to the site suitability assessed following earthworks.

### 5.1 Building Offsets

Several batters have been created as part of the subdivision works or are proposed on neighbouring properties, these are:

1. The banks of the central swale which is adjacent to lots 359 to 366.
2. The banks of the Borck Creek reserve which is adjacent to lots 443 to 448.
3. Approximately 0.2 m high batters formed of subdivision structural fill overlain by topsoil along the boundaries of several lots.

The following information and recommendations are provided in relation to construction adjacent to batters on the site.

The central swale has a Jute Mesh or coir facing to mitigate the erosion risk until existing planting is fully established. The swale is graded at 1 in 400 along its alignment and as a result velocity and, hence, erosional potential of the watercourses is considered to be low.

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Feedback from the designers of the Borck Creek reserve[5] states that *"the average channel velocity for Q100[6] flows will be around 1.3 m/s and will be less at the channel perimeter especially where flow depths are reduced. In terms of potential erosion, the risk is low and* [we] *expect this to be covered with a channel planting establishment specification and grass seeding or other protective measure to avoid bare soil being left open to the effects of a large storm event"*

During construction it was identified that some of the material used to construct the Central Swale bank when backfilling the Temporary Swale contained patches of organic soil. To ensure long-term foundation stability it is recommend that the foundations of all structures on lots 364 and 365 achieve a horizontal offset of 2.5 m from the lot boundaries adjacent to the Central Swale. For all other lots adjacent to the Central Swale and Borck Creek (Lots 359 - 363, 366 to 367 and 443 to 448), a 1.5 m horizontal offset is recommended from the affected boundary.

Engineered fill has only been placed within the project boundaries. Therefore, for lots 300, 301, 304 and 305 a 1.5 m offset from the project boundary is recommended to ensure that non-certified materials are not located within the foundation zone of influence.

Building restriction lines (BRLs) have been established on the affected lots based on the offsets described above and are presented in the Development Criteria Plan (DWG 530-A) attached to this report (Appendix A). Any construction beyond a BRL will require specific investigation under the supervision of a suitably qualified geo-professional. During construction it was brought to our attention that "waste cells" had been constructed within the Borck Creek reserve. We understand that these cells have been backfilled with various materials that were unsuitable for use as fill. For Lots 443 to 448, the effects of the waste cells on building stability will need to be considered by the appointed geo-professional for any proposed construction beyond a BRL as part of their overall geotechnical assessment.

Notwithstanding the recommendations provided above, all lots adjacent to subdivision batters, foundation offsets will need to comply with those presented in Figure 3.1 of NZS3604:2011.

### 5.2 Specific Engineering Design Area

Some areas of Stages 6 and 7 are subject to variability in the engineered fill, both in terms of material used, strength and the depth of fill placed. The affected areas are Lots 299, 300, 362 to 365, 424, 425,443 and 464.

**Lots 299, 300, 424, 425,443 and 464**

The subgrade soil on these lots are not expected to exceed Building Code tolerances in terms of differential settlement. Due to the inconsistent fill types used during earthworks and variable fill

[5] Email from Stantec to Tasman District Council, RE: The Meadows Subdivision and Borck Creek Widening/Erosion, dated 2 April 2020.
[6] Q100 is the expected flow rate during a 1 in 100-year flood event.

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thicknesses there is however a potential for inconsistent foundation performance. It is recommended that specific engineering designed stiffened, raft-style foundations are adopted on these five lots. A geotechnical ultimate bearing capacity of 300 kPa is recommended.

**Lots 362 to 365**

Due to the lower strength fill material placed in the remediated temporary swale, specific engineering design and a reduced bearing capacity is recommended. It is recommended that stiffened raft-style foundations are adopted and are designed for a geotechnical ultimate bearing capacity of 200 kPa.

Further information on the design requirements is provided in Section 6.1.

### 5.3 Assessed Suitability

Provided the recommendations in this report are followed, the site is considered suitable for the construction of residential dwellings. A Schedule 2A Certificate (statement of suitability) as per NZS4404:2010 is provided in Appendix C of this report.

## 6.0 DEVELOPMENT CONDITIONS

### 6.1 Site Certification and Foundation Recommendations

All Lots within Stages 6 & 7 of The Meadows subdivision have been confirmed to be suitable for residential building development provided the recommendations provided in Section 6.0 and in Table 2 are followed.

**Specific Engineering Design (SED) Zone**

For **Lots 299, 300, 424, 425,443 and 464** (inclusive) specific engineer designed stiffened raft-style foundations are required and should be designed by a chartered professional engineer practising in foundation design assuming a geotechnical ultimate bearing capacity of up to **300 kPa** from immediately below the topsoil layer or any other unsuitable material subject to confirmation during construction.

For **Lots 362 to 365** (inclusive) specific engineer designed stiffened raft-style foundations are required and should be designed by a chartered professional engineer practising in foundation design for a geotechnical ultimate bearing capacity of up to **200 kPa** from immediately below the topsoil layer or any other unsuitable material subject to confirmation during construction. We note that additional geotechnical testing on these lots at a later date may indicate that a higher bearing capacity is available.

Waffle slabs (including Cupolex flooring systems) with minimum 300 mm wide external footings and minimum 100 mm internal ribs are considered suitable from a geotechnical perspective.

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**NZS3604 Compliant Zone**

**Lots 301 to 305, 307 to 311, 356 to 361, 366, 367, 423, 444 to 448 and 459 to 463** (inclusive) are considered to be suitable for residential building development in accordance with NZS3604:2011, however, specific engineering design shallow foundations are also considered suitable provided the development conditions in Section 6.2 are adhered to. In this case, foundations should be designed by a chartered professional engineer practising in foundation design assuming a geotechnical ultimate bearing capacity of up to 300 kPa from immediately below the topsoil layer or any other unsuitable material, subject to confirmation during construction.

**Site Subsoil Class**

We consider that for seismic design of foundations, site subsoil Class D 'Deep Soil' should be used in terms of NZS1170.5.

**Construction Monitoring**

During construction, all footing excavations and stripped areas below proposed concrete slab foundations should be inspected and approved by a suitably qualified person to confirm that the ground conditions are consistent with those described in this report. For Lots 362 to 365 this inspection shall be made by a suitably qualified geo-professional.

## 6.2 General Conditions

The following recommendations apply to lots 299 to 305, 307 to 311, 356 to 367, 423 to 425, 443 to 448 and 459 to 464 inclusive in Stages 6 and 7 of The Meadows Subdivision:

1) Foundations for Lots 301 to 305, 307 to 311, 356 to 361, 366, 367, 423, 444 to 448 and 459 to 463 shall penetrate all topsoil, organic, weak or otherwise unsuitable ground (if present), to bear in competent 'good ground' with a geotechnical ultimate bearing capacity of at least 300 kPa in accordance with NZS 3604:2011 Timber framed buildings.
2) Foundations for Lots 299, 300, 424, 425, 443 and 464 shall penetrate all topsoil, organic, weak or otherwise unsuitable ground (if present), to bear in competent ground with a geotechnical ultimate bearing capacity of at least 300 kPa. Foundations shall be specific engineer designed stiffened raft-style foundations, designed, inspected, and certified by a chartered professional engineer practising in foundation design.
3) Foundations for Lots 362 to 365 shall penetrate all topsoil, organic, weak or otherwise unsuitable ground (if present), to bear in competent ground with a geotechnical ultimate bearing capacity of at least 200 kPa. Foundations shall be specific engineer designed stiffened raft-style foundations, designed, inspected, and certified by a chartered professional engineer practising in foundation design.
4) For Lots 300, 301, 304, 305, 359 to 367 and 443 to 448, any construction beyond a BRL shall be subject to specific investigation and design by a suitably qualified geo-

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professional.

5) During construction, all footing excavations and stripped areas below proposed concrete slab foundations should be inspected and approved by a suitably qualified person to confirm that the ground conditions are consistent with those described in this report. For Lots 362 to 365 this inspection shall be made by a suitably qualified geo-professional.

6) All structural fills shall be placed in accordance with NZS 4431:1989 with adequate stripping, benching, and drainage.

7) Storm water from roofs, paved, hardstanding and impermeable areas, drainage from retaining walls, surface drains, and overflows from standing bodies of water, such as ponds, shall be collected and discharged in a controlled manner to the Tasman District Council storm water system.

8) All excavations, including for foundations and service trenches for cables and drains, shall be designed and constructed in a manner that does not induce saturation of the adjacent ground, and in particular the certified fill.

9) Any earthworks involving cuts or fills greater than 0.8 m in height shall be subject to specific investigation and design by a chartered professional engineer experienced in geotechnical engineering or by an experienced engineering geologist.

10) Retaining walls should be designed and inspected during construction by a Chartered Professional Engineer practicing in structural or geotechnical engineering when:

   a. the wall is 1.2 m in height or greater,
   b. the wall is retaining ground supporting surcharge loads such as buildings,
   c. the wall retains slopes of over 5H:1V, and
   d. the wall is founded on sloping ground of over 5H: 1V.

   Regardless of the above requirements, all retaining walls must be in compliance with the Building Act 2004 and the Tasman Resource Management Plan.

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**Table 2: Subsurface data and development criteria for lots in The Meadows Stages 6 and 7**

| Lot # | Area ($m^2$) | Subdivision Filling | | Foundations | | | Restrictions | |
|---|---|---|---|---|---|---|---|---|
| | | Y/N | Depth[1] (m) | Approximate depth to 300 kPa geotechnical ultimate bearing capacity[2] (m) | Conventional shallow foundations to NZS 3604:2011 (Y/N) | Specific engineering design required[3] (Y/N) | Building Restriction Line (Y/N) | General |
| 299 | 504 | Y | 1.0 | 0.3 – 0.4 | **N** | **Y** | N | Refer to Section 6 for development conditions |
| 300 | 496 | Y | 1.3 | 0.3 – 0.4 | **N** | **Y** | **Y** | |
| 301 | 496 | Y | 0.7 | 0.3 – 0.4 | Y | N | **Y** | |
| 302 | 511 | Y | 1.0 | 0.3 – 0.4 | Y | N | N | |
| 303 | 489 | Y | 1.0 | 0.3 – 0.4 | Y | N | N | |
| 304 | 611 | Y | 0.7 | 0.3 – 0.4 | Y | N | **Y** | |
| 305 | 548 | Y | 0.7 | 0.3 – 0.4 | Y | N | **Y** | |
| 307 | 733 | Y | 1.0 | 0.3 – 0.5 | Y | N | N | |
| 308 | 727 | Y | 0.7 | 0.3 – 0.5 | Y | N | N | |
| 309 | 537 | Y | 0.7 | 0.3 – 0.4 | Y | N | N | |
| 310 | 373 | Y | 1.0 | 0.3 – 0.4 | Y | N | N | |
| 311 | 418 | Y | 0.8 | 0.3 – 0.4 | Y | N | N | |
| 356 | 410 | Y | 1.3 | 0.3 – 0.4 | Y | N | N | |
| 357 | 346 | Y | 0.5 | 0.3 – 0.4 | Y | N | N | |
| 358 | 447 | Y | 0.7 | 0.3 – 0.4 | Y | N | N | |
| 359 | 506 | Y | 1.0 | 0.3 – 0.4 | Y | N | **Y** | |
| 360 | 434 | Y | 0.7 | 0.3 – 0.4 | Y | N | **Y** | |
| 361 | 310 | Y | 0.7 | 0.3 – 0.4 | Y | N | **Y** | |
| 362 | 337 | Y | 2.1 | N/A[5] | **N** | **Y** | **Y** | |
| 363 | 345 | Y | 2.1 | N/A[5] | **N** | **Y** | **Y** | |
| 364 | 345 | Y | 2.2[4] | N/A[5] | **N** | **Y** | **Y** | |

Note 1: Excludes topsoil or sites where topsoil was removed and later replaced and is taken as the maximum fill contour subtracted by 0.3 m.
Note 2: Subject to inspection and confirmation during construction by suitably qualified person. Depths based off limited testing information, localised soft soils could be present away from test locations. Topsoil depths are expected to vary across the site
Note 3: Where specific design is not required (as indicated by an "N") this does not indicate that specific design of foundations is prohibited.
Note 4: Partial or full raking of lot conducted below natural subgrade level. Depth to base of raked soils approximately 0.6 m Fill depths presented are outside the area of raked soils.
Note 5: Foundations to be designed for 200 kPa geotechnical ultimate bearing capacity which is expected from 0.3 to 0.4 m depth.


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**Table 2: Subsurface data and development criteria for lots in The Meadows Stages 6 and 7 (continued)**

| Lot # | Area ($m^2$) | Subdivision Filling | | Foundations | | | Restrictions | |
|---|---|---|---|---|---|---|---|---|
| | | Y/N | Depth[1] (m) | Approximate depth to 300 kPa geotechnical ultimate bearing capacity[2] (m) | Conventional shallow foundations to NZS 3604:2011 (Y/N) | Specific engineering design required[3] (Y/N) | Building Restriction Line (Y/N) | General |
| 365 | 376 | Y | 2.1[4] | N/A[5] | **N** | **Y** | **Y** | Refer to Section 6 for development conditions |
| 366 | 327 | Y | 1.3[4] | 0.3 – 0.4 | Y | N | **Y** | |
| 367 | 340 | Y | 1.0 | 0.3 – 0.4 | Y | N | **Y** | |
| 423 | 460 | Y | 1.0[4] | 0.3 – 0.4 | Y | N | N | |
| 424 | 476 | Y | 2.0[4] | 0.3 – 0.4 | **N** | **Y** | N | |
| 425 | 634 | Y | 2.0[4] | 0.3 – 0.4 | **N** | **Y** | N | |
| 443 | 582 | Y | 2.3 | 0.3 – 0.4 | **N** | **Y** | **Y** | |
| 444 | 581 | Y | 0.2 | 0.3 – 0.4 | Y | N | **Y** | |
| 445 | 581 | Y | 0.5 | 0.3 – 0.4 | Y | N | **Y** | |
| 446 | 593 | Y | 0.5 | 0.3 – 0.4 | Y | N | **Y** | |
| 447 | 600 | Y | 0.7 | 0.3 – 0.4 | Y | N | **Y** | |
| 448 | 600 | Y | 0.7 | 0.3 – 0.4 | Y | N | **Y** | |
| 459 | 504 | Y | 1.0 | 0.3 – 0.4 | Y | N | N | |
| 460 | 629 | Y | 1.0 | 0.3 – 0.4 | Y | N | N | |
| 461 | 520 | Y | 1.2 | 0.3 – 0.4 | Y | N | N | |
| 462 | 503 | Y | 1.6 | 0.3 – 0.4 | Y | N | N | |
| 463 | 659 | Y | 1.0 | 0.3 – 0.4 | Y | N | N | |
| 464 | 630 | Y | 2.7 | 0.3 – 0.4 | **N** | **Y** | N | |

Note 1: Excludes topsoil or sites where topsoil was removed and later replaced and is taken as the maximum fill contour subtracted by 0.3 m.
Note 2: Subject to inspection and confirmation during construction by suitably qualified person. Depths based off limited testing information, localised soft soils could be present away from test locations. Topsoil depths are expected to vary across the site
Note 3: Where specific design is not required (as indicated by an "N") this does not indicate that specific design of foundations is prohibited.
Note 4: Partial or full raking of lot conducted below natural subgrade level. Depth to base of raked soils approximately 0.6 m Fill depths presented are outside the area of raked soils.
Note 5: Foundations to be designed for 200 kPa geotechnical ultimate bearing capacity which is expected from 0.3 to 0.4 m depth.


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**APPENDIX A**

Development Criteria Plan & Stages 6 and 7 Finished Levels

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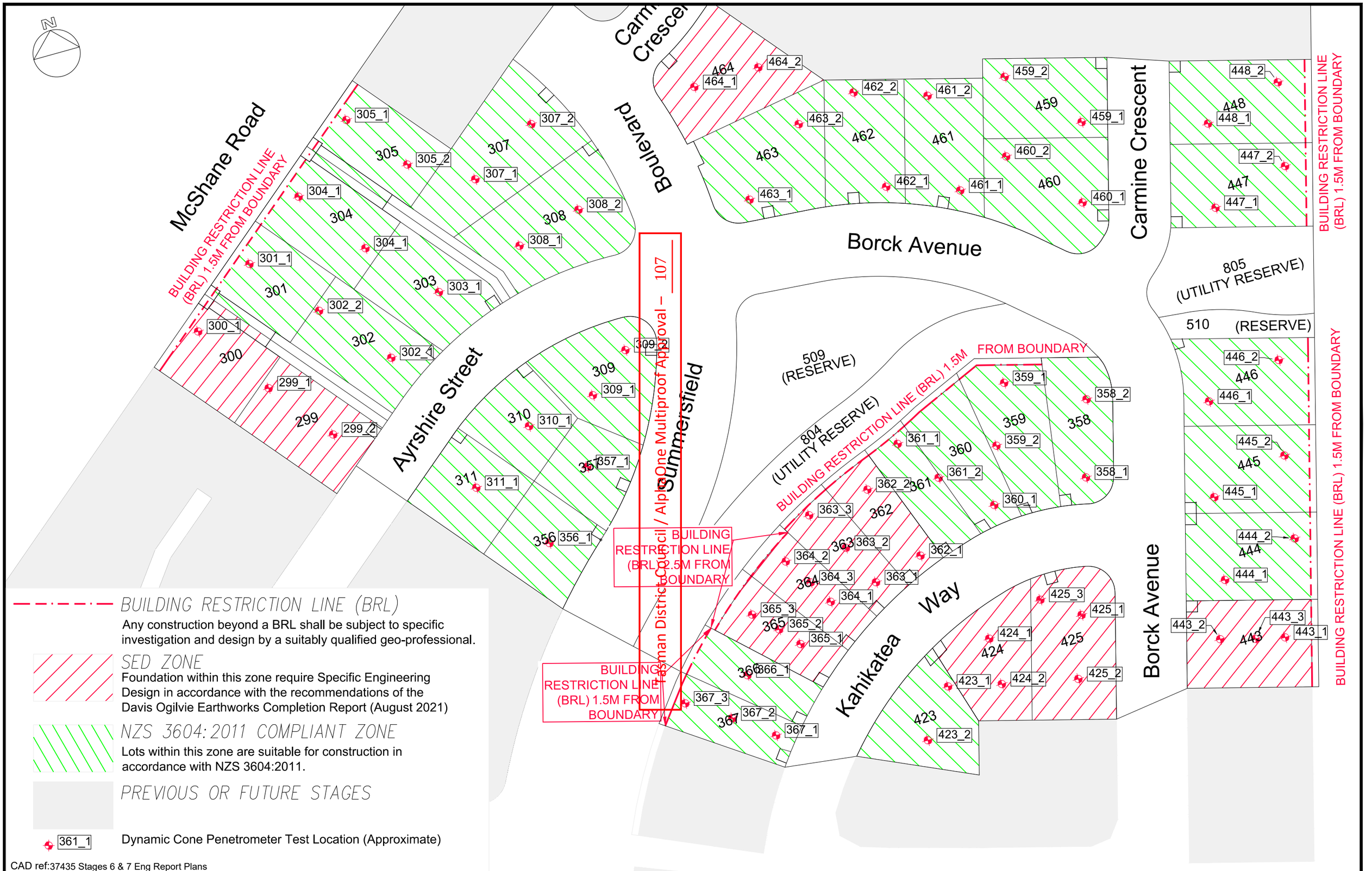



## BUILDING RESTRICTION LINE (BRL)

Any construction beyond a BRL shall be subject to specific investigation and design by a suitably qualified geo-professional.

## SED ZONE

Foundation within this zone require Specific Engineering Design in accordance with the recommendations of the Davis Ogilvie Earthworks Completion Report (August 2021)

## NZS 3604:2011 COMPLIANT ZONE

Lots within this zone are suitable for construction in accordance with NZS 3604:2011.

## PREVIOUS OR FUTURE STAGES

361_1 Dynamic Cone Penetrometer Test Location (Approximate)

CAD ref:37435 Stages 6 & 7 Eng Report Plans

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Limited
Level 1, 42 Oxford Street, Richmond 7020
Office 0800 999 333 Email nelson@do.nz
www.do.nz

# The Meadows Stage 5

## Development Criteria Plan

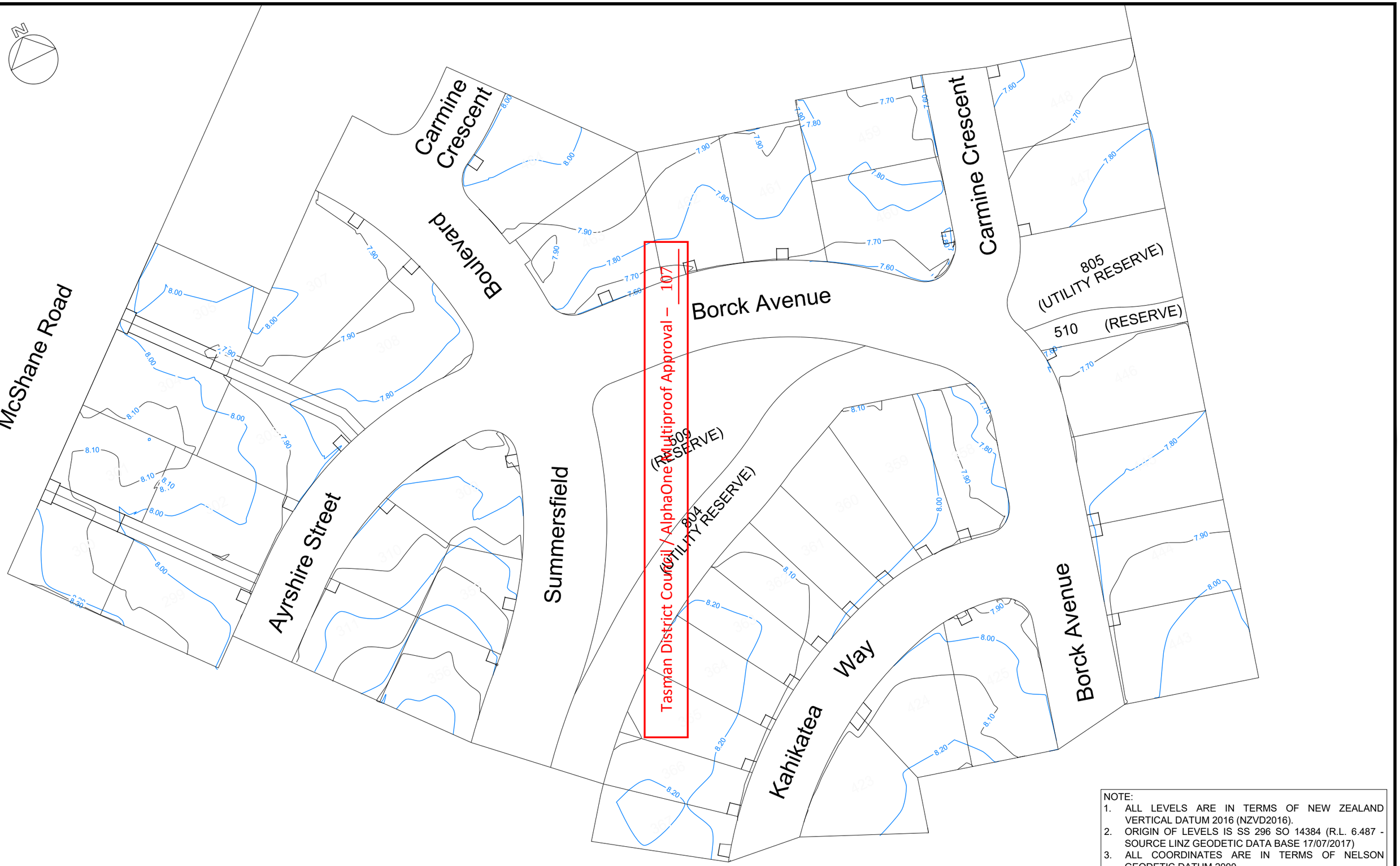
tasman district council

ENGINEERING MANAGER DATE

| design | drawn | QA check |
|---|---|---|
| NL | NL | MG |
| scale @ A3 | date | file |
| 1:750 | 09/21 | 37435 |

dwg 530 issue A

SH180019
RM Number




NOTE:
1. ALL LEVELS ARE IN TERMS OF NEW ZEALAND VERTICAL DATUM 2016 (NZVD2016).
2. ORIGIN OF LEVELS IS SS 296 SO 14384 (R.L. 6.487 - SOURCE LINZ GEODETIC DATA BASE 17/07/2017)
3. ALL COORDINATES ARE IN TERMS OF NELSON GEODETIC DATUM 2000.
4. ORIGIN OF COORDINATES BP 10 DP513553. CONTOUR INTERVAL = 0.1M

CAD ref:37435 Stages 6 & 7 Eng Report Plans

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Limited
Level 1, 42 Oxford Street, Richmond 7020
Office 0800 999 333 Email nelson@do.nz
www.do.nz

# The Meadows Stages 6 & 7

## Finished Level Plan

tasman district council

ENGINEERING MANAGER DATE

| design | drawn | QA check | dwg | issue |
|---|---|---|---|---|
| NL | NL | MG | 529 | A |
| scale @ A3 | date | file | SH180019 | |
| 1:750 | 09/21 | 37435 | RM Number | |

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022


**APPENDIX B**

Geotechnical Test Results

Tasman District Council / AlphaOne Multiproof Approval – 107

## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_299_1** | **Lot_299_2** | **Lot_300_1** | **Lot_301_1** |
| **Date** | **11/06/2021** | | | **16/08/2021** |
| **Depth (mm)** | | | | |
| 100 | 3 | 3 | 6 | 0 |
| 200 | 4 | 3 | 6 | 1 |
| 300 | 14 | 12 | 20 | 1 |
| 400 | 20 | 11 | 19 | 20 |
| 500 | | 20 | 20 | |
| 600 | | | | |
| 700 | | | | |
| 800 | | | | |
| 900 | | | | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

Tasman District Council / AlphaOne Multiproof Approval – 107

## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_302_1** | **Lot_302_2** | **Lot_303_1** | |
| **Date** | **11/06/2021** | | **11/06/2021** | |
| **Depth (mm)** | | | | |
| 100 | 2 | 2 | 2 | |
| 200 | 5 | 6 | 3 | |
| 300 | 7 | 8 | 3 | |
| 400 | 20 | 20 | 15 | |
| 500 | | | 20 | |
| 600 | | | | |
| 700 | | | | |
| 800 | | | | |
| 900 | | | | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

Tasman District Council / AlphaOne Multiproof Approval – 107

## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_304_1** | **Lot_304_2** | **Lot_305_1** | **Lot_305_2** |
| **Date** | **11/06/2021** | **16/08/2021** | **16/08/2021** | |
| **Depth (mm)** | | | | |
| 100 | 1 | 6 | 2 | 1 |
| 200 | 4 | 7 | 1 | 1 |
| 300 | 10 | 15 | 4 | 1 |
| 400 | 13 | 20 | 20 | 4 |
| 500 | 20 | | 16 | 20 |
| 600 | | | | 20 |
| 700 | | | | |
| 800 | | | | |
| 900 | | | | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

Tasman District Council / AlphaOne Multiproof Approval – 107

## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_307_1** | **Lot_307_2** | **Lot_308_1** | **Lot_308_2** |
| **Date** | **11/06/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 5 | 5 | 7 | 3 |
| 200 | 15 | 4 | 10 | 4 |
| 300 | 24 | 14 | 11 | 17 |
| 400 | 20 | 20 | 20 | 20 |
| 500 | | | | |
| 600 | | | | |
| 700 | | | | |
| 800 | | | | |
| 900 | | | | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

Tasman District Council / AlphaOne Multiproof Approval – 107

## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_309_1** | **Lot_309_2** | **Lot_310_1** | |
| **Date** | **11/06/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 2 | 4 | 1 | |
| 200 | 1 | 3 | 4 | |
| 300 | 6 | 3 | 5 | |
| 400 | 20 | 17 | 11 | |
| 500 | | 18 | 20 | |
| 600 | | 12 | | |
| 700 | | 20 | | |
| 800 | | | | |
| 900 | | | | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_311_1** | **Lot 356_1** | **Lot_357_1** | |
| **Date** | **11/06/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 2 | 4 | 1 | |
| 200 | 1 | 3 | 4 | |
| 300 | 6 | 3 | 5 | |
| 400 | 20 | 17 | 11 | |
| 500 | | 18 | 20 | |
| 600 | | 12 | | |
| 700 | | 20 | | |
| 800 | | | | |
| 900 | | | | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

Tasman District Council / AlphaOne Multiproof Approval – 107

## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_358_1** | **Lot 358_2** | **Lot_359_1** | **Lot_359_2** |
| **Date** | **11/06/2021** | **21/01/2021** | **11/06/2021** | **11/06/2021** |
| **Depth (mm)** | | | | |
| 100 | 7 | 2 | 8 | 5 |
| 200 | 5 | 3 | 10 | 5 |
| 300 | 5 | 6 | 9 | 10 |
| 400 | 13 | 5 | 6 | 5 |
| 500 | 16 | 20 | 11 | 20 |
| 600 | 20 | | 20 | |
| 700 | | | | |
| 800 | | | | |
| 900 | | | | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_360_1** | | **Lot_361_1** | **Lot_361_2** |
| **Date** | **21/01/2021** | | **21/01/2021** | **11/06/2021** |
| **Depth (mm)** | | | | |
| 100 | 7 | | 12 | 4 |
| 200 | 5 | | 12 | 6 |
| 300 | 3 | | 7 | 5 |
| 400 | 5 | | 6 | 7 |
| 500 | 11 | | 13 | 14 |
| 600 | 10 | | 12 | 14 |
| 700 | 12 | | 10 | 12 |
| 800 | 20 | | 11 | 20 |
| 900 | | | 20 | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_362_1** | **Lot_362_2** | **Lot_363_1** | **Lot_363_2** |
| **Date** | **21/01/2021** | **11/06/2021** | **17/08/2021** | |
| **Depth (mm)** | | | | |
| 100 | 12 | 6 | 1 | 1 |
| 200 | 9 | 14 | 1 | 1 |
| 300 | 7 | 8 | 1 | 1 |
| 400 | 9 | 11 | 3 | 4 |
| 500 | 20 | 20 | 7 | 8 |
| 600 | | | 10 | 6 |
| 700 | | | 3 | 10 |
| 800 | | | 3 | 6 |
| 900 | | | 6 | 9 |
| 1000 | | | 9 | 17 |
| 1100 | | | 20 | 7 |
| 1200 | | | | 15 |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_363_3** | **Lot_364_1** | **Lot_364_2** | **Lot_364_3** |
| **Date** | **17/08/2021** | **9/08/2021** | | **11/06/2021** |
| **Depth (mm)** | | | | |
| 100 | 1 | 1 | 1 | 1 |
| 200 | 3 | 1 | 1 | 1 |
| 300 | 5 | 2 | 1 | 1 |
| 400 | 6 | 9 | 5 | 14 |
| 500 | 20 | 10 | 12 | 10 |
| 600 | | 15 | 14 | 5 |
| 700 | | 20 | 20 | 7 |
| 800 | | | | 9 |
| 900 | | | | 11 |
| 1000 | | | | 13 |
| 1100 | | | | 15 |
| 1200 | | | | 10 |
| 1300 | | | | 14 |
| 1400 | | | | 20 |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_365_1** | **Lot_365_2** | **Lot_365_3** | **Lot_366_1** |
| **Date** | **6/08/2021** | | | **11/06/2021** |
| **Depth (mm)** | | | | |
| 100 | 1 | 1 | 1 | 2 |
| 200 | 2 | 1 | 1 | 1 |
| 300 | 1 | 1 | 1 | 2 |
| 400 | 16 | 2 | 2 | 7 |
| 500 | 28 | 8 | 6 | 12 |
| 600 | 30 | 6 | 9 | 20 |
| 700 | | 6 | 10 | |
| 800 | | 20 | 8 | |
| 900 | | | 16 | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_367_1** | **Lot_367_2** | **Lot_367_3** | |
| **Date** | **9/08/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 3 | 5 | 3 | |
| 200 | 3 | 5 | 6 | |
| 300 | 3 | 15 | 8 | |
| 400 | 3 | 20 | 26 | |
| 500 | 41 | 15 | | |
| 600 | | 16 | | |
| 700 | | | | |
| 800 | | | | |
| 900 | | | | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_423_1** | **Lot_423_2** | **Lot_424_1** | **Lot_424_2** |
| **Date** | **11/06/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 3 | 3 | 4 | 6 |
| 200 | 5 | 6 | 3 | 3 |
| 300 | 6 | 9 | 5 | 8 |
| 400 | 14 | 16 | 16 | 20 |
| 500 | 20 | 11 | 20 | |
| 600 | | 10 | | |
| 700 | | 20 | | |
| 800 | | | | |
| 900 | | | | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_425_1** | **Lot_425_2** | **Lot_425_3** | |
| **Date** | **11/06/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 1 | 1 | 1 | |
| 200 | 1 | 1 | 1 | |
| 300 | 13 | 11 | 4 | |
| 400 | 20 | 20 | 14 | |
| 500 | | | 14 | |
| 600 | | | 11 | |
| 700 | | | 7 | |
| 800 | | | 10 | |
| 900 | | | 8 | |
| 1000 | | | 6 | |
| 1100 | | | 9 | |
| 1200 | | | 12 | |
| 1300 | | | 20 | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_443_1** | **Lot_443_2** | **Lot_443_3** | |
| **Date** | **11/06/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 2 | 4 | 3 | |
| 200 | 7 | 3 | 3 | |
| 300 | 2 | 5 | 3 | |
| 400 | 5 | 20 | 6 | |
| 500 | 7 | | 10 | |
| 600 | 9 | | 18 | |
| 700 | 11 | | 11 | |
| 800 | 20 | | 9 | |
| 900 | | | 12 | |
| 1000 | | | 9 | |
| 1100 | | | 8 | |
| 1200 | | | 13 | |
| 1300 | | | 12 | |
| 1400 | | | 9 | |
| 1500 | | | 8 | |
| 1600 | | | 8 | |
| 1700 | | | 3 | |
| 1800 | | | 20 | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_444_1** | **Lot_444_2** | **Lot_445_1** | **Lot_445_2** |
| **Date** | **21/01/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 5 | 4 | 11 | 8 |
| 200 | 6 | 8 | 5 | 7 |
| 300 | 5 | 5 | 5 | 7 |
| 400 | 10 | 10 | 10 | 8 |
| 500 | 17 | 17 | 11 | 20 |
| 600 | 20 | 13 | 13 | |
| 700 | | 10 | 12 | |
| 800 | | 14 | 10 | |
| 900 | | 20 | 10 | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_446_1** | **Lot_446_2** | **Lot_447_1** | **Lot_447_2** |
| **Date** | **21/01/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 7 | 8 | 8 | 9 |
| 200 | 2 | 5 | 4 | 7 |
| 300 | 2 | 4 | 3 | 8 |
| 400 | 3 | 8 | 15 | 20 |
| 500 | 9 | 17 | 15 | |
| 600 | 10 | 20 | 18 | |
| 700 | 4 | | 16 | |
| 800 | 8 | | 15 | |
| 900 | 7 | | 12 | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_448_1** | **Lot_448_2** | **Lot_459_1** | **Lot_459_2** |
| **Date** | **21/01/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 4 | 10 | 14 | 9 |
| 200 | 8 | 13 | 7 | 6 |
| 300 | 8 | 16 | 8 | 10 |
| 400 | 20 | 20 | 16 | 5 |
| 500 | | | 14 | 6 |
| 600 | | | 20 | 11 |
| 700 | | | | 20 |
| 800 | | | | |
| 900 | | | | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_460_1** | **Lot_460_2** | **Lot_461_1** | **Lot_461_2** |
| **Date** | **21/01/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 5 | 6 | 8 | 8 |
| 200 | 6 | 4 | 6 | 9 |
| 300 | 2 | 3 | 3 | 5 |
| 400 | 7 | 9 | 8 | 32 |
| 500 | 20 | 16 | 20 | 20 |
| 600 | | 20 | | |
| 700 | | | | |
| 800 | | | | |
| 900 | | | | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_462_1** | **Lot_462_2** | **Lot_463_1** | **Lot_463_2** |
| **Date** | **21/01/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 6 | 9 | 7 | 2 |
| 200 | 6 | 13 | 11 | 3 |
| 300 | 3 | 18 | 8 | 5 |
| 400 | 9 | 20 | 9 | 10 |
| 500 | 5 | | 11 | 20 |
| 600 | 9 | | 8 | |
| 700 | 17 | | 8 | |
| 800 | 20 | | 7 | |
| 900 | | | 10 | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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## DYNAMIC CONE PENETROMETER (DCP) TEST RESULTS

**Project:** The Meadows
**Project Number:** 37435
**Location:** Stages 6 & 7

| | NZS3604:2011 COMPLIANCE TESTING (blows /100mm) With Topsoil | | | |
|---|---|---|---|---|
| **DCP No.** | **Lot_464_1** | **Lot_464_2** | | |
| **Date** | **6/08/2021** | | | |
| **Depth (mm)** | | | | |
| 100 | 5 | 9 | | |
| 200 | 3 | 9 | | |
| 300 | 3 | 11 | | |
| 400 | 20 | 11 | | |
| 500 | 20 | 20 | | |
| 600 | | | | |
| 700 | | | | |
| 800 | | | | |
| 900 | | | | |
| 1000 | | | | |
| 1100 | | | | |
| 1200 | | | | |
| 1300 | | | | |
| 1400 | | | | |
| 1500 | | | | |
| **Note: Topsoil thickness expected to be 300 mm to 400 mm.** | | | | |

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**APPENDIX C**

Schedule 2A Certificate

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## SCHEDULE 2A

## STATEMENT OF PROFESSIONAL OPINION ON SUITABILITY OF LAND FOR BUILDING CONSTRUCTION

| | |
|---|---|
| Development: | The Meadows - Stages 6 & 7: Lots 299 to 305, 307 to 311, 356 to 367, 423 to 425, 443 to 448 and 459 to 464 inclusive (SH180019) |
| Developer: | Richmond West Development Company Limited |
| Location: | McShane Road, Richmond West |

I, Ben Parry, of DAVIS OGILVIE & PARTNERS LTD, Level 1, 42 Oxford Street, Richmond 7020,

Hereby confirm that:

I am a geo-professional as defined in clause 1.2.2 of NZS 4404:2010 and was retained by the developer as the geo-professional on the above project.

The extent of my/my staff's geotechnical investigations, conclusion and recommendations are described in our Earthworks Completion Report reference number 37435 for Stages 6 & 7 dated 06 September 2021 ('the report').

Subject to the development conditions summarised below, the Stages 6 & 7 lots are not considered to be subject to significant risk from natural hazards. The risks from natural hazards have been determined in accordance with the provisions of Section 106 (1a) of the Resource Management Act, excluding wind and fire.

In my professional opinion, not to be construed as a guarantee, I consider that the land areas given on Davis Ogilvie Plan 530-A dated September 2021 (ref. 37435) are suitable for erection of residential buildings, subject to information provided in the report and the development conditions given below:

### General Conditions

The following recommendations apply to lots 299 to 305, 307 to 311, 356 to 367, 423 to 425, 443 to 448 and 459 to 464 inclusive in The Meadows development:

1. Foundations for Lots 301 to 305, 307 to 311, 356 to 361, 366, 367, 423, 444 to 448 and 459 to 463 shall penetrate all topsoil, organic, weak or otherwise unsuitable ground (if present), to bear in competent 'good ground' with a geotechnical ultimate bearing capacity of at least 300 kPa in accordance with NZS 3604:2011 Timber framed buildings.

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2. Foundations for Lots 299, 300, 424, 425, 443 and 464 shall penetrate all topsoil, organic, weak or otherwise unsuitable ground (if present), to bear in competent ground with a geotechnical ultimate bearing capacity of at least 300 kPa. Foundations shall be specific engineer designed stiffened raft-style foundations, designed, inspected, and certified by a chartered professional engineer practicing in foundation design.
3. Foundations for Lots 362 to 365 shall penetrate all topsoil, organic, weak or otherwise unsuitable ground (if present), to bear in competent ground with a geotechnical ultimate bearing capacity of at least 200 kPa. Foundations shall be specific engineer designed stiffened raft-style foundations, designed, inspected, and certified by a chartered professional engineer practicing in foundation design.
4. For Lots 300, 301, 304, 305, 359 to 367 and 443 to 448, any construction beyond a BRL shall be subject to specific investigation and design by a suitably qualified geo-professional.
5. During construction, all footing excavations and stripped areas below proposed concrete slab foundations should be inspected and approved by a suitably qualified person to confirm that the ground conditions are consistent with those described in this report. For Lots 362 to 365 this inspection shall be made by a suitably qualified geo-professional.
6. All structural fills shall be placed in accordance with NZS 4431:1989 with adequate stripping, benching, and drainage.
7. Storm water from roofs, paved, hardstanding and impermeable areas, drainage from retaining walls, surface drains, and overflows from standing bodies of water, such as ponds, shall be collected and discharged in a controlled manner to the Tasman District Council storm water system.
8. All excavations, including for foundations and service trenches for cables and drains, shall be designed and constructed in a manner that does not induce saturation of the adjacent ground, and in particular the certified fill.
9. Any earthworks involving cuts or fills greater than 0.8 m in height shall be subject to specific investigation and design by a chartered professional engineer experienced in geotechnical engineering or by an experienced engineering geologist.

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10. Retaining walls should be designed and inspected during construction by a Chartered Professional Engineer practicing in structural or geotechnical engineering when:
    a. the wall is 1.2 m in height or greater,
    b. the wall is retaining ground supporting surcharge loads such as buildings,
    c. the wall retains slopes of over 5H:1V, and
    d. the wall is founded on sloping ground of over 5H: 1V.

    Regardless of the above requirements, all retaining walls must be in compliance with the Building Act 2004 and the Tasman Resource Management Plan.

This professional opinion is furnished to the TDC and the developer for their purposes alone on the express condition that it will not be relied upon by any other person and does not remove the necessity for the normal inspection of foundation conditions at the time of erection of any building. Development on each lot is still subject to normal resource and building consent processes.

Signed Date 06 September 2021

**Ben Parry**
Senior Engineering Geologist
PG Dip, BSc (Tech), CMEngNZ (PEngGeol)

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**APPENDIX D**

Statement of Suitability of Earth Fill & Supporting Documents

Tasman District Council / AlphaOne Multiproof Approval – 107

# STATEMENT OF SUITABILITY OF EARTH FILL FOR RESIDENTIAL DEVELOPMENT

| | |
|---|---|
| **Subdivision** | The Meadows Subdivision, Stages 6 & 7: Lots 299 to 305, 307 to 311, 356 to 367, 423 to 425, 443 to 448 and 459 to 464 inclusive (RM No. SH180019) |
| **Owner/Developer** | Richmond West Development Company Limited |
| **Location** | McShane Road, Richmond West |

The earth fills shown on the Davis Ogilvie plan DWG 528-A dated August 2021 (reference 37435) have been placed in general compliance with the terms of NZS 4431:1989: Earthfill For Residential Development.

I am a Professional Engineering Geologist (Member ID 1154566) acting on behalf of Davis Ogilvie and Partners Ltd.

During the work, I and/or staff under my supervision made periodic visits to inspect the site. Soil testing was carried out to check the quality of the fill. NDM tests have been carried out by Civil Engineering Laboratory Services Limited and are attached.

The attached Davis Ogilvie As-Built Cut/Fill Plans (September 2021) show Lots 299 to 305, 307 to 311, 356 to 367, 423 to 425, 443 to 448 and 459 to 464 inclusive which are affected by filling and the extent of fill covered by this certificate. The maximum fill depth on the site was approximately 2.4 metres.

The following conditions apply to this certification:

1. Lots 301 to 305, 307 to 311, 356 to 361, 366, 367, 423, 444 to 448 and 459 to 463 (inclusive) underlain by engineered fill or natural ground which must be demonstrated to achieve a minimum ultimate bearing capacity (UBC) of 300 kPa. NZS 3604:2011 foundations may be used. Foundations shall penetrate all topsoil, organic, weak or otherwise unsuitable ground (if present).

2. Lots 299, 300, 424, 425, 443 and 464 (inclusive) are underlain by inconsistent engineered fill types and variable depths and are subject to specific engineering design, observation and certification using an ultimate bearing capacity (UBC) of 300 kPa. Foundations shall penetrate all topsoil, organic, weak or otherwise unsuitable ground (if present).

3. Lots 362 to 365 (inclusive) are underlain by lower strength engineered fill and are subject to specific engineering design, observation and certification using an ultimate bearing capacity (UBC) of 200 kPa. Foundations shall penetrate all topsoil, organic, weak or otherwise unsuitable ground (if present).

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This document certifies that the earth fill on the stated lots has been placed in general compliance with the terms of NZS 4431:1989. This certification does not remove the necessity for the normal inspection and design of foundations as would be made in natural ground.

**BEN PARRY**

PG Dip, BSc (Tech), CMEngNZ (PEngGeol)

Senior Engineering Geologist

(Position)

06 September2021

(Date)

On Behalf Of Richmond West Development Company Limited

(Name of Owner/Developer)

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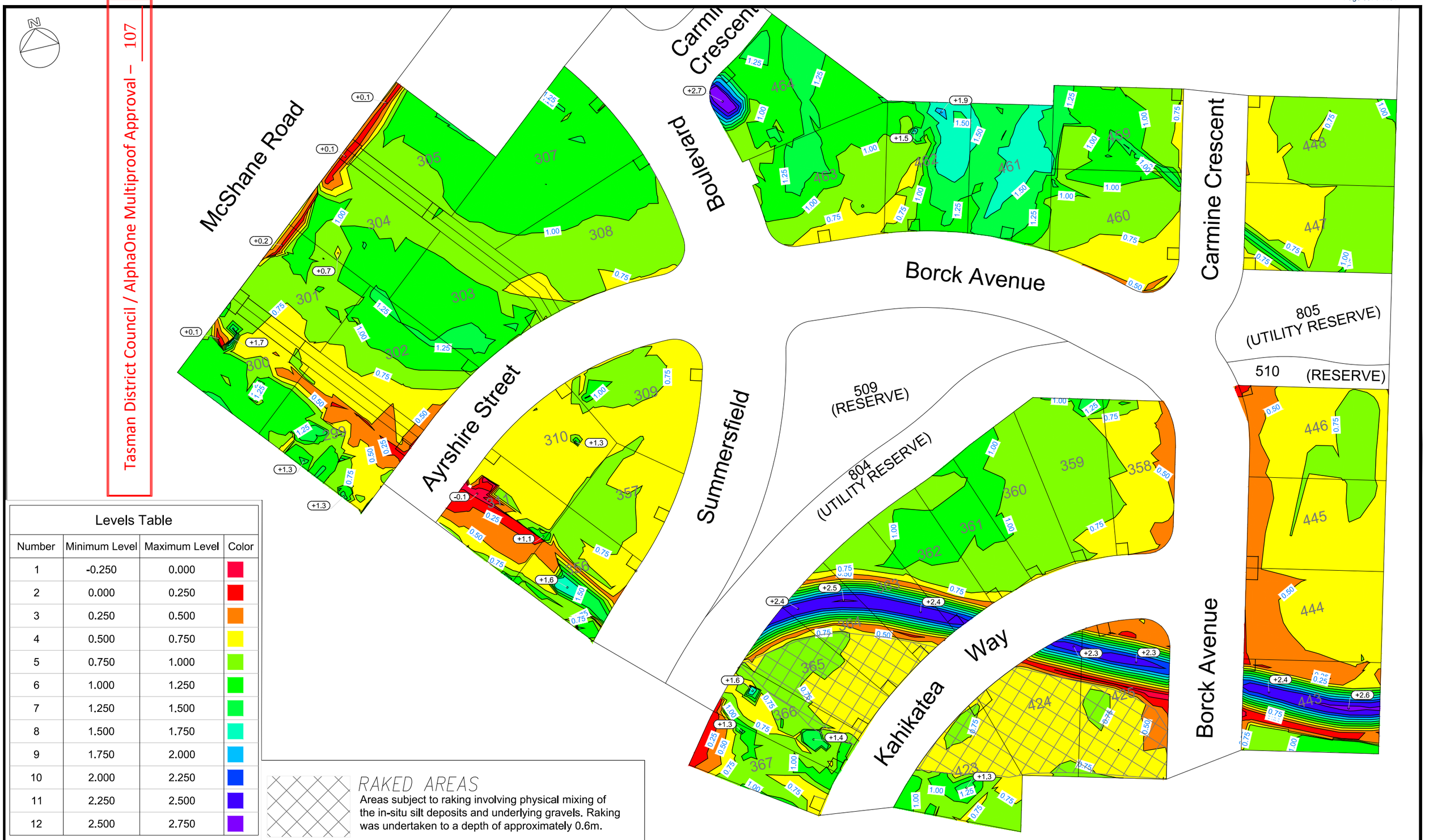


| Levels Table | | | |
|---|---|---|---|
| Number | Minimum Level | Maximum Level | Color |
| 1 | -0.250 | 0.000 | |
| 2 | 0.000 | 0.250 | |
| 3 | 0.250 | 0.500 | |
| 4 | 0.500 | 0.750 | |
| 5 | 0.750 | 1.000 | |
| 6 | 1.000 | 1.250 | |
| 7 | 1.250 | 1.500 | |
| 8 | 1.500 | 1.750 | |
| 9 | 1.750 | 2.000 | |
| 10 | 2.000 | 2.250 | |
| 11 | 2.250 | 2.500 | |
| 12 | 2.500 | 2.750 | |

1. Negative figures denotes areas which have been cut. Positive figures denotes areas of fill.
2. Contour Interval = 0.25m

CAD ref:37435 Stages 6 & 7 Eng Report Plans

RAKED AREAS

Areas subject to raking involving physical mixing of the in-situ silt deposits and underlying gravels. Raking was undertaken to a depth of approximately 0.6m.

Note: The Cut and Fill depths have been calculated by comparing the lowest strip/undercut surface with the measured finished ground surface and includes approximately 0.3 m to 0.4 m thickness of topsoil.

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Limited
Level 1, 42 Oxford Street, Richmond 7020
Office 0800 999 333 Email nelson@do.nz
www.do.nz

# The Meadows Stages 6 & 8

## ISO Contour Plan

tasman district council

ENGINEERING MANAGER DATE

| design | drawn | QA check | dwg | issue |
|---|---|---|---|---|
| NL | NL | MG | 528 | A |
| scale @ A3 | date | file | SH180019 | |
| 1:750 | 09/21 | 37435 | RM Number | |

**Earthfill Verification Testing**

**Project:** The Meadows Stages 6 and 7
**Project Number:** 37435
**Date Updated:** 8/06/2021

| | | | | | | | | NDM Results | | | | Air Voids | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab. Ref. | Date | Test No. | Lot Number | Field Operator | Probe Depth | Fill Type | Fill Level (m RL) | Wet Density (t/m$^3$) | Dry Density (t/m$^3$) | Oven Corrected Water Content (%) | % of MDD | Air Voids (%) | Ave. Air Voids (%) |
| 20/103 | 22/01/2020 | 1 | 424 | CELS | Direct Transmission | C | 7.3 | 2.25 | 2.12 | 6.0 | **98** | 10.5 | 8.2 |
| | | 2 | 424 | | | C | 7.53 | 2.25 | 2.07 | 8.5 | **96** | 7.3 | |
| | | 3 | 425 | | | C | 7.46 | 2.27 | 2.10 | 8.1 | **97** | 6.8 | |
| 20/129 | 24/01/2020 | 1 | 424 | CELS | Direct Transmission | A | 7.53 | 2.47 | 2.32 | 6.4 | **102** | 1.7 | 1.7 |
| | | 2 | 424 | | | A | 7.84 | 2.44 | 2.28 | 6.6 | **100** | 2.7 | |
| | | 3 | 424 | | | A | 7.51 | 2.46 | 2.30 | 7.0 | **101** | 1.2 | |
| | | 4 | 425 | | | A | 7.67 | 2.46 | 2.29 | 7.2 | **101** | 1.1 | |
| 20/290 | 21/02/2020 | 1 | 356 | CELS | Direct Transmission | A | 7.85 | 2.44 | 2.29 | 6.6 | **100** | 2.6 | 3.6 |
| | | 2 | 356 | | | | 7.75 | 2.39 | 2.25 | 6.3 | **99** | 5.0 | |
| | | 3 | 311 | | | | 7.6 | 2.45 | 2.30 | 6.7 | **101** | 1.9 | |
| | | 5 | 299 | | | | 7.16 | 2.37 | 2.21 | 7.6 | **97** | 3.9 | |
| | | 6 | 300 | | | | 7.02 | 2.40 | 2.25 | 6.3 | **99** | 4.7 | |
| 20/545 | 6/05/2020 | 1 | Lot 304 to 307 (Co-ordinates not provided) | CELS | Direct Transmission | A | First Lift | 2.44 | 2.26 | 8.3 | **99** | 0.1 | 1.0 |
| | | 2 | | | | | | 2.46 | 2.29 | 7.5 | **100** | 0.4 | |
| | | 3 | | | | | | 2.40 | 2.21 | 8.7 | **97** | 1.2 | |
| | | 4 | | | | | | 2.41 | 2.25 | 7.3 | **99** | 2.7 | |
| | | 5 | | | | | | 2.41 | 2.20 | 9.3 | **97** | 0.3 | |
| | | 6 | | | | | | 2.40 | 2.21 | 8.9 | **97** | 1.0 | |
| 20/609 | 14/05/2020 | 2 | 307 | CELS | Direct Transmission | A | 7.857 | 2.41 | 2.24 | 7.8 | **98** | 2.0 | 2.4 |
| | | 3 | 308 | | | | 7.868 | 2.44 | 2.28 | 7.3 | **100** | 1.6 | |
| | | 4 | 309 | | | | 7.281 | 2.37 | 2.19 | 7.8 | **96** | 3.8 | |
| | | 6 | 305 | | | | 7.783 | 2.43 | 2.26 | 7.8 | **99** | 1.2 | |
| | | 7 | 305 | | | | 7.678 | 2.42 | 2.24 | 8.2 | **98** | 1.3 | |
| | | 8 | 304 | | | | 7.632 | 2.33 | 2.13 | 9.3 | **94** | 3.5 | |
| | | 9 | 301 | | | | 7.71 | 2.4 | 2.2 | 7.9 | **96** | 3.4 | |
| 20/670 | 21/05/2020 | 1 | Stage 6 Old Office Site | CELS | Direct Transmission | D | Finished level | 2.40 | 2.26 | 6.2 | **101** | 5.2 | 5.0 |
| | | 2 | | | | D | Finished level | 2.35 | 2.22 | 5.9 | **99** | 7.6 | |
| | | 3 | | | | D | Finished level | 2.39 | 2.23 | 7.0 | **100** | 4.6 | |
| | | 4 | | | | D | Finished level | 2.45 | 2.30 | 6.7 | **103** | 2.5 | |
| 20/817 | 23/06/2020 | 1 | 299 | CELS | Backscatter | B | 7.761 | 2.37 | 2.23 | 6.1 | **95** | 6.9 | 6.9 |
| 20/852 | 2/07/2020 | 1 | 300 | CELS | Backscatter | B | 7.15 | 2.35 | 2.23 | 5.6 | **95** | 8.3 | 8.0 |
| | | 2 | 299 | | | | 7.58 | 2.37 | 2.24 | 6.0 | **96** | 7.0 | |
| | | 3 | 299 | | | | 7.581 | 2.35 | 2.22 | 5.4 | **95** | 8.8 | |

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20/897 | 10/07/2020 | 1 | 300 | CELS | Backscatter | B | 7.938 | 2.38 | 2.27 | 4.8 | **97** | 8.3 | 6.4 |
| | | 2 | 299 | | | | 7.859 | 2.40 | 2.27 | 5.7 | **97** | 6.1 | |
| | | 3 | 299 | | | | 7.833 | 2.42 | 2.28 | 6.1 | **98** | 4.7 | |
| 20/931 | 17/07/2020 | 1 | 356 | CELS | Backscatter | B | 8.188 | 2.39 | 2.28 | 5.0 | **97** | 7.6 | 8.5 |
| | | 6 | 356 | | | | 8.161 | 2.36 | 2.26 | 4.6 | **96** | 9.3 | |
| 20/1277 | 22/09/2020 | 1 | 444 | CELS | Backscatter | E | 7.52 | 2.37 | 2.18 | 8.6 | **96** | 3.40 | 5.9 |
| | | 2 | 445 | | | | 7.425 | 2.33 | 2.15 | 8.2 | **95** | 5.50 | |
| | | 3 | 446 | | | | 7.359 | 2.35 | 2.17 | 8.2 | **96** | 4.60 | |
| | | 4 | 358 | | | | 7.209 | 2.29 | 2.12 | 7.9 | **93** | 7.50 | |
| | | 5 | 359 | | | | 7.345 | 2.28 | 2.11 | 8.2 | **93** | 7.40 | |
| | | 6 | 360 | | | | 7.371 | 2.32 | 2.15 | 7.8 | **95** | 6.30 | |
| | | 7 | 361 | | | | 7.382 | 2.31 | 2.14 | 7.9 | **94** | 6.60 | |
| 20/1288 | 23/09/2020 | 1 | 460 | CELS | Backscatter | E | 7.3 | 2.29 | 2.09 | 9.4 | **92** | 5.60 | 6.1 |
| | | 2 | 447 | | | | 7.28 | 2.3 | 2.13 | 8.2 | **94** | 6.60 | |
| 20/1345 | 2/10/2020 | 1 | 461 | CELS | Backscatter | F | 6.55 | 2.37 | 2.17 | 8.9 | **95** | 3.10 | 3.6 |
| | | 2 | 462 | | | | 6.614 | 2.36 | 2.19 | 8.2 | **95** | 4.10 | |
| 20/1352 | 5/10/2020 | 1 | 445 | CELS | Direct Transmission | F | 7.4 | 2.4 | 2.26 | 6 | **99** | 5.60 | 7.5 |
| | | 2 | 446 | | | | 7.42 | 2.32 | 2.19 | 5.6 | **96** | 9.40 | |
| 20/1353 | 6/10/2020 | 1 | 358 | CELS | Backscatter | F | 7.56 | 2.37 | 2.21 | 7 | **96** | 5.50 | 5.7 |
| | | 2 | 359 | | | | 7.72 | 2.36 | 2.2 | 7.2 | **96** | 5.60 | |
| | | 3 | 360 | | | | 7.74 | 2.35 | 2.18 | 7.8 | **95** | 5.10 | |
| | | 4 | 444 | | | | 7.54 | 2.37 | 2.25 | 5.4 | **98** | 7.40 | |
| | | 5 | 447 | | | | 7.48 | 2.36 | 2.2 | 7.6 | **96** | 4.90 | |
| 20/1361 | 7/10/2020 | 1 | 361 | CELS | Backscatter | F | 7.76 | 2.35 | 2.19 | 7 | **96** | 6.30 | 5.4 |
| | | 2 | 461 | | | | 7.31 | 2.38 | 2.2 | 8.2 | **96** | 3.50 | |
| | | 3 | 462 | | | | 7.29 | 2.36 | 2.19 | 8.1 | **95** | 4.30 | |
| | | 4 | 463 | | | | 6.98 | 2.34 | 2.18 | 7.4 | **95** | 6.20 | |
| | | 5 | 460 | | | | 7.51 | 2.33 | 2.18 | 6.6 | **95** | 7.50 | |
| | | 6 | 448 | | | | 7.1 | 2.35 | 2.17 | 8.4 | **95** | 4.20 | |
| | | 7 | 449 | | | | 7 | 2.34 | 2.18 | 7.6 | **95** | 5.70 | |
| 20/1371 | 8/10/2020 | 1 | 461 | CELS | Direct Transmission | F | 7.4 | 2.35 | 2.17 | 8.5 | **96** | 4.30 | 5.3 |
| | | 2 | 462 | | | | 7.4 | 2.33 | 2.2 | 6.1 | **96** | 8.20 | |
| | | 3 | 463 | | | | 7.2 | 2.4 | 2.23 | 7.5 | **98** | 3.50 | |
| 20/1412 | 14/10/2020 | 1 | 448 | CELS | Backscatter | F | 7.45 | 2.37 | 2.19 | 8.6 | **95** | 3.20 | 3.2 |
| 20/1630 | 2/12/2020 | 1 | 459 | CELS | Backscatter | F | 7.451 | 2.36 | 2.18 | 8.5 | **95** | 3.8 | 6.1 |
| 20/1671 | 9/12/2020 | 5 | 464 | CELS | Backscatter | G | 6.559 | 2.32 | 2.17 | 7 | **98** | 7.3 | |
| 20/1675 | 9/12/2020 | 2 | 464 | CELS | Backscatter | G | 6.927 | 2.33 | 2.18 | 6.9 | **98** | 7.3 | |
| 20/1725 | 16/12/2020 | 1 | 464 | CELS | Backscatter | G | 7.239 | 2.36 | 2.24 | 5.3 | **101** | 8.2 | 8.2 |
| 21/063 | 18/01/2021 | 1 | 464 | CELS | Backscatter | G | 7.64 | 2.44 | 2.27 | 7.8 | **103** | 1.5 | 1.5 |
| 21/252 | 16/02/2021 | 1 | 309 | CELS | Backscatter | A | 7.657 | 2.37 | 2.2 | 7.7 | **96** | 4.1 | 3.1 |
| | | 2 | 309 | | | | 7.735 | 2.39 | 2.21 | 8.2 | **97** | 2.5 | |
| | | 3 | 309 | | | | 7.767 | 2.41 | 2.26 | 6.6 | **99** | 3.6 | |
| | | 4 | 310 | | | | 7.799 | 2.41 | 2.25 | 7 | **99** | 3.0 | |
| | | 5 | 357 | | | | 7.918 | 2.4 | 2.23 | 7.7 | **98** | 2.9 | |
| | | 6 | 357 | | | | 7.898 | 2.38 | 2.19 | 8.6 | **96** | 2.2 | |

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21/288 | 18/02/2021 | 7 | 302 | CELS | Backscatter | A | 7.169 | 2.36 | 2.22 | 6.5 | **97** | 5.8 | 5.7 |
| | | 8 | 302 | | | | 7.261 | 2.33 | 2.17 | 7.4 | **95** | 6.1 | |
| | | 9 | 302 | | | | 7.287 | 2.32 | 2.17 | 7.2 | **95** | 6.4 | |
| | | 10 | 303 | | | | 7.215 | 2.33 | 2.16 | 7.8 | **95** | 5.4 | |
| | | 13 | 303 | | | | 7.236 | 2.35 | 2.21 | 6.5 | **97** | 6.2 | |
| | | 14 | 308 | | | | 7.317 | 2.38 | 2.21 | 7.4 | **97** | 4.0 | |
| 21/440 | 17/03/2021 | 1 | 310 | CELS | Backscatter | G | 7.67 | 2.45 | 2.29 | 7.2 | **104** | 1.8 | 3.3 |
| | | 2 | 357 | | | | 7.913 | 2.43 | 2.23 | 9.1 | **101** | 0.1 | |
| | | 3 | 356 | | | | 7.625 | 2.46 | 2.31 | 6.7 | **104** | 2.1 | |
| | | 4 | 311 | | | | 7.617 | 2.41 | 2.25 | 6.9 | **102** | 4.1 | |
| | | 5 | 302 | | | A | 7.337 | 2.45 | 2.31 | 6.1 | **101** | 2.7 | |
| | | 6 | 303 | | | | 7.296 | 2.36 | 2.22 | 6.4 | **97** | 6.0 | |
| | | 7 | 303 | | | | 7.325 | 2.37 | 2.21 | 7.1 | **97** | 4.6 | |
| | | 8 | 302 | | | | 7.393 | 2.38 | 2.24 | 6.3 | **98** | 5.3 | |
| 21/443 | 18/03/2021 | 1 | 307 | CELS | Backscatter | A | 7.171 | 2.53 | 2.39 | 5.7 | **105** | 0.5 | 2.6 |
| | | 2 | 307 | | | | 7.226 | 2.39 | 2.21 | 8 | **97** | 2.7 | |
| | | 3 | 308 | | | | 7.243 | 2.48 | 2.31 | 7.3 | **102** | -0.1 | |
| | | 4 | 308 | | | | 7.155 | 2.4 | 2.23 | 7.8 | **98** | 2.6 | |
| | | 5 | 308 | | | | 7.195 | 2.5 | 2.36 | 6 | **103** | 1.1 | |
| | | 6 | 308 | | | | 7.153 | 2.47 | 2.33 | 5.7 | **102** | 2.8 | |
| | | 7 | 310 | | | | 7.686 | 2.38 | 2.21 | 7.4 | **97** | 3.9 | |
| | | 8 | 357 | | | | 7.81 | 2.34 | 2.16 | 8.6 | **95** | 3.8 | |
| | | 9 | 356 | | | | 8.002 | 2.39 | 2.24 | 7 | **98** | 4.0 | |
| | | 10 | 311 | | | | 7.681 | 2.37 | 2.2 | 7.6 | **96** | 4.2 | |
| 21/474 | 22/03/2021 | 1 | 302 | CELS | Backscatter | G | 7.652 | 2.41 | 2.27 | 6.1 | **103** | 5.2 | 4.9 |
| | | 2 | 302 | | | | 7.695 | 2.39 | 2.25 | 6.2 | **102** | 5.7 | |
| | | 3 | 303 | | | | 7.571 | 2.4 | 2.24 | 7 | **101** | 4.4 | |
| | | 4 | 303 | | | | 7.58 | 2.44 | 2.31 | 5.6 | **104** | 4.7 | |
| | | 5 | 307 | | | | 7.565 | 2.44 | 2.29 | 6.4 | **104** | 3.4 | |
| | | 7 | 308 | | | | 7.399 | 2.4 | 2.23 | 7.5 | **101** | 3.6 | |
| | | 8 | 307 | | | | 7.472 | 2.35 | 2.22 | 6.2 | **100** | 7.1 | |
| 21/491 | 24/03/2021 | 1 | 304 | CELS | Backscatter | G | 7.681 | 2.5 | 2.34 | 6.9 | **106** | 0.4 | 0.8 |
| | | 2 | 303 | | | | 7.597 | 2.5 | 2.35 | 6.3 | **106** | 1.2 | |
| | | 3 | 302 | | | | 7.682 | 2.52 | 2.38 | 5.8 | **108** | 1.1 | |
| | | 4 | 301 | | | | 7.792 | 2.54 | 2.41 | 5.6 | **109** | 0.6 | |
| 21/522 | 29/03/2021 | 1 | 425 | CELS | Backscatter | A | 6.63 | 2.37 | 2.17 | 9.5 | **95** | 1.5 | 2.3 |
| | | 2 | 424 | | | | 6.6 | 2.35 | 2.14 | 9.8 | **94** | 2.1 | |
| | | 3 | 362 | | | | 6.48 | 2.33 | 2.11 | 10.1 | **93** | 2.7 | |
| | | 4 | 364 | | | | 6.71 | 2.33 | 2.12 | 9.8 | **93** | 2.9 | |
| 21/541 | 1/04/2021 | 1 | 307 | CELS | Direct Transmission | G | 7.753 | 2.42 | 2.24 | 8.1 | **101** | 1.8 | 3.2 |
| | | 2 | 307 | | | | 7.747 | 2.33 | 2.17 | 7.7 | **98** | 5.9 | |
| | | 3 | 308 | | | | 7.68 | 2.37 | 2.2 | 7.6 | **99** | 4.8 | |
| | | 4 | 308 | | | | 7.557 | 2.41 | 2.22 | 8.3 | **101** | 2.1 | |
| | | 5 | 308 | | | | 7.651 | 2.42 | 2.23 | 8.4 | **101** | 1.5 | |
| 21/550 | 6/04/2021 | 1 | 425 | CELS | Backscatter | A | 7.17 | 2.4 | 2.24 | 7.4 | **98** | 3.1 | 3.8 |
| | | 2 | 424 | | | | 7.257 | 2.39 | 2.24 | 6.6 | **98** | 4.6 | |
| | | 3 | 362 | | | | 7.765 | 2.34 | 2.18 | 7.4 | **96** | 5.5 | |
| | | 4 | 364 | | | | 6.86 | 2.42 | 2.25 | 7.7 | **99** | 1.8 | |

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21/573 | 9/04/2021 | 1 | 301 | CELS | Direct Transmission | G | 7.75 | 2.43 | 2.27 | 7 | **103** | 2.9 | 3.2 |
| | | 2 | 301 | | | | 7.846 | 2.45 | 2.31 | 6.1 | **105** | 3.3 | |
| | | 3 | 301 | | | | 7.737 | 2.45 | 2.28 | 7.5 | **103** | 1.6 | |
| | | 4 | 302 | | | | 7.7 | 2.40 | 2.22 | 7.8 | **101** | 3.2 | |
| | | 5 | 302 | | | | 7.461 | 2.46 | 2.30 | 7 | **104** | 1.8 | |
| | | 6 | 304 | | | | 7.478 | 2.51 | 2.40 | 4.4 | **109** | 3.5 | |
| | | 7 | 304 | | | | 7.506 | 2.42 | 2.26 | 6.9 | **102** | 3.6 | |
| | | 8 | 304 | | | | 7.529 | 2.37 | 2.22 | 7 | **100** | 5.3 | |
| 21/595 | 14/04/2021 | 1 | 301 | CELS | Backscatter | G | 7.85 | 2.36 | 2.20 | 7.3 | **100** | 5.2 | 6.0 |
| | | 2 | 301 | | | | 7.765 | 2.31 | 2.16 | 7 | **98** | 7.6 | |
| | | 3 | 304 | | | | 7.74 | 2.36 | 2.20 | 7.3 | **100** | 5.2 | |
| | | 4 | 304 | | | | 7.49 | 2.34 | 2.18 | 7.4 | **99** | 6.1 | |
| 21/752 | 14/05/2021 | 1 | 443 | CELS | Direct Transmission | A | 6.6 | 2.44 | 2.25 | 8.3 | **99** | 0.4 | 2.3 |
| | | 2 | 443 | | | | 7.6 | 2.33 | 2.16 | 7.8 | **95** | 5.5 | |
| | | 3 | 425 | | | | 7.67 | 2.46 | 2.28 | 8 | **100** | 0.0 | |
| | | 4 | 363 | | | | 7.85 | 2.36 | 2.16 | 9 | **95** | 2.8 | |
| | | 5 | 364 | | | | 7.87 | 2.36 | 2.17 | 8.9 | **95** | 2.8 | |
| 21/784 | 26/05/2021 | 1 | 443 | CELS | Backscatter | A | 7.55 | 2.34 | 2.19 | 7 | **96** | 6.0 | 5.8 |
| | | 2 | 443 | | | | 7.07 | 2.31 | 2.16 | 6.8 | **95** | 7.6 | |
| | | 3 | 366 | | | | 7.85 | 2.36 | 2.21 | 6.5 | **97** | 6.0 | |
| | | 4 | 366 | | | | 7.77 | 2.39 | 2.22 | 7.4 | **98** | 3.4 | |

| Fill Type | Description | Source | OMC Report Ref. | MDD (t/m3) | OMC (%) |
|---|---|---|---|---|---|
| **A** | Sandy, silty Gravel | Site Won Material | 19/691 | 2.28 | 7 |
| **B** | Overburden/Gravel | Marsden Valley Quarry | 20/672 | 2.34 | 5.5 |
| **C** | Sandy, silty GRAVEL / Silt | In situ Blend | 19/1465 | 2.16 | 10 |
| **D** | Sandy Silty Gravel | York Valley Quarry - In situ Blend | 19/1499 | 2.16 | 10 |
| **E** | Sandy Silty Gravel | Borck Creek Widening | 20/410 | 2.27 | 6 |
| **F** | Silty GRAVEL | Borck Creek Widening | 20/1280 | 2.29 | 6.5 |
| **G** | Overburden/Gravel | Lee Valley Quarry | 20/1536 | 2.21 | 8 |

Tasman District Council / AlphaOne Multiproof Approval – 107

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Lab Ref No : **19/691**
Client Ref No : **5598**

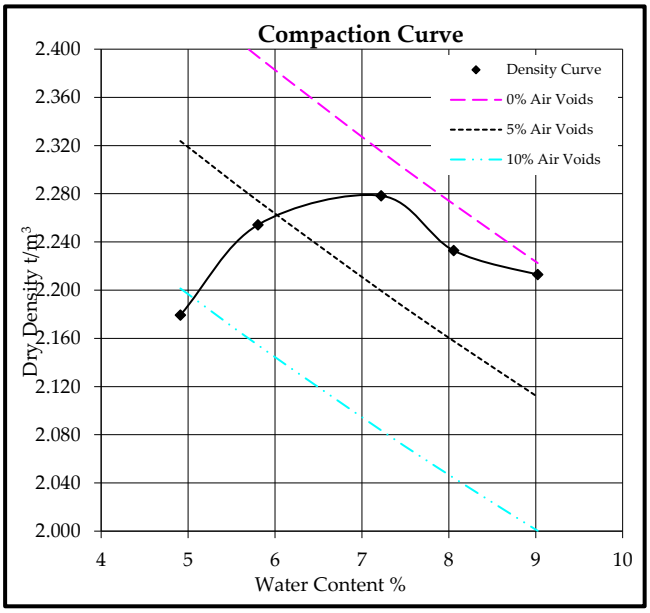
**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson Unit 3/30 Echodale Place Stoke**
**Ph 03 547 0110 Mob 027 4457071**

# OPTIMUM MOISTURE CONTENT/ MAXIMUM DRY DENSITY RELATIONSHIP NZ HEAVY COMPACTION TEST REPORT

| | | | |
|---|---|---|---|
| Project : | **The Meadows Stage 1** | Date sampled : | **01/05/19** |
| Location : | **Richmond** | Date received : | **02/05/19** |
| Source : | **Site Cut Material** | Date tested : | **03/05/19** |
| Client : | **S Brookland** | Sample description : | **Sandy GRAVEL, silty** |
| Contractor : | **Ching Contracting Ltd** | Sample condition : | **Damp** |
| Sampled by : | **S Brookland** | Sampling method : | **Hand** |

## Test Results

| Sample ID | | 1 | 2 | 3 | 4 | 5 | | |
|---|---|---|---|---|---|---|---|---|
| Bulk density | t/m³ | 2.286 | 2.385 | 2.443 | 2.413 | 2.413 | | |
| Water content | % | 4.9 | 5.8 | 7.2 | 8.1 | 9.0 | | |
| Dry density | t/m³ | 2.179 | 2.254 | 2.278 | 2.233 | 2.213 | | |




| | | |
|---|---|---|
| **Maximum dry density** | **2.28** | **t/m³** |
| **Optimum water content** | **7** | **%** |
| **Natural water content** | **5.5** | **%** |
| **Fraction tested** | **<37.5 mm** | |
| **% Retained on 37.5mm sieve** | **14.0** | **%** |
| **Solid density t/m³** | **2.78** | **(Tested)** |

**Test Methods**
Compaction NZS : 4402 : 1986 : 4.1.2 (Heavy)

**Notes**
Material compacted in 152mm diameter mould

Date reported : 7-May-19

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**Sampling is not covered by IANZ endorsement**

Reported by : *Andrew Hayward*
Designation : Senior Laboratory Technician
**IANZ Approved Signatory**

IANZ ACCREDITED LABORATORY 1021
All tests reported herein have been performed in accordance with the laboratory's scope of accreditation





Tasman District Council / AlphaOne Multiproof Approval – 107

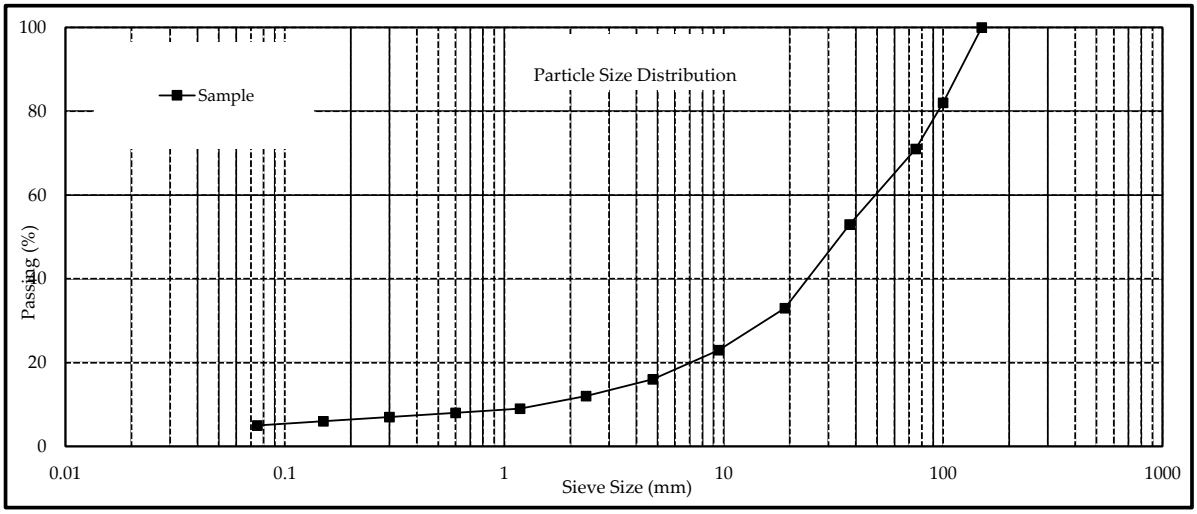
Lab Ref No : **20/672**
Client Ref No : **-**
Order No : **-**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson Unit 3/30 Echodale Place Stoke**
**Ph 03 547 0110 Mob 027 4457071**

# PARTICLE SIZE DISTRIBUTION TEST REPORT

| | | | |
|---|---|---|---|
| Project : | **The Meadows Stage 5** | Date sampled : | **21/05/20** |
| Location : | **Richmond West** | Sampling method : | **Hand** |
| Client : | **D Chalmers** | Sampled by : | **Andrew Hayward** |
| Contractor : | **Donaldson Civil Ltd** | Sample description : | **Hardfill** |
| Source : | **Marsden Valley Quarry** | Sample condition : | **Damp** |

| Particle Size Distribution | | |
|---|---|---|
| Sieve Size | Percentage Passing | |
| (mm) | Sample | |
| 150 | **100** | |
| 100 | **82** | |
| 75 | **71** | |
| 37.5 | **53** | |
| 19 | **33** | |
| 9.5 | **23** | |
| 4.75 | **16** | |
| 2.36 | **12** | |
| 1.18 | **9** | |
| 0.6 | **8** | |
| 0.3 | **7** | |
| 0.15 | **6** | |
| 0.075 | **5** | |
| | % passing the finest sieve is obtained by difference | |




| Test Methods | | Notes |
|---|---|---|
| Particle Size Distribution | NZS 4407 : 2015 : Test 3.8.1 | |

Date tested : 27/05/20
Date reported : 27/05/20

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Andrew Hayward
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/672**
Client Ref No : **-**

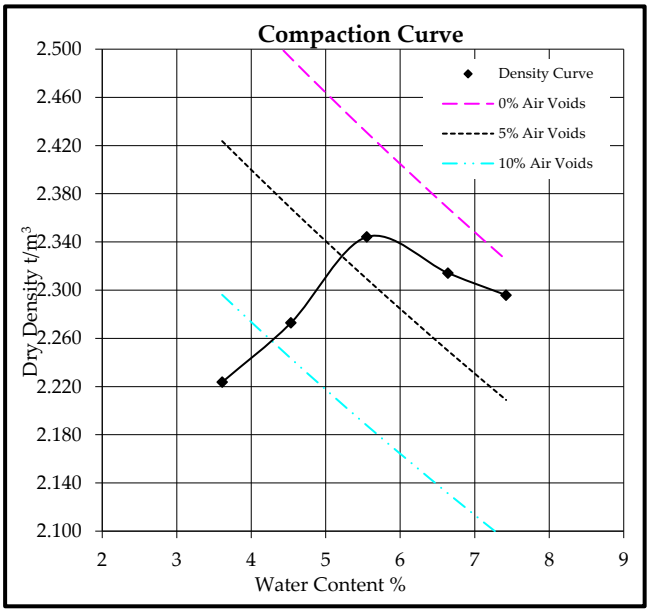
**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson Unit 3/30 Echodale Place Stoke**
**Ph 03 547 0110 Mob 027 4457071**

# OPTIMUM MOISTURE CONTENT/ MAXIMUM DRY DENSITY RELATIONSHIP NZ HEAVY COMPACTION TEST REPORT

| | | | |
|---|---|---|---|
| Project : | **The Meadows Stage 5** | Date sampled : | **21/05/20** |
| Location : | **Richmond West** | Date received : | **21/5/20** |
| Source : | **Marsden Valley Quarry** | Date tested : | **25/05/20** |
| Client : | **D Chalmers** | Sample description : | **Hardfill** |
| Contractor : | **Donaldson Civil Ltd** | Sample condition : | **Damp** |
| Sampled by : | **Andrew Hayward** | Sampling method : | **Hand** |

## Test Results

| Sample ID | | 1 | 2 | 3 | 4 | 5 | | |
|---|---|---|---|---|---|---|---|---|
| Bulk density | t/m³ | 2.304 | 2.376 | 2.474 | 2.468 | 2.466 | | |
| Water content | % | 3.6 | 4.5 | 5.5 | 6.6 | 7.4 | | |
| Dry density | t/m³ | 2.224 | 2.273 | 2.344 | 2.314 | 2.296 | | |




| | | |
|---|---|---|
| **Maximum dry density** | **2.34** | **t/m³** |
| **Optimum water content** | **5.5** | **%** |
| **Natural water content** | **Not Tested** | **%** |
| **Fraction tested** | **<37.5 mm** | |
| **% Retained on 37.5mm sieve** | **See PSD** | **%** |
| **Solid density t/m³ *** | **2.81** | **(Tested)** |

**Test Methods**

| | |
|---|---|
| Compaction | NZS : 4402 : 1986 : 4.1.2 (Heavy) |
| Solid Density | NZS : 4407 : 2015 3.7.1 |

**Notes**

Material compacted in 152mm diameter mould
**Tests denoted * are not IANZ endorsed**

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**Sampling is not covered by IANZ endorsement**

Date reported : 27-May-20

Reported by : *Andrew Hayward*
Designation: Senior Laboratory Technician
**IANZ Approved Signatory**

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

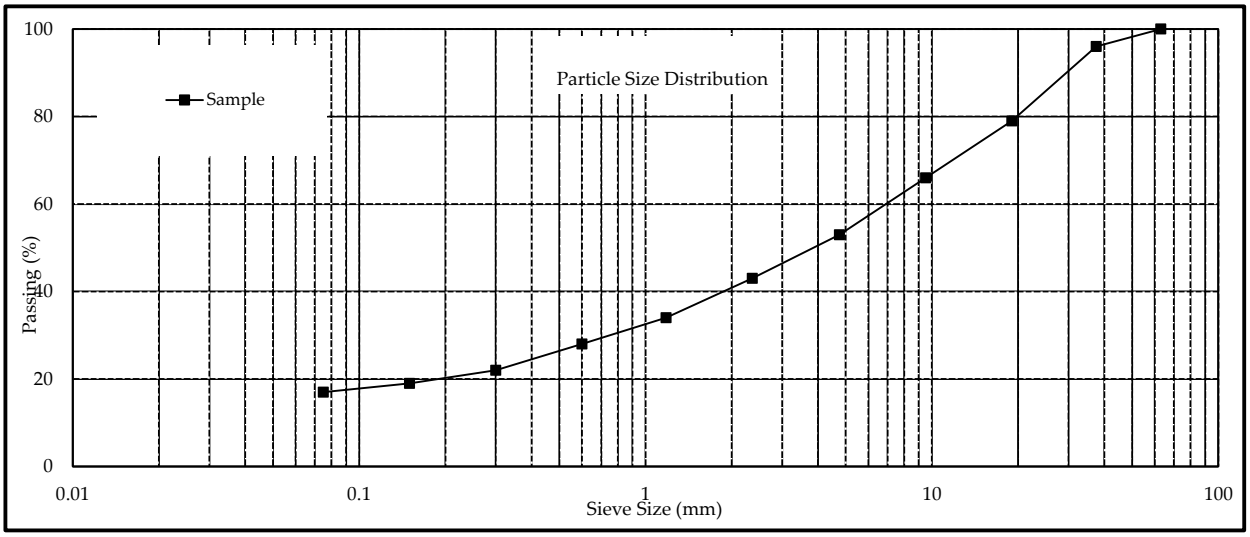
Lab Ref No : **19/1465**
Client Ref No : -
Order No : -

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson Unit 3/30 Echodale Place Stoke**
**Ph 03 547 0110 Mob 027 4457071**

# PARTICLE SIZE DISTRIBUTION TEST REPORT

| | | | |
|---|---|---|---|
| Project : | **The Meadows - Stage 4** | Date sampled : | **13/09/19** |
| Location : | **Richmond West** | Sampling method : | **Hand** |
| Client : | **D Chalmers** | Sampled by : | **D Chalmers & A Hayward** |
| Contractor : | **Donaldson Civil Ltd** | Sample description : | **Sandy Silty Gravel/Silt Blend** |
| Source : | **NDM Test Results 19/1469** | Sample condition : | **Damp** |

| Particle Size Distribution | |
|---|---|
| Sieve Size | Percentage Passing |
| (mm) | Sample |
| 63 | **100** |
| 37.5 | **96** |
| 19 | **79** |
| 9.5 | **66** |
| 4.75 | **53** |
| 2.36 | **43** |
| 1.18 | **34** |
| 0.6 | **28** |
| 0.3 | **22** |
| 0.15 | **19** |
| 0.075 | **17** |
| | % passing the finest sieve is obtained by difference |




| Test Methods | | Notes |
|---|---|---|
| Particle Size Distribution | NZS 4407 : 2015 : Test 3.8.1 | |

Date tested : 17/09/19
Date reported : 17/09/19

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**Sampling is not covered by IANZ endorsement**

Andrew Hayward
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

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Lab Ref No : **19/1465**
Client Ref No :

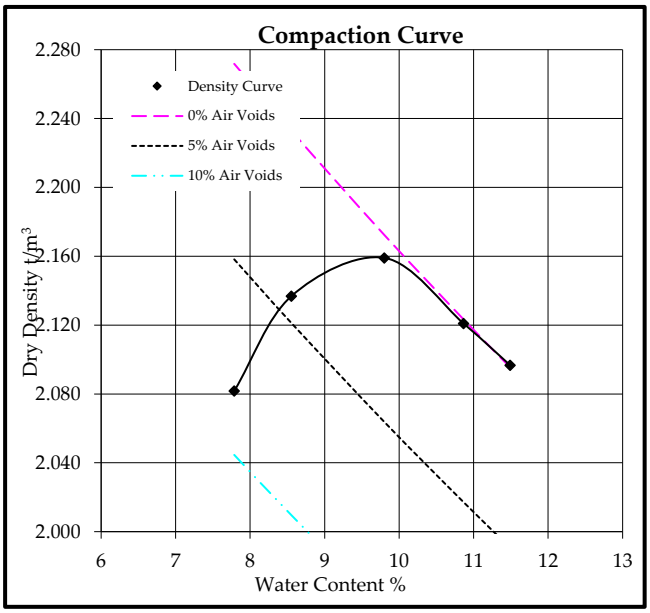
**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson Unit 3/30 Echodale Place Stoke**
**Ph 03 547 0110 Mob 027 4457071**

# OPTIMUM MOISTURE CONTENT/ MAXIMUM DRY DENSITY RELATIONSHIP NZ STANDARD COMPACTION TEST REPORT

| | | | |
|---|---|---|---|
| Project : | **The Meadows - Stage 4** | Date received : | **13/09/19** |
| Location : | **Richmond West** | Date sampled : | **13/09/19** |
| Source : | **NDM Test Results 19/1469** | Date tested : | **17/09/19** |
| Client : | **D Chalmers** | Sample description : | **Sandy Silty Gravel/Silt Blend** |
| Contractor : | **Donaldson Civil Ltd** | Sample condition : | **Damp** |
| Sampled by : | **D Chalmers & A Hayward** | Sampling method : | **Hand** |

## Test Results

| Sample ID | | 1 | 2 | 3 | 4 | 5 | | |
|---|---|---|---|---|---|---|---|---|
| Bulk density | t/m³ | 2.244 | 2.320 | 2.371 | 2.351 | 2.338 | | |
| Water content | % | 7.8 | 8.6 | 9.8 | 10.9 | 11.5 | | |
| Dry density | t/m³ | 2.082 | 2.137 | 2.159 | 2.121 | 2.097 | | |




| | | |
|---|---|---|
| **Maximum dry density** | **2.16** | **t/m³** |
| **Optimum water content** | **10** | **%** |
| **Natural water content** | **8.5** | **%** |
| **Fraction tested** | **<37.5 mm** | |
| **% Retained on 37.5mm sieve** | **See PSD** | **%** |
| **Solid density t/m³** | **2.76** | **(Tested)** |

**Test Methods**
Compaction NZS : 4402 : 1986 : 4.1.1 (Standard)

**Notes**
Material compacted in 152mm diameter mould

Date reported : 18-Sep-19

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IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Reported by : *Andrew Hayward*
Designation: Senior Laboratory Technician
**IANZ Approved Signatory**





Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **19/1499**
Client Ref No :

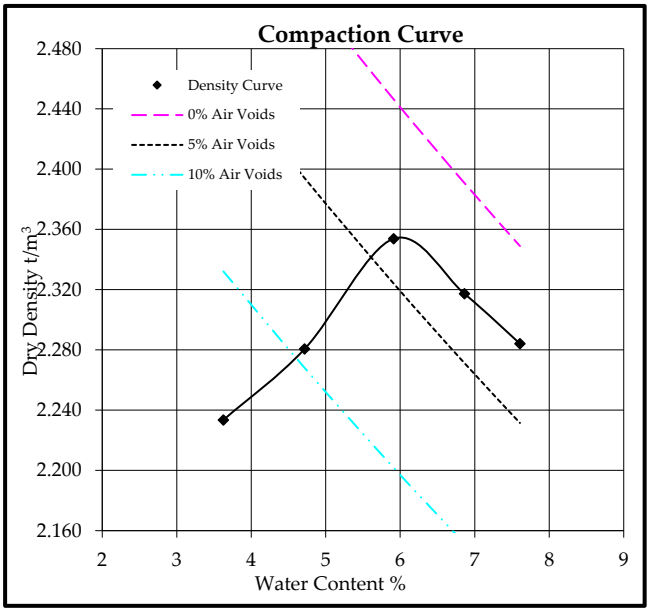
**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson Unit 3/30 Echodale Place Stoke**
**Ph 03 547 0110 Mob 027 4457071**

# OPTIMUM MOISTURE CONTENT/ MAXIMUM DRY DENSITY RELATIONSHIP NZ HEAVY COMPACTION TEST REPORT

| | | | |
|---|---|---|---|
| Project : | **The Meadows - Stage 4** | Date received : | **23/09/19** |
| Location : | **Richmond West** | Date sampled : | **23/09/19** |
| Source : | **Insitu Unsuitable & YVQ Hardfill** | Date tested : | **24/09/19** |
| Client : | **D Chalmers** | Sample description : | **Sandy Silty Gravel** |
| Contractor : | **Donaldson Civil Ltd** | Sample condition : | **Damp** |
| Sampled by : | **Andrew Hayward** | Sampling method : | **Hand** |

## Test Results

| Sample ID | | 1 | 2 | 3 | 4 | 5 | | |
|---|---|---|---|---|---|---|---|---|
| Bulk density | t/m³ | 2.314 | 2.388 | 2.493 | 2.476 | 2.458 | | |
| Water content | % | 3.6 | 4.7 | 5.9 | 6.9 | 7.6 | | |
| Dry density | t/m³ | 2.233 | 2.281 | 2.354 | 2.317 | 2.284 | | |




| | | |
|---|---|---|
| **Maximum dry density** | **2.35** | **t/m³** |
| **Optimum water content** | **6** | **%** |
| | **Insitu** | **Hardfill** |
| **Natural water content %** | **10.5** | **1.2** |
| **Fraction tested** | **<37.5 mm** | |
| **% Retained on 37.5mm sieve** | **See PSD** | **%** |
| **Solid density t/m³** | **2.86** | **(Tested)** |

**Test Methods**
Compaction NZS : 4402 : 1986 : 4.1.2 (Heavy)

**Notes**
Material compacted in 152mm diameter mould

Date reported : 26-Sep-19

Reported by : *Andrew Hayward*
Designation: Senior Laboratory Technician
**IANZ Approved Signatory**

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**Sampling is not covered by IANZ endorsement**

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Tasman District Council / AlphaOne Multiproof Approval – 107

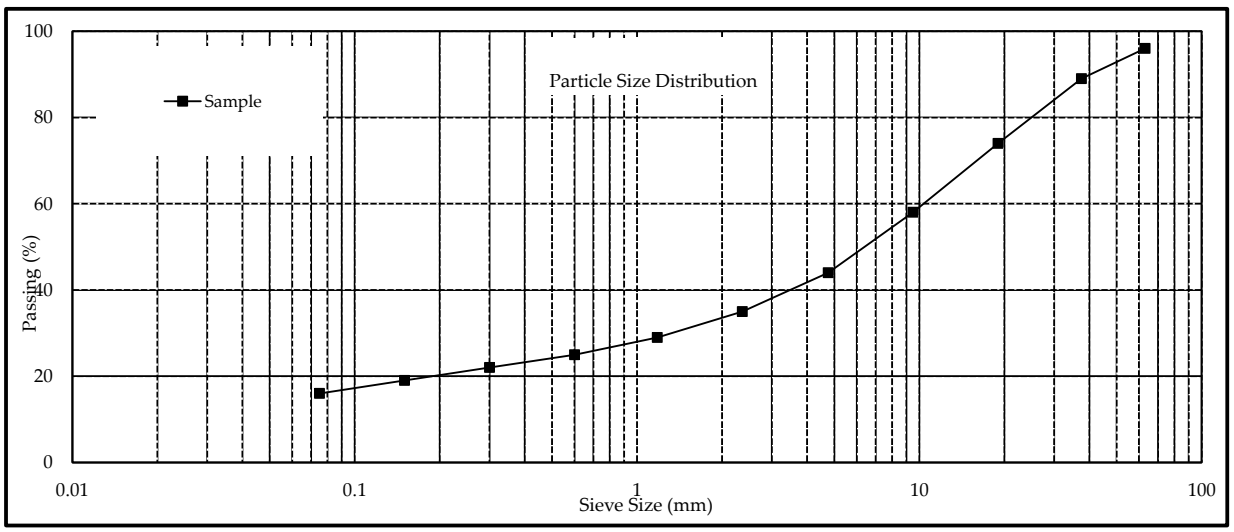
Lab Ref No : **19/1499**
Client Ref No : -
Order No : -

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson Unit 3/30 Echodale Place Stoke**
**Ph 03 547 0110 Mob 027 4457071**

# PARTICLE SIZE DISTRIBUTION TEST REPORT

| | | | |
|---|---|---|---|
| Project : | **The Meadows - Stage 4** | Date sampled : | **23/09/19** |
| Location : | **Richmond West** | Sampling method : | **Hand** |
| Client : | **D Chalmers** | Sampled by : | **Andrew Hayward** |
| Contractor : | **Donaldson Civil Ltd** | Sample description : | **Sandy Silty Gravel** |
| Source : | **Insitu Unsuitable/ YVQ Hardfill** | Sample condition : | **Damp** |

| Particle Size Distribution | | |
|---|---|---|
| Sieve Size | Percentage Passing | |
| (mm) | Sample | |
| 150 | **100** | |
| 63 | **96** | |
| 37.5 | **89** | |
| 19 | **74** | |
| 9.5 | **58** | |
| 4.75 | **44** | |
| 2.36 | **35** | |
| 1.18 | **29** | |
| 0.6 | **25** | |
| 0.3 | **22** | |
| 0.15 | **19** | |
| 0.075 | **16** | |
| | % passing the finest sieve is obtained by difference | |




| Test Methods | | Notes |
|---|---|---|
| Particle Size Distribution | NZS 4407 : 2015 : Test 3.8.1 | |

Date tested : 25/09/19
Date reported : 25/09/19

Andrew Hayward
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**

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Lab Ref No : **20/410**
Client Ref No : **-**

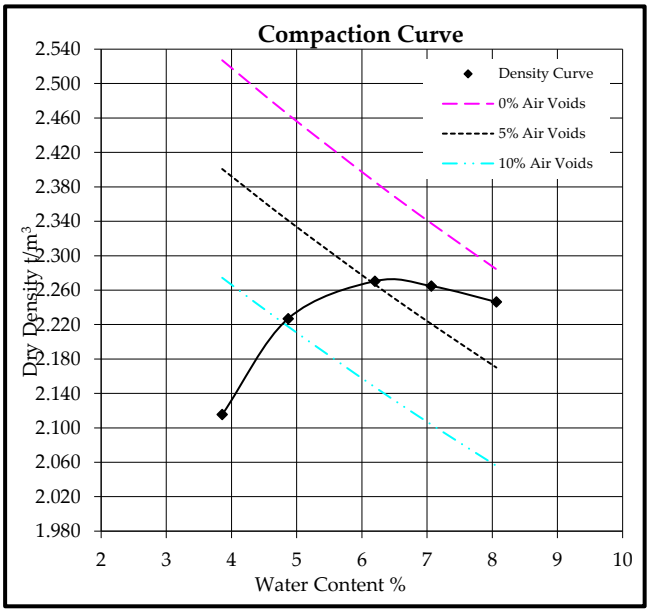
**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson Unit 3/30 Echodale Place Stoke**
**Ph 03 547 0110 Mob 027 4457071**

# OPTIMUM MOISTURE CONTENT/ MAXIMUM DRY DENSITY RELATIONSHIP NZ HEAVY COMPACTION TEST REPORT

| | | | |
|---|---|---|---|
| Project : | **Borck Creek** | Date received : | **11/03/20** |
| Location : | **Richmond** | Date sampled : | **11/03/20** |
| Source : | **Site 2** | Date tested : | **23/03/20** |
| Client : | **Taylors Contracting Company Ltd** | Sample description : | **Silty Gravel** |
| Contractor : | **Taylors Contracting Company Ltd** | Sample condition : | **Damp** |
| Sampled by : | **Robbie Burns** | Sampling method : | **NZS 4407: 2015 2.4.2** |

## Test Results

| Sample ID | | 1 | 2 | 3 | 4 | 5 | | |
|---|---|---|---|---|---|---|---|---|
| Bulk density | t/m³ | 2.197 | 2.335 | 2.411 | 2.425 | 2.427 | | |
| Water content | % | 3.9 | 4.9 | 6.2 | 7.1 | 8.1 | | |
| Dry density | t/m³ | 2.115 | 2.227 | 2.270 | 2.265 | 2.246 | | |




| | | |
|---|---|---|
| **Maximum dry density** | **2.27** | **t/m³** |
| **Optimum water content** | **6** | **%** |
| **Natural water content** | **2.9** | **%** |
| **Fraction tested** | **<37.5 mm** | |
| **% Retained on 37.5mm sieve** | **15.0** | **%** |
| **Solid density t/m³** | **2.80** | **(Assumed)** |

**Test Methods**
Compaction NZS : 4402 : 1986 : 4.1.2 (Heavy)

**Notes**
Material compacted in 152mm diameter mould

Date reported : 24-Mar-20

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Reported by : *Robbie Burns*
Designation: Assistant Laboratory Manager
**IANZ Approved Signatory**

IANZ ACCREDITED LABORATORY 1021
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Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/1280**
Client Ref No : **-**

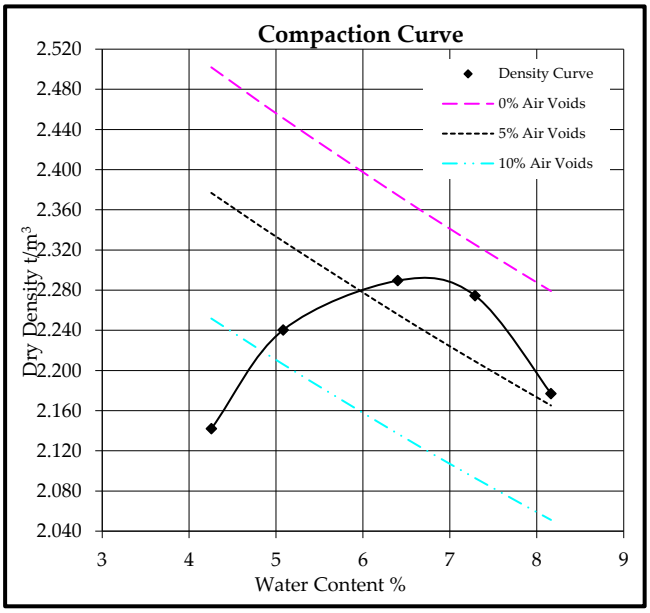
**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson Unit 3/30 Echodale Place Stoke**
**Ph 03 547 0110 Mob 027 4457071**

# OPTIMUM MOISTURE CONTENT/ MAXIMUM DRY DENSITY RELATIONSHIP NZ HEAVY COMPACTION TEST REPORT

| | | | |
|---|---|---|---|
| Project : | **The Meadows** | Date sampled : | **22/09/20** |
| Location : | **Richmond West** | Date received : | **22/09/20** |
| Source : | **Insitu** | Date tested : | **29/09/20** |
| Client : | **Taylors Contrcacting company Ltd** | Sample description : | **Silty GRAVEL** |
| Contractor : | **Taylors Contrcacting company Ltd** | Sample condition : | **Damp** |
| Sampled by : | **Robbie Burns** | Sampling method : | **NZS 4407:2015 2.4.2** |

## Test Results

| Sample ID | | 1 | 2 | 3 | 4 | 5 | | |
|---|---|---|---|---|---|---|---|---|
| Bulk density | t/m³ | 2.233 | 2.354 | 2.436 | 2.440 | 2.355 | | |
| Water content | % | 4.3 | 5.1 | 6.4 | 7.3 | 8.2 | | |
| Dry density | t/m³ | 2.142 | 2.240 | 2.289 | 2.275 | 2.177 | | |




| | | |
|---|---|---|
| **Maximum dry density** | **2.29** | **t/m³** |
| **Optimum water content** | **6.5** | **%** |
| **Natural water content** | **7.3** | **%** |
| **Fraction tested** | **<37.5 mm** | |
| **% Retained on 37.5mm sieve** | **8.2** | **%** |
| **Solid density t/m³ *** | **2.80** | **(Assumed)** |

**Test Methods**
Compaction NZS : 4402 : 1986 : 4.1.2 (Heavy)

**Notes**
Material compacted in 152mm diameter mould
**Tests denoted * are not IANZ endorsed**

Date reported : 30-Sep-20

Reported by : *Robbie Burns*
Designation: Assistant Laboratory Manager
**IANZ Approved Signatory**

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ACCREDITED IANZ TESTING LABORATORY 1021

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Lab Ref No : **20/1536**
Client Ref No : **-**

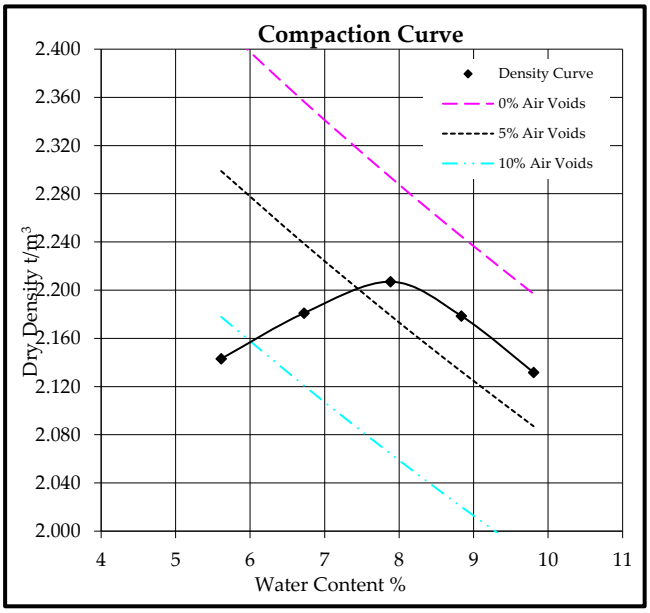
**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson Unit 3/30 Echodale Place Stoke**
**Ph 03 547 0110 Mob 027 4457071**

# OPTIMUM MOISTURE CONTENT/ MAXIMUM DRY DENSITY RELATIONSHIP NZ HEAVY COMPACTION TEST REPORT

| | | | |
|---|---|---|---|
| Project : | **The Meadows Stage 8** | Date sampled : | **12/11/20** |
| Location : | **Richmond West** | Date received : | **12/11/20** |
| Source : | **Lee Valley Quarry Hardfill** | Date tested : | **13/11/20** |
| Client : | **F Moffat** | Sample description : | **Hardfill** |
| Contractor : | **Taylors Contracting Company Ltd** | Sample condition : | **Damp** |
| Sampled by : | **A Hayward** | Sampling method : | **Hand** |

## Test Results

| Sample ID | | 1 | 2 | 3 | 4 | 5 | | |
|---|---|---|---|---|---|---|---|---|
| Bulk density | t/m³ | 2.263 | 2.328 | 2.381 | 2.371 | 2.341 | | |
| Water content | % | 5.6 | 6.7 | 7.9 | 8.8 | 9.8 | | |
| Dry density | t/m³ | 2.143 | 2.181 | 2.207 | 2.179 | 2.132 | | |




| | | |
|---|---|---|
| **Maximum dry density** | **2.21** | **t/m³** |
| **Optimum water content** | **8** | **%** |
| **Natural water content** | **Not Tested** | **%** |
| **Fraction tested** | **<37.5 mm** | |
| **% Retained on 37.5mm sieve** | **See PSD** | **%** |
| **Solid density t/m³ *** | **2.80** | **(Tested)** |

**Test Methods**

Compaction NZS : 4402 : 1986 : 4.1.2 (Heavy)
Solid Density NZS : 4402 : 1986 : 2.7.1

**Notes**

Material compacted in 152mm diameter mould
**Tests denoted * are not IANZ endorsed**
Material greater than approx 100mm not sampled

Date reported : 16-Nov-20

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**Sampling is covered by IANZ endorsement**

Reported by : *Andrew Hayward*
Designation: Senior Laboratory Technician
**IANZ Approved Signatory**

ACCREDITED IANZ TESTING LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

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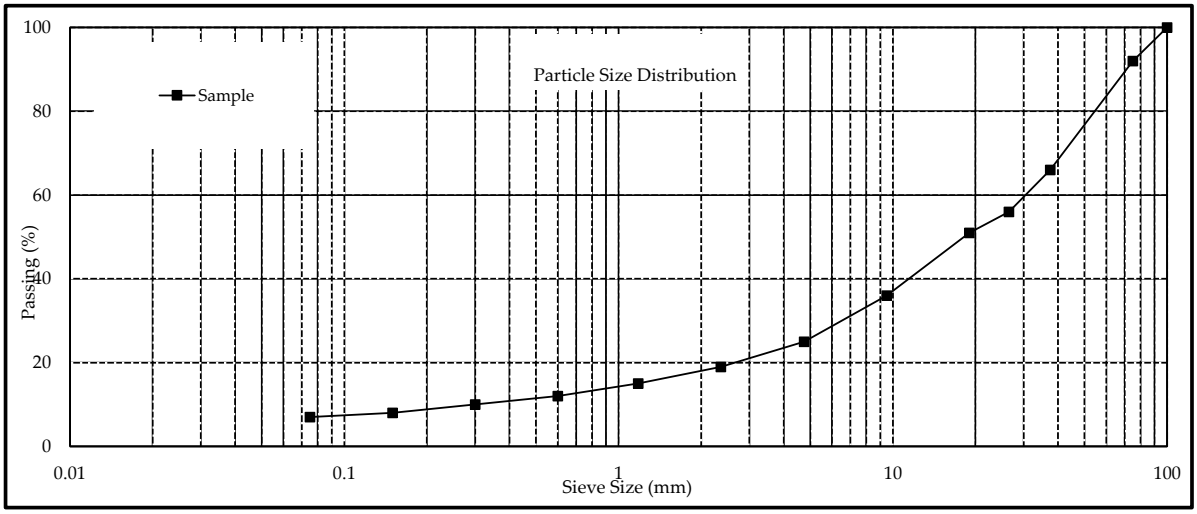
Lab Ref No : **20/1536**
Client Ref No : **-**
Order No : **-**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson Unit 3/30 Echodale Place Stoke**
**Ph 03 547 0110 Mob 027 4457071**

# PARTICLE SIZE DISTRIBUTION TEST REPORT

| | | | |
|---|---|---|---|
| Project : | **The Meadows Stage 8** | Date sampled : | **12/11/20** |
| Location : | **Richmond West** | Sampling method : | **Hand** |
| Client : | **F Moffat** | Sampled by : | **A Hayward** |
| Contractor : | **Taylors Contracting Company Ltd** | Sample description : | **Hardfill** |
| Source : | **Lee Valley Quarry** | Sample condition : | **Damp** |

| Particle Size Distribution | |
|---|---|
| Sieve Size | Percentage Passing |
| (mm) | Sample |
| 100 | **100** |
| 75 | **92** |
| 37.5 | **66** |
| 26.5 | **56** |
| 19 | **51** |
| 9.5 | **36** |
| 4.75 | **25** |
| 2.36 | **19** |
| 1.18 | **15** |
| 0.6 | **12** |
| 0.3 | **10** |
| 0.15 | **8** |
| 0.075 | **7** |
| | % passing the finest sieve is obtained by difference |




**Test Methods**
Particle Size Distribution — NZS 4407 : 2015 : Test 3.8.1

**Notes**
Material greater than approx 100mm not sampled

Date tested : 16/11/20
Date reported : 16/11/20

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**Sampling is not covered by IANZ endorsement**

Andrew Hayward
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**





Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/103**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

| | | | | |
|---|---|---|---|---|
| Project : | **The Meadows Stage 4** | | Tested by : | **Andrew Hayward** |
| Location : | **Richmond West** | | Date tested : | **22/01/20** |
| Client : | **D Chalmers** | | Time tested : | **11:30 AM** |
| Contractor : | **Donaldson Civil Ltd** | | Nuclear densometer no : | **Troxler 3430+** |
| Solid density (tested) : | **2.76** | ***t/m³** | Copies to : | **D Chalmers** |
| Max dry density (tested) : | **2.16** | **t/m³** | | **M Gray** |
| Optimum water content (tested) : | **10** | **%** | | |
| MDD/OMC Lab Ref No : | **19/1465** | | | **Lab File** |
| | **Blend** | | | |

**Nuclear Density Meter Test Results**

| Test Probe Depth (mm) | Direct Transmission | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test # | Test Area | Northings | Eastings | Elevation (m) | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | |
| 1 | Lot 426 & 427 | 793643.63 | 388949.85 | 7.30 | 2.25 | 8.2 | 2.12 | 6.0 | 10.5 | 98 | |
| 2 | | 793635.81 | 388966.43 | 7.53 | 2.25 | 11.7 | 2.07 | 8.5 | 7.3 | 96 | |
| 3 | | 793625.74 | 388983.00 | 7.46 | 2.27 | 11.1 | 2.10 | 8.1 | 6.8 | 97 | |

| | | |
|---|---|---|
| Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2 | **Moisture correction factor used :** | **0.73** |
| Water Content : NZS 4407:2015, Test 3.1 for aggregates | **Sites selected by A Hayward** | **19/1465** |
| | *** Not IANZ Endorsed** | |

Date reported : 22/01/20

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*Andrew Hayward*
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**
Date : 22/01/20

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Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/129**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

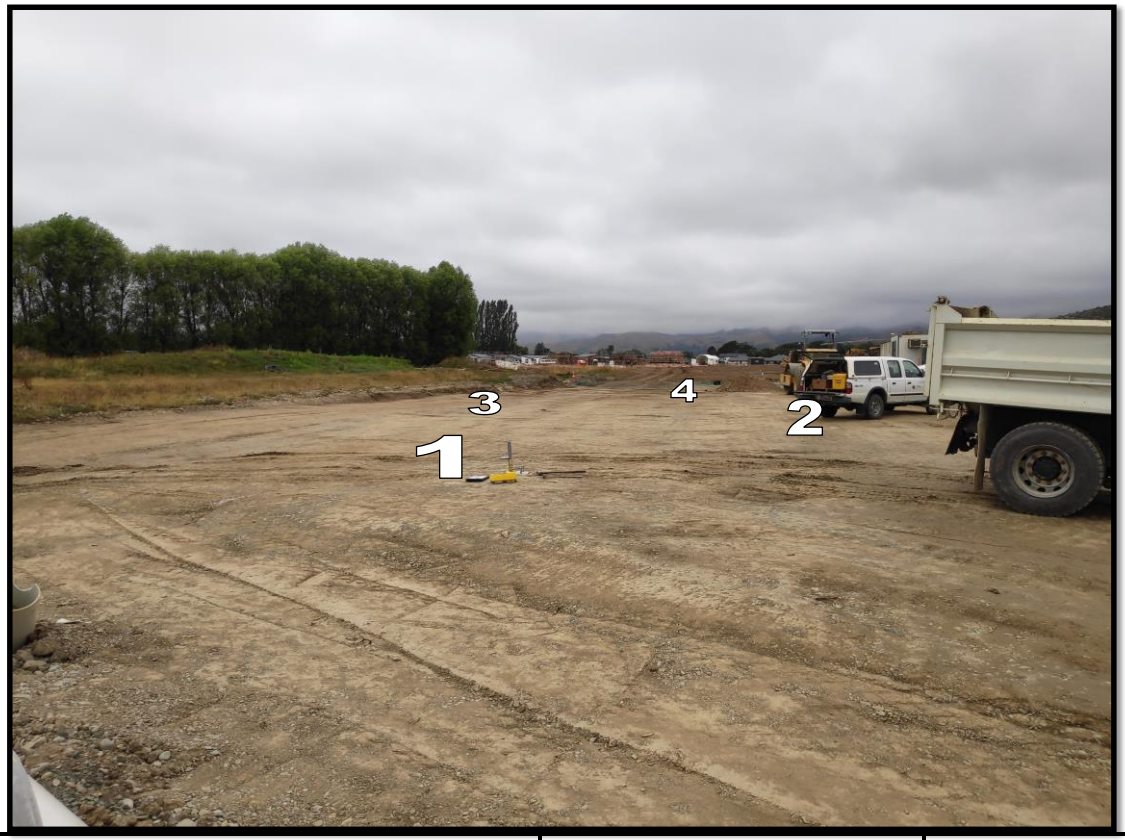
# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 4**
Location : **Richmond West**
Client : **D Chalmers**
Contractor : **Donaldson Civil Ltd**
Solid density (tested) : **2.78** ***t/m³**
Max dry density (tested) : **2.28** **t/m³**
Optimum water content (tested) : **7** **%**
MDD/OMC Lab Ref No : **19/691**
**Sandy Gravel**

Tested by : **Andrew Hayward**
Date tested : **24/01/20**
Time tested : **1:00 PM**
Nuclear densometer no : **Troxler 3430+**
Copies to : **D Chalmers**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| Test Probe Depth (mm) | Direct Transmission | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test # | Test Area | Northings | Eastings | Elevation (m) | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | |
| 1 | Lot 426 & 427 | 793641.29 | 388950.47 | 7.53 | 2.47 | 8.0 | 2.32 | 6.4 | 1.7 | 102 | |
| 2 | | 793632.06 | 388956.48 | 7.84 | 2.44 | 8.3 | 2.28 | 6.6 | 2.7 | 100 | |
| 3 | | 793639.67 | 388966.58 | 7.51 | 2.46 | 8.8 | 2.30 | 7.0 | 1.2 | 101 | |
| 4 | | 793628.34 | 388978.15 | 7.67 | 2.46 | 9.0 | 2.29 | 7.2 | 1.1 | 101 | |




Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4407:2015, Test 3.1 for aggregates

**Moisture correction factor used : 0.8**
**Sites selected by A Hayward**
*** Not IANZ Endorsed**

Date reported : 24/01/20

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*Andrew Hayward*
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**
Date : 24/01/20

IANZ ACCREDITED LABORATORY 1021
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Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/290**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 5**
Location : **Richmond West**
Client : **D Chalmers**
Contractor : **Donaldson Civil**
Solid density (tested) : **2.78** ***t/m³**
Max dry density (tested) : **2.28** **t/m³**
Optimum water content (tested) : **7** **%**
MDD/OMC Lab Ref No : **19/691**
**Sandy Gravel**

Tested by : **Andrew Hayward**
Date tested : **21/02/20**
Time tested : **10:00 AM**
Nuclear densometer no : **Troxler 3430+**
Copies to : **D Chalmers**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| Test Probe Depth (mm) | Direct Transmission | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test # | Test Area | Northings | Eastings | Elevation (m) | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | |
| 1 | Haul Road | 793685.92 | 388871.66 | 7.85 | 2.44 | 8.2 | 2.29 | 6.6 | 2.6 | 100 | |
| 2 | | 793694.91 | 388866.81 | 7.75 | 2.39 | 7.9 | 2.25 | 6.3 | 5.0 | 99 | |
| 3 | | 793701.69 | 388856.17 | 7.60 | 2.45 | 8.4 | 2.30 | 6.7 | 1.9 | 101 | |
| 4 | | 793714.53 | 388847.92 | 7.67 | 2.37 | 8.9 | 2.22 | 7.1 | 4.5 | 97 | |
| 5 | | 793738.80 | 388830.65 | 7.16 | 2.37 | 9.5 | 2.21 | 7.6 | 3.9 | 97 | |
| 6 | | 793750.84 | 388817.12 | 7.02 | 2.40 | 7.9 | 2.25 | 6.3 | 4.7 | 99 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4407:2015, Test 3.1 for aggregates

**Moisture correction factor used :** **0.8**
**Sites selected by A Hayward** Sandy Gravel
*** Not IANZ Endorsed**

Date reported : 24/02/20

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*Andrew Hayward*
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**
Date : 24/02/20

IANZ ACCREDITED LABORATORY 1021

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Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/545**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 6**
Location : **Richmond West**
Client : **D Chalmers**
Contractor : **Donaldson Civil Ltd**
Solid density (tested) : **2.78** ***t/m³**
Max dry density (tested) : **2.28** **t/m³**
Optimum water content (tested) : **7** **%**
MDD/OMC Lab Ref No : **19/691**

Tested by : **Andrew Hayward**
Date tested : **06/05/20**
Time tested : **11:30 AM**
Nuclear densometer no : **Troxler 3430+**
Copies to : **D Chalmers**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| Test Probe Depth (mm) | | | Direct Transmission | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test # | | | Location | Depth of Fill | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | |
| 1 | | | Stage 6 | 1st Lift | 2.44 | 10.4 | 2.26 | 8.3 | 0.1 | 99 | |
| 2 | | | | | 2.46 | 9.4 | 2.29 | 7.5 | 0.4 | 100 | |
| 3 | | | | | 2.40 | 10.9 | 2.21 | 8.7 | 1.2 | 97 | |
| 4 | | | | | 2.41 | 9.1 | 2.25 | 7.3 | 2.7 | 99 | |
| 5 | | | | | 2.41 | 11.6 | 2.20 | 9.3 | 0.3 | 97 | |
| 6 | | | | | 2.40 | 11.1 | 2.21 | 8.9 | 1.0 | 97 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4407:2015, Test 3.1 for aggregates

**Moisture correction factor used : 0.8**
**Sites selected by A Hayward**
*** Not IANZ Endorsed**

Date reported : 11/05/20

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*Andrew Hayward*
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**
Date : 11/05/20

IANZ ACCREDITED LABORATORY 1021
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Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/609**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 6**
Location : **Richmond West**
Client : **D Chalmers**
Contractor : **Donaldson Civil Ltd**
Solid density (tested) : **2.78** ***t/m³**
Max dry density (tested) : **2.28** **t/m³**
Optimum water content (tested) : **7** **%**
MDD/OMC Lab Ref No : **19/691**

Tested by : **Andrew Hayward**
Date tested : **14/05/20**
Time tested : **8:00 AM**
Nuclear densometer no : **Troxler 3430+**
Copies to : **D Chalmers**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| Test Probe Depth (mm) | | Direct Transmission | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test # | | Northings | Eastings | Elevation | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | |
| 1 | | 793793.004 | 388893.183 | 7.888 | 2.39 | 9.3 | 2.23 | 7.4 | 3.4 | 98 | |
| 2 | | 793799.315 | 388882.223 | 7.857 | 2.41 | 9.8 | 2.24 | 7.8 | 2.0 | 98 | |
| 3 | | 793804.966 | 388870.852 | 7.868 | 2.44 | 9.1 | 2.28 | 7.3 | 1.6 | 100 | |
| 4 | | 793813.795 | 388891.302 | 7.281 | 2.37 | 9.8 | 2.19 | 7.8 | 3.8 | 96 | |
| 5 | | 793803.546 | 388897.743 | 7.227 | 2.42 | 9.8 | 2.24 | 7.8 | 1.7 | 98 | |
| 6 | | 793783.564 | 388867.987 | 7.783 | 2.43 | 9.8 | 2.26 | 7.8 | 1.2 | 99 | |
| 7 | | 793793.722 | 388855.863 | 7.678 | 2.42 | 10.2 | 2.24 | 8.2 | 1.3 | 98 | |
| 8 | | 793776.666 | 388840.122 | 7.632 | 2.33 | 11.6 | 2.13 | 9.3 | 3.5 | 94 | |
| 9 | | 793762.482 | 388832.855 | 7.71 | 2.37 | 9.9 | 2.20 | 7.9 | 3.4 | 96 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4407:2015, Test 3.1 for aggregates

**Moisture correction factor used : 0.8**
**Sites selected by A Hayward**
*** Not IANZ Endorsed**

Date reported : 14/05/20

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*Andrew Hayward*
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**
Date : 14/05/20

IANZ ACCREDITED LABORATORY 1021
All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/670**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 6**
Location : **Richmond West**
Client : **D Chalmers**
Contractor : **Donaldson Civil Ltd**
Solid density (tested) : **2.80** ***t/m³**
Max dry density (tested) : **2.23** **t/m³**
Optimum water content (tested) : **8.5** **%**
MDD/OMC Lab Ref No : **19/691 & 18/1547**

Tested by : **Andrew Hayward**
Date tested : **21/05/20**
Time tested : **1:00 PM**
Nuclear densometer no : **Troxler 3430+**
Copies to : **D Chalmers**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| Test Probe Depth (mm) | | | | Direct Transmission | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test # | | Material | Location | Depth of Fill | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | |
| 1 | | Insitu Sandy Silty Gravel & LVQ Hardfill | Stage 6 (Old Office Site) | Finish Level | 2.40 | 8.3 | 2.26 | 6.2 | 5.2 | 101 | |
| 2 | | | | | 2.35 | 7.9 | 2.22 | 5.9 | 7.6 | 99 | |
| 3 | | | | | 2.39 | 9.3 | 2.23 | 7.0 | 4.6 | 100 | |
| 4 | | | | | 2.45 | 8.9 | 2.30 | 6.7 | 2.5 | 103 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4407:2015, Test 3.1 for aggregates

**Moisture correction factor used : 0.75**
**Sites selected by A Hayward**
*** Not IANZ Endorsed**

Date reported : 21/05/20

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*Andrew Hayward*
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**
Date : 21/05/20

IANZ ACCREDITED LABORATORY 1021
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Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/817**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 5**
Location : **Richmond West**
Client : **D Chalmers**
Contractor : **Donaldson Civil**
Solid density (tested) : **2.81** ***t/m³**
Max dry density (tested) : **2.34** **t/m³**
Optimum water content (tested) : **5.5** **%**
MDD/OMC Lab Ref No : **20/672**
**MVQ Hardfill**

Tested by : **Andrew Hayward**
Date tested : **23/06/20**
Time tested : **8:15 AM**
Nuclear densometer no : **Troxler 3430+**
Copies to : **D Chalmers**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| Test Probe Depth (mm) | | Backscatter | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test # | | Northings | Eastings | Elevation (m) | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | |
| 1 | | 793725.015 | 388838.264 | 7.761 | 2.37 | 10.3 | 2.23 | 6.1 | 6.9 | 95 | |
| 2 | | 793715.480 | 388823.454 | 7.668 | 2.39 | 10.0 | 2.25 | 5.9 | 6.4 | 96 | |
| 3 | | 793703.394 | 388813.608 | 7.767 | 2.38 | 10.2 | 2.25 | 6.0 | 6.4 | 96 | |
| 4 | | 793699.645 | 388806.446 | 7.770 | 2.36 | 10.3 | 2.22 | 6.1 | 7.4 | 95 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4407:2015, Test 3.1 for aggregates

**Moisture correction factor used :** **0.59**
**Sites selected by A Hayward** Hardfill
*** Not IANZ Endorsed**

Date reported : 24/06/20

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*Andrew Hayward*
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**
Date : 24/06/20

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/852**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 5**
Location : **Richmond West**
Client : **D Chalmers**
Contractor : **Donaldson Civil**
Solid density (tested) : **2.81** ***t/m³**
Max dry density (tested) : **2.34** **t/m³**
Optimum water content (tested) : **5.5** **%**
MDD/OMC Lab Ref No : **20/672**
**MVQ Hardfill**

Tested by : **Andrew Hayward**
Date tested : **02/07/20**
Time tested : **10:30 AM**
Nuclear densometer no : **Troxler 3430+**
Copies to : **D Chalmers**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| Test Probe Depth (mm) | | Backscatter | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test # | | Northings | Eastings | Elevation (m) | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | |
| 1 | | 793753.418 | 388812.565 | 7.150 | 2.35 | 9.5 | 2.23 | 5.6 | 8.3 | 95 | |
| 2 | | 793737.060 | 388830.589 | 7.580 | 2.37 | 10.2 | 2.24 | 6.0 | 7.0 | 96 | |
| 3 | | 793727.733 | 388832.804 | 7.581 | 2.35 | 9.2 | 2.22 | 5.4 | 8.8 | 95 | |
| 4 | | 793717.551 | 388820.615 | 7.400 | 2.36 | 9.6 | 2.23 | 5.7 | 7.8 | 95 | |
| 5 | | 793718.521 | 388808.700 | 7.503 | 2.36 | 9.6 | 2.23 | 5.7 | 7.9 | 95 | |
| 6 | | 793709.396 | 388790.745 | 7.526 | 2.34 | 9.5 | 2.22 | 5.6 | 8.6 | 95 | |
| 7 | | 793699.091 | 388781.086 | 7.535 | 2.38 | 10.8 | 2.24 | 6.4 | 6.2 | 96 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4407:2015, Test 3.1 for aggregates

**Moisture correction factor used : 0.59**
**Sites selected by A Hayward** Hardfill
*** Not IANZ Endorsed**

Date reported : 02/07/20

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*Andrew Hayward*
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**
Date : 02/07/20

IANZ ACCREDITED LABORATORY 1021

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Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022


Lab Ref No : **20/897**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

| | | | |
|---|---|---|---|
| Project : | **The Meadows Stage 5** | Tested by : | **Robbie Burns** |
| Location : | **Richmond West** | Date tested : | **10/07/20** |
| Client : | **D Chalmers** | Time tested : | **8.30 am** |
| Contractor : | **Donaldson Civil** | Nuclear densometer no : | **Troxler 3430+** |
| Solid density (tested) : | **2.81** *t/m³ | Copies to : | **D Chalmers** |
| Max dry density (tested) : | **2.34** t/m³ | | **M Gray** |
| Optimum water content (tested) : | **5.5** % | | **Lab File** |
| MDD/OMC Lab Ref No : | **20/672** | | |
| | **MVQ Hardfill** | | |

**Nuclear Density Meter Test Results**

| Test Probe Depth (mm) | | Backscatter | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test # | | Northings | Eastings | Elevation (m) | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | |
| 1 | Fill Area | 793749.970 | 388811.569 | 7.938 | 2.38 | 8.1 | 2.27 | 4.8 | 8.3 | 97 | |
| 2 | | 793741.025 | 388824.118 | 7.859 | 2.40 | 9.7 | 2.27 | 5.7 | 6.1 | 97 | |
| 3 | | 793719.931 | 388830.969 | 7.833 | 2.42 | 10.4 | 2.28 | 6.1 | 4.7 | 98 | |
| 4 | | 793724.162 | 388818.785 | 7.861 | 2.38 | 7.7 | 2.27 | 4.5 | 8.8 | 97 | |
| 5 | | 793714.171 | 388805.177 | 7.885 | 2.40 | 9.0 | 2.28 | 5.3 | 6.8 | 97 | |
| 6 | | 793703.244 | 388817.858 | 7.875 | 2.40 | 9.8 | 2.27 | 5.8 | 6.1 | 97 | |
| 7 | | 793697.166 | 388803.817 | 7.951 | 2.39 | 9.9 | 2.25 | 5.8 | 6.6 | 96 | |
| 8 | | 793705.824 | 388794.749 | 8.007 | 2.36 | 7.8 | 2.26 | 4.6 | 9.2 | 96 | |
| 9 | Road | 793696.956 | 388784.580 | 7.695 | 2.33 | 9.3 | 2.21 | 5.5 | 9.4 | 94 | |
| 10 | | 793687.664 | 388797.471 | 7.590 | 2.33 | 10.9 | 2.18 | 6.4 | 8.2 | 93 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4407:2015, Test 3.1 for aggregates

**Moisture correction factor used :** **0.59**
**Sites selected by Robbie Burns** Hardfill
*** Not IANZ Endorsed**

Date reported : 10/07/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 10/07/20

IANZ ACCREDITED LABORATORY 1021
All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/931**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 5**
Location : **Richmond West**
Client : **D Chalmers**
Contractor : **Donaldson Civil**

Tested by : **Robbie Burns**
Date tested : **17/07/20**
Time tested : **8.30 am**
Nuclear densometer no : **Troxler 3430+**

| | | |
|---|---|---|
| Solid density (tested) : | **2.81** | ***t/m³** |
| Max dry density (tested) : | **2.34** | **t/m³** |
| Optimum water content (tested) : | **5.5** | **%** |
| MDD/OMC Lab Ref No : | **20/672** | |
| | **MVQ Hardfill** | |

Copies to : **D Chalmers**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| Test Probe Depth (mm) | | Backscatter | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test # | | Northings | Eastings | Elevation (m) | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | |
| 1 | Fill Area | 793680.780 | 388872.042 | 8.188 | 2.39 | 8.4 | 2.28 | 5.0 | 7.6 | 97 | |
| 2 | | 793672.296 | 388866.515 | 8.218 | 2.38 | 8.2 | 2.27 | 4.8 | 8.4 | 97 | |
| 3 | | 793663.562 | 388858.831 | 8.301 | 2.44 | 9.9 | 2.30 | 5.8 | 4.7 | 98 | |
| 4 | | 793670.228 | 388853.252 | 8.304 | 2.44 | 9.4 | 2.31 | 5.5 | 4.8 | 99 | |
| 5 | | 793678.474 | 388857.092 | 8.284 | 2.42 | 8.7 | 2.30 | 5.1 | 6.3 | 98 | |
| 6 | | 793687.452 | 388866.767 | 8.161 | 2.36 | 7.8 | 2.26 | 4.6 | 9.3 | 96 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4407:2015, Test 3.1 for aggregates

**Moisture correction factor used :** **0.59**
**Sites selected by Robbie Burns** Hardfill
*** Not IANZ Endorsed**

Date reported : 20/07/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 20/07/20

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/1277**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows**
Location : **Richmond West**
Client : **Taylors Contracting Company Ltd**
Contractor : **Taylors Contracting Company Ltd**
Solid density (assumed) : **2.8** ***t/m³**
Max dry density (tested) : **2.27** **t/m³**
Optimum water content (tested) : **6** **%**
MDD/OMC Lab Ref No: **20/410**

Tested by : **Robbie Burns**
Date tested : **22/09/20**
Nuclear densometer no : **Troxler 3430**
Time tested: **10.30 am**

| Copies to : | **F Moffatt** |
|---|---|
| | **B Dodd** |
| **Lab File** | **M Gray** |

**Nuclear Density Meter Test Results**

| **Material** | **Sandy Silty Gravel** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **Lot 444** | **793646.504** | **389027.213** | **7.521** | **2.37** | 10.7 | **2.18** | **8.6** | **3.4** | **96** | |
| **2** | **Lot 445** | **793666.787** | **389031.068** | **7.425** | **2.33** | 10.3 | **2.15** | **8.2** | **5.5** | **95** | |
| **3** | **Lot 446** | **793685.152** | **389036.442** | **7.359** | **2.35** | 10.3 | **2.17** | **8.2** | **4.6** | **96** | |
| **4** | **Lot 358** | **793684.077** | **389996.400** | **7.209** | **2.29** | 9.9 | **2.12** | **7.9** | **7.5** | **93** | **20/410** |
| **5** | **Lot 359** | **793688.340** | **388982.967** | **7.345** | **2.28** | 10.2 | **2.11** | **8.2** | **7.4** | **93** | |
| **6** | **Lot 360** | **793683.373** | **388971.005** | **7.371** | **2.32** | 9.7 | **2.15** | **7.8** | **6.3** | **95** | |
| **7** | **Lot 361** | **793678.006** | **388960.500** | **7.382** | **2.31** | 9.9 | **2.14** | **7.9** | **6.6** | **94** | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.8**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 23/09/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 23/09/20

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All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Lab Ref No : **20/1288**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows**
Location : **Richmond West**
Client : **Taylors Contracting Company Ltd**
Contractor : **Taylors Contracting Company Ltd**
Solid density (assumed) : **2.8** ***t/m³**
Max dry density (tested) : **2.27** **t/m³**
Optimum water content (tested) : **6** **%**
MDD/OMC Lab Ref No: **20/410**

Tested by : **Robbie Burns**
Date tested : **23/09/20**
Nuclear densometer no : **Troxler 3430**
Time tested: **3.30 pm**

| Copies to : | F Moffatt |
|---|---|
| | B Dodd |
| **Lab File** | M Gray |

**Nuclear Density Meter Test Results**

| **Material** | **Sandy Silty Gravel** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **Lot 464** | **793739.500** | **389007.450** | **7.300** | **2.29** | 11.8 | **2.09** | **9.4** | **5.6** | **92** | **20/410** |
| **2** | **Lot 447** | **793727.950** | **389048.200** | **7.280** | **2.30** | 10.3 | **2.13** | **8.2** | **6.6** | **94** | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.8**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 23/09/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 23/09/20

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

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Lab Ref No : **20/1345**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows**
Location : **Richmond West**
Client : **Taylors Contracting Company Ltd**
Contractor : **Taylors Contracting Company Ltd**
Solid density (assumed) : **2.8** ***t/m³**
Max dry density (tested) : **2.29** **t/m³**
Optimum water content (tested) : **6.5** **%**
MDD/OMC Lab Ref No: **20/1280**

Tested by : **Robbie Burns**
Date tested : **02/10/20**
Nuclear densometer no : **Troxler 3430**
Time tested: **10.30 am**

Copies to : **F Moffatt**
**B Dodd**
**Lab File** **M Gray**

| Nuclear Density Meter Test Results | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Material** | **Silty Gravel** | | | | | | | | | | |
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **Lot 465** | **793752.627** | **388985.435** | **6.550** | **2.37** | 11.1 | **2.17** | **8.9** | **3.1** | **95** | **20/1280** |
| **2** | **Lot 465 B** | **793760.331** | **388977.498** | **6.614** | **2.36** | 10.2 | **2.19** | **8.2** | **4.1** | **95** | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.8**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 02/10/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 02/10/20

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022


Lab Ref No : **20/1352**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows**
Location : **Richmond West**
Client : **Taylors Contracting Company Ltd**
Contractor : **Taylors Contracting Company Ltd**
Solid density (assumed) : **2.8** ***t/m³**
Max dry density (tested) : **2.29** **t/m³**
Optimum water content (tested) : **6.5** **%**
MDD/OMC Lab Ref No: **20/1280**

Tested by : **Robbie Burns**
Date tested : **05/10/20**
Nuclear densometer no : **Troxler 3430**
Time tested: **3.30 pm**

| Copies to : | F Moffatt |
|---|---|
| | B Dodd |
| **Lab File** | M Gray |

**Nuclear Density Meter Test Results**

| **Material** | **Silty Gravel** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Direct Transmission** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **Lot 445** | **793665.400** | **389031.760** | **7.400** | **2.40** | 7.5 | **2.26** | **6.0** | **5.6** | **99** | **20/1280** |
| **2** | **Lot 446** | **793684.560** | **389038.010** | **7.420** | **2.32** | 7 | **2.19** | **5.6** | **9.4** | **96** | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.8**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 06/10/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 06/10/20

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Lab Ref No : **20/1353**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows**
Location : **Richmond West**
Client : **Taylors Contracting Company Ltd**
Contractor : **Taylors Contracting Company Ltd**
Solid density (assumed) : **2.8** ***t/m³**
Max dry density (tested) : **2.29** **t/m³**
Optimum water content (tested) : **6.5** **%**
MDD/OMC Lab Ref No: **20/1280**

Tested by : **Robbie Burns**
Date tested : **06/10/20**
Nuclear densometer no : **Troxler 3430**
Time tested: **8.15 am**

| Copies to : | F Moffatt |
|---|---|
| | B Dodd |
| **Lab File** | M Gray |

**Nuclear Density Meter Test Results**

| **Material** | **Silty Gravel** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **Lot 358** | **793690.010** | **388996.980** | **7.560** | **2.37** | 8.8 | **2.21** | **7.0** | **5.5** | **96** | |
| **2** | **Lot 359** | **793691.320** | **388982.800** | **7.720** | **2.36** | 9 | **2.20** | **7.2** | **5.6** | **96** | |
| **3** | **Lot 360** | **793687.930** | **388968.520** | **7.740** | **2.35** | 9.8 | **2.18** | **7.8** | **5.1** | **95** | **20/1280** |
| **4** | **Lot 444** | **793646.300** | **389027.680** | **7.540** | **2.37** | 6.8 | **2.25** | **5.4** | **7.4** | **98** | |
| **5** | **Lot 447** | **793728.160** | **389048.750** | **7.480** | **2.36** | 9.5 | **2.20** | **7.6** | **4.9** | **96** | |

Tasman District Council / AlphaOne Multiproof Approval – 107

| Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2 | **Moisture correction factor used : 0.8** |
|---|---|
| Water Content : NZS 4402:1986, Test 2.1 for soils | **Sites selected by Robbie Burns** |
| | *** Not IANZ Endorsed** |

Date reported : 06/10/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 06/10/20

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Lab Ref No : **20/1361**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows**
Location : **Richmond West**
Client : **Taylors Contracting Company Ltd**
Contractor : **Taylors Contracting Company Ltd**
Solid density (assumed) : **2.8** ***t/m³**
Max dry density (tested) : **2.29** **t/m³**
Optimum water content (tested) : **6.5** **%**
MDD/OMC Lab Ref No: **20/1280**

Tested by : **Robbie Burns**
Date tested : **07/10/20**
Nuclear densometer no : **Troxler 3430**
Time tested: **10.30 am**

| Copies to : | **F Moffatt** |
|---|---|
| | **B Dodd** |
| **Lab File** | **M Gray** |

**Nuclear Density Meter Test Results**

| **Material** | **Silty Gravel** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **Lot 361** | **793682.550** | **388957.600** | **7.760** | **2.35** | 8.8 | **2.19** | **7.0** | **6.3** | **96** | |
| **2** | **Lot 465** | **793735.280** | **388988.020** | **7.310** | **2.38** | 10.3 | **2.20** | **8.2** | **3.5** | **96** | |
| **3** | **Lot 466** | **793758.610** | **388970.450** | **7.290** | **2.36** | 10.1 | **2.19** | **8.1** | **4.3** | **95** | |
| **4** | **Lot 467** | **793767.720** | **388953.930** | **6.980** | **2.34** | 9.2 | **2.18** | **7.4** | **6.2** | **95** | **20/1280** |
| **5** | **Lot 464** | **793738.810** | **389005.330** | **7.510** | **2.33** | 8.3 | **2.18** | **6.6** | **7.5** | **95** | |
| **6** | **Lot 448** | **793745.660** | **389053.380** | **7.100** | **2.35** | 10.5 | **2.17** | **8.4** | **4.2** | **95** | |
| **7** | **Lot 449** | **793766.110** | **389058.050** | **7.000** | **2.34** | 9.5 | **2.18** | **7.6** | **5.7** | **95** | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.8**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 07/10/20

**This report may only be reproduced in full**

*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 07/10/20

IANZ ACCREDITED LABORATORY 1021
All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

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Lab Ref No : **20/1371**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows**
Location : **Richmond West**
Client : **Taylors Contracting Company Ltd**
Contractor : **Taylors Contracting Company Ltd**
Solid density (assumed) : **2.8** ***t/m³**
Max dry density (tested) : **2.29** **t/m³**
Optimum water content (tested) : **6.5** **%**
MDD/OMC Lab Ref No: **20/1280**

Tested by : **Robbie Burns**
Date tested : **08/10/20**
Nuclear densometer no : **Troxler 3430**
Time tested: **10.30 am**

Copies to : **F Moffatt**
**B Dodd**
**Lab File** **M Gray**

**Nuclear Density Meter Test Results**

| **Material** | **Silty Gravel** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Direct Transmission** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **Lot 465** | **793753.290** | **388987.600** | **7.400** | **2.35** | 10.6 | **2.17** | **8.5** | **4.3** | **95** | |
| **2** | **Lot 466** | **793758.720** | **388971.540** | **7.400** | **2.33** | 7.6 | **2.20** | **6.1** | **8.2** | **96** | **20/1280** |
| **3** | **Lot 467** | **793766.430** | **388950.090** | **7.200** | **2.40** | 9.4 | **2.23** | **7.5** | **3.5** | **98** | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.8**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 08/10/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 08/10/20

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Lab Ref No : **20/1412**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows**
Location : **Richmond West**
Client : **Taylors Contracting Company Ltd**
Contractor : **Taylors Contracting Company Ltd**
Solid density (assumed) : **2.8** ***t/m³**
Max dry density (tested) : **2.29** **t/m³**
Optimum water content (tested) : **6.5** **%**
MDD/OMC Lab Ref No: **20/1280**

Tested by : **Robbie Burns**
Date tested : **14/10/20**
Nuclear densometer no : **Troxler 3430**
Time tested: **2.30 pm**

| Copies to : | F Moffatt |
|---|---|
| | B Dodd |
| **Lab File** | M Gray |

**Nuclear Density Meter Test Results**

| **Material** | **Silty Gravel** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **Lot 448** | **793745.880** | **389052.250** | **7.450** | **2.37** | 10.7 | **2.19** | **8.6** | **3.2** | **95** | **20/1280** |
| **2** | **Lot 449** | **793763.490** | **389057.600** | **7.350** | **2.39** | 11.6 | **2.19** | **9.3** | **1.5** | **96** | |

Tasman District Council / AlphaOne Multiproof Approval – 107

| Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2 | **Moisture correction factor used : 0.8** |
|---|---|
| Water Content : NZS 4402:1986, Test 2.1 for soils | **Sites selected by Robbie Burns** |
| | *** Not IANZ Endorsed** |

Date reported : 14/10/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 14/10/20

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Lab Ref No : **20/1630**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION TRIAL PAD

Project : **The Meadows Stage 8**
Location : **Richmond West**
Client : **Taylors Contracting Company Ltd**
Contractor : **Taylors Contracting Company Ltd**
Solid density (assumed) : **2.8** ***t/m³**
Max dry density (tested) : **2.29** **t/m³**
Optimum water content (tested) : **6.5** **%**
MDD/OMC Lab Ref No: **20/1280**

Tested by : **Robbie Burns**
Date tested : **02/12/20**
Nuclear densometer no : **Troxler 3430**
Time tested: **11.15 am**

Copies to : **F Moffat**
**B Dodd**
**Lab File** **M Gray**

**Nuclear Density Meter Test Results**

| **Material** | **Silty Gravel** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **Lot 463** | **793756.973** | **389010.450** | **7.451** | **2.36** | 10.6 | **2.18** | **8.5** | **3.8** | **95** | |
| **2** | **Lot 462** | **793775.488** | **389016.825** | **7.325** | **2.36** | 10 | **2.18** | **8.0** | **4.6** | **95** | |
| **3** | **Lot 461** | **793792.635** | **389019.120** | **7.300** | **2.39** | 11.7 | **2.18** | **9.4** | **1.6** | **95** | **20/1280** |
| **4** | **Lot 460** | **793810.724** | **389026.166** | **7.222** | **2.37** | 10.9 | **2.18** | **8.7** | **3.3** | **95** | |
| **5** | **Lot 459** | **793829.551** | **389026.144** | **7.163** | **2.34** | 9.3 | **2.18** | **7.4** | **5.9** | **95** | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.8**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 03/12/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 03/12/20

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **20/1675**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

| | | | | |
|---|---|---|---|---|
| Project : | **The Meadows Stage 8** | | Tested by : | **Robbie Burns** |
| Location : | **Richmond West** | | Date tested : | **09/12/20** |
| Client : | **Taylors Contracting Company Ltd** | | Nuclear densometer no : | **Troxler 3430** |
| Contractor : | **Taylors Contracting Company Ltd** | | Time tested: | **3.30 pm** |
| Solid density (assumed) : | **2.8** | ***t/m³** | | |
| Max dry density (tested) : | **2.21** | **t/m³** | Copies to : | **F Moffat** |
| Optimum water content (tested) : | **8** | **%** | | **B Dodd** |
| MDD/OMC Lab Ref No: | **20/1536** | | **Lab File** | **M Gray** |

**Nuclear Density Meter Test Results**

| **Material** | **LVQ Hardfill** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **Lot 485** | **793862.071** | **388943.831** | **7.727** | **2.34** | 7.7 | **2.21** | **5.7** | **8.4** | **100** | **20/1536** |
| **2** | **RoW 2** | **793781.979** | **388927.404** | **6.927** | **2.33** | 9.3 | **2.18** | **6.9** | **7.3** | **98** | |

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2 | **Moisture correction factor used : 0.74** |
| Water Content : NZS 4402:1986, Test 2.1 for soils | **Sites selected by Robbie Burns** |
| | *** Not IANZ Endorsed** |

Date reported : 09/12/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 09/12/20

ACCREDITED IANZ TESTING LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Lab Ref No : **20/1671 Reissue #1**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

| | | | | | |
|---|---|---|---|---|---|
| Project : | **The Meadows Stage 8** | | Tested by : | **Robbie Burns** |
| Location : | **Richmond West** | | Date tested : | **09/12/20** |
| Client : | **Taylors Contracting Company Ltd** | | Nuclear densometer no : | **Troxler 3430** |
| Contractor : | **Taylors Contracting Company Ltd** | | Time tested: | **8.00 am** |
| Solid density (assumed) : | **2.8** | ***t/m³** | | |
| Max dry density (tested) : | **2.21** | **t/m³** | Copies to : | **F Moffat** |
| Optimum water content (tested) : | **8** | **%** | | **B Dodd** |
| MDD/OMC Lab Ref No: | **20/1536** | | **Lab File** | **M Gray** |

**Nuclear Density Meter Test Results**

| **Material** | **LVQ Hardfill** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **RoW 1** | **793871.735** | **389014.287** | **7.250** | **2.35** | 9 | **2.20** | **6.7** | **6.8** | **100** | |
| **2** | **RoW 2** | **793880.726** | **389002.582** | **7.413** | **2.34** | 9.4 | **2.19** | **7.0** | **6.7** | **99** | |
| **3** | **Lot 473** | **793829.824** | **389004.187** | **6.656** | **2.36** | 9.9 | **2.20** | **7.3** | **5.2** | **100** | |
| **4** | **Subsoil** | **793806.690** | **388968.115** | **6.573** | **2.34** | 9.7 | **2.19** | **7.2** | **6.3** | **99** | **20/1536** |
| **5** | **Soak Pit** | **793782.838** | **388929.252** | **6.559** | **2.32** | 9.4 | **2.17** | **7.0** | **7.3** | **98** | |
| **6** | **Lot 480** | **793876.321** | **388959.476** | **7.617** | **2.31** | 9.9 | **2.16** | **7.3** | **7.2** | **98** | |
| **7** | **Lot 477** | **793892.179** | **388980.484** | **7.547** | **2.29** | 9.8 | **2.14** | **7.3** | **8.3** | **97** | |

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2 | **Moisture correction factor used : 0.74** |
| Water Content : NZS 4402:1986, Test 2.1 for soils | **Sites selected by Robbie Burns** |
| | *** Not IANZ Endorsed** |

Date reported : 16/12/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 16/12/20

ACCREDITED IANZ TESTING LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Lab Ref No : **20/1725**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

| | | | | | | |
|---|---|---|---|---|---|---|
| Project : | **The Meadows Stage 8** | | | Tested by : | **Robbie Burns** |
| Location : | **Richmond West** | | | Date tested : | **16/12/20** |
| Client : | **Taylors Contracting Company Ltd** | | | Nuclear densometer no : | **Troxler 3430** |
| Contractor : | **Taylors Contracting Company Ltd** | | | Time tested: | **10.30 am** |
| Solid density (assumed) : | **2.8** | **2.8** | ***t/m³** | | |
| Max dry density (tested) : | **2.21** | **2.29** | **t/m³** | Copies to : | **F Moffat** |
| Optimum water content (tested) : | **8** | **6.5** | **%** | | **B Dodd** |
| MDD/OMC Lab Ref No: | **20/1536** | **20/1280** | | **Lab File** | **M Gray** |

**Nuclear Density Meter Test Results**

| **Material** | | **Lee Valley Quarry Hardfill** | | | | | **Silty Gravel** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **Lot 468** | **793784.369** | **388941.496** | **7.239** | **2.36** | 7.2 | **2.24** | **5.3** | **8.2** | **101** | **20/1536** |
| **2** | **Lot 469** | **793796.075** | **388961.690** | **7.130** | **2.31** | 10.3 | **2.15** | **7.6** | **6.8** | **97** | |
| **3** | **Lot 470** | **793780.514** | **388980.104** | **7.685** | **2.32** | 8.9 | **2.18** | **6.6** | **7.8** | **95** | **20/1280** |
| **4** | **Lot 471** | **793796.526** | **388998.889** | **7.695** | **2.34** | 9.2 | **2.19** | **6.8** | **6.8** | **96** | |

| | |
|---|---|
| Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2 | **Moisture correction factor used :** **0.74** |
| | **Moisture correction factor used :** **0.8** |
| Water Content : NZS 4402:1986, Test 2.1 for soils | **Sites selected by Robbie Burns** |
| | *** Not IANZ Endorsed** |

Date reported : 16/12/20

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 16/12/20

IANZ ACCREDITED LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **21/063**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

| | | | | | |
|---|---|---|---|---|---|
| Project : | **The Meadows Stage 8** | | Tested by : | **Robbie Burns** |
| Location : | **Richmond West** | | Date tested : | **18/01/21** |
| Client : | **Taylors Contracting Company Ltd** | | Nuclear densometer no : | **Troxler 3430** |
| Contractor : | **Taylors Contracting Company Ltd** | | Time tested: | **2.30 pm** |
| Solid density (assumed) : | **2.8** | ***t/m³** | | |
| Max dry density (tested) : | **2.21** | **t/m³** | Copies to : | **F Moffat** |
| Optimum water content (tested) : | **8** | **%** | | **B Dodd** |
| MDD/OMC Lab Ref No: | **20/1536** | | **Lab File** | **M Gray** |

**Nuclear Density Meter Test Results**

| **Material** | **Lee Valley Quarry Hardfill** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Location** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| **1** | **Lot 468** | **793795.700** | **388962.500** | **7.640** | **2.44** | 10.5 | **2.27** | **7.8** | **1.5** | **103** | **20/1536** |
| **2** | **Lot 469** | **793784.300** | **388943.500** | **7.790** | **2.40** | 8.7 | **2.26** | **6.4** | **4.9** | **102** | |

| | |
|---|---|
| Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2 | **Moisture correction factor used : 0.74** |
| Water Content : NZS 4402:1986, Test 2.1 for soils | **Sites selected by Robbie Burns** |
| | *** Not IANZ Endorsed** |

Date reported : 19/01/21

**This report may only be reproduced in full**

*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 19/01/21

ACCREDITED IANZ TESTING LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

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Lab Ref No : **21/252**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 7**
Location : **Richmond**
Client : **Donaldson Civil**
Contractor : **Donaldson Civil**
Solid density (tested) : **2.78** ***t/m³**
Max dry density (tested) : **2.28** **t/m³**
Optimum water content (tested) : **7** **%**
MDD/OMC Lab Ref No: **19/691**

Tested by : **Robbie Burns**
Date tested : **16/02/21**
Time tested: **10.30 am**
Nuclear densometer no : **Troxler 3430**

Copies to : **AJ Clarken**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| Material | Sandy Gravel, Silty | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Probe Depth (mm) | Backscatter | | | | | | | | | | |
| Test # | Test Location | Northings | Eastings | RL | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | Curve Reference No. |
| 1 | Lot 309 | 793729.577 | 388903.026 | 7.657 | 2.37 | 9.6 | 2.20 | 7.7 | 4.1 | 96 | 19/691 |
| 2 | Lot 309 | 793715.736 | 388904.569 | 7.735 | 2.39 | 10.3 | 2.21 | 8.2 | 2.5 | 97 | |
| 3 | Lot 309 | 793726.760 | 388889.942 | 7.767 | 2.41 | 8.3 | 2.26 | 6.6 | 3.6 | 99 | |
| 4 | Lot 310 | 793720.073 | 388875.050 | 7.799 | 2.41 | 8.8 | 2.25 | 7.0 | 3.0 | 99 | |
| 5 | Lot 357 | 793712.154 | 388885.769 | 7.918 | 2.40 | 9.6 | 2.23 | 7.7 | 2.9 | 98 | |
| 6 | Lot 357 | 793704.692 | 388895.999 | 7.898 | 2.38 | 10.8 | 2.19 | 8.6 | 2.2 | 96 | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.8**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 16/02/21

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 16/02/21

ACCREDITED IANZ TESTING LABORATORY
All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Lab Ref No : **21/288**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 7**
Location : **Richmond**
Client : **Donaldson Civil**
Contractor : **Donaldson Civil**
Solid density (tested) : **2.78** ***t/m³**
Max dry density (tested) : **2.28** **t/m³**
Optimum water content (tested) : **7** **%**
MDD/OMC Lab Ref No: **19/691**

Tested by : **Robbie Burns**
Date tested : **18/02/21**
Time tested: **1.45 pm**
Nuclear densometer no : **Troxler 3430**

Copies to : **AJ Clarken**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| Material | Sandy Gravel, Silty | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Probe Depth (mm) | Backscatter | | | | | | | | | | |
| Test # | Test Location | Northings | Eastings | RL | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | Curve Reference No. |
| 1 | Road 3 | 793701.077 | 388906.295 | 7.442 | 2.37 | 8.0 | 2.23 | 6.4 | 5.5 | 98 | |
| 2 | Road 3 | 793715.704 | 388914.312 | 7.247 | 2.39 | 9.4 | 2.22 | 7.5 | 3.4 | 97 | |
| 3 | Road 3 | 793731.741 | 388919.639 | 7.119 | 2.37 | 8.7 | 2.22 | 7.0 | 4.8 | 97 | |
| 4 | Road 3 | 793743.900 | 388918.816 | 7.174 | 2.48 | 8.1 | 2.33 | 6.5 | 1.0 | 102 | |
| 5 | Road 5 | 793743.250 | 388901.807 | 7.181 | 2.38 | 8.4 | 2.23 | 6.7 | 4.9 | 98 | |
| 6 | Road 5 | 793739.504 | 388884.476 | 7.189 | 2.36 | 11.0 | 2.17 | 8.8 | 2.7 | 95 | |
| 7 | Lot 302 | 793742.222 | 388859.873 | 7.169 | 2.36 | 8.1 | 2.22 | 6.5 | 5.8 | 97 | 19/691 |
| 8 | Lot 302 | 793735.940 | 388853.448 | 7.261 | 2.33 | 9.2 | 2.17 | 7.4 | 6.1 | 95 | |
| 9 | Lot 302 | 793748.787 | 388844.306 | 7.287 | 2.32 | 9.0 | 2.17 | 7.2 | 6.4 | 95 | |
| 10 | Lot 303 | 793756.004 | 388854.085 | 7.215 | 2.33 | 9.7 | 2.16 | 7.8 | 5.4 | 95 | |
| 11 | RoW B | 793766.488 | 388867.321 | 7.381 | 2.38 | 7.8 | 2.24 | 6.2 | 5.4 | 98 | |
| 12 | RoW B | 793752.181 | 388879.033 | 7.281 | 2.35 | 11.1 | 2.16 | 8.9 | 3.0 | 95 | |
| 13 | Lot 303 | 793746.845 | 388868.367 | 7.236 | 2.35 | 8.1 | 2.21 | 6.5 | 6.2 | 97 | |
| 14 | Lot 308 | 793751.956 | 388893.101 | 7.317 | 2.38 | 9.3 | 2.21 | 7.4 | 4.0 | 97 | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.8**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 23/02/21

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 23/02/21

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Lab Ref No : **21/784**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 6**
Location : **Richmond West**
Client : **S Brookland**
Contractor : **Ching Contracting**

Tested by : **Robbie Burns**
Date tested : **26/05/21**
Time tested : **8.30 am**
Nuclear densometer no : **Troxler 3430**

| | | |
|---|---|---|
| Solid density (tested) : | **2.78** | ***t/m³** |
| Max dry density (tested) : | **2.28** | **t/m³** |
| Optimum water content (tested) : | **7** | **%** |
| MDD/OMC Lab Ref No : | **19/691** | |

Copies to : **S Brookland**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| **Material** | **Sandy Gravel, Silty** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Lot #** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **MDD Lab Ref #** |
| **1** | **Lot 443** | **793628.28** | **389020.22** | **7.55** | **2.34** | 8.7 | **2.19** | **7.0** | **6.0** | **96** | **19/691** |
| **2** | | **793627.07** | **389023.60** | **7.07** | **2.31** | 8.5 | **2.16** | **6.8** | **7.6** | **95** | |
| **3** | **Lot 366** | **793645.87** | **388918.08** | **7.85** | **2.36** | 8.1 | **2.21** | **6.5** | **6.0** | **97** | |
| **4** | | **793653.48** | **388908.34** | **7.77** | **2.39** | 9.3 | **2.22** | **7.4** | **3.4** | **98** | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4407:2015, Test 3.1 for aggregates

**Moisture correction factor used : 0.8**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 28/05/21

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 28/05/21

ACCREDITED IANZ TESTING LABORATORY 1021

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Lab Ref No : **21/440**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 7**
Location : **Richmond**
Client : **Donaldson Civil**
Contractor : **Donaldson Civil**

| | | | |
|---|---|---|---|
| Solid density (tested) : | 2.8 | 2.78 | *t/m³ |
| Max dry density (tested) : | 2.21 | 2.28 | t/m³ |
| Optimum water content (tested) : | 8 | 7 | % |
| MDD/OMC Lab Ref No: | 20/1536 | 19/691 | |

Tested by : **Robbie Burns**
Date tested : **17/03/21**
Time tested: **12.30 pm**
Nuclear densometer no : **Troxler 3430**

Copies to : **AJ Clarken**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| Material | | Lee Valley Quarry Hardfill | | Sandy Gravel, Silty | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Probe Depth (mm) | Backscatter | | | | | | | | | | |
| Test # | Lot # | Northings | Eastings | RL | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | Curve Reference No. |
| 1 | 310 | 793704.200 | 388885.600 | 7.670 | 2.45 | 9.7 | 2.29 | 7.2 | 1.8 | 104 | 20/1536 |
| 2 | 357 | 793693.500 | 388876.900 | 7.913 | 2.43 | 12.3 | 2.23 | 9.1 | 0.1 | 101 | |
| 3 | 356 | 793708.300 | 388862.400 | 7.625 | 2.46 | 9.1 | 2.31 | 6.7 | 2.1 | 104 | |
| 4 | 311 | 793716.600 | 388868.900 | 7.617 | 2.41 | 9.3 | 2.25 | 6.9 | 4.1 | 102 | |
| 5 | 302 | 793749.900 | 388847.100 | 7.337 | 2.45 | 8.2 | 2.31 | 6.1 | 2.7 | 101 | 19/691 |
| 6 | 303 | 793762.000 | 388858.600 | 7.296 | 2.36 | 8.6 | 2.22 | 6.4 | 6.0 | 97 | |
| 7 | 303 | 793749.500 | 388869.400 | 7.325 | 2.37 | 9.6 | 2.21 | 7.1 | 4.6 | 97 | |
| 8 | 302 | 793735.400 | 388856.700 | 7.393 | 2.38 | 8.5 | 2.24 | 6.3 | 5.3 | 98 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2

Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used :** 0.74
**Moisture correction factor used :** 0.8
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 24/03/21

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 24/03/21

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **21/443**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 7**
Location : **Richmond**
Client : **Donaldson Civil**
Contractor : **Donaldson Civil**
Solid density (tested) : **2.78** ***t/m³**
Max dry density (tested) : **2.28** **t/m³**
Optimum water content (tested) : **7** **%**
MDD/OMC Lab Ref No: **19/691**

Tested by : **Robbie Burns**
Date tested : **18/03/21**
Time tested: **8.00 am**
Nuclear densometer no : **Troxler 3430**

Copies to : **AJ Clarken**
**M Gray**
**Lab File**

**Nuclear Density Meter Test Results**

| Material | Sandy Gravel, Silty | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Probe Depth (mm) | Backscatter | | | | | | | | | | |
| Test # | Lot # | Northings | Eastings | RL | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | Curve Reference No. |
| 1 | 307 | 793777.800 | 388883.200 | 7.171 | 2.53 | 7.1 | 2.39 | 5.7 | 0.5 | 105 | 19/691 |
| 2 | 307 | 793786.800 | 388901.100 | 7.226 | 2.39 | 10.0 | 2.21 | 8.0 | 2.7 | 97 | |
| 3 | 308 | 793778.400 | 388905.500 | 7.243 | 2.48 | 9.1 | 2.31 | 7.3 | -0.1 | 102 | |
| 4 | 308 | 793767.000 | 388889.300 | 7.155 | 2.40 | 9.7 | 2.23 | 7.8 | 2.6 | 98 | |
| 5 | 308 | 793754.800 | 388893.500 | 7.195 | 2.50 | 7.5 | 2.36 | 6.0 | 1.1 | 103 | |
| 6 | 308 | 793765.200 | 388914.400 | 7.153 | 2.47 | 7.1 | 2.33 | 5.7 | 2.8 | 102 | |
| 7 | 310 | 793716.900 | 388871.200 | 7.686 | 2.38 | 9.3 | 2.21 | 7.4 | 3.9 | 97 | |
| 8 | 357 | 793701.700 | 388888.600 | 7.810 | 2.34 | 10.7 | 2.16 | 8.6 | 3.8 | 95 | |
| 9 | 356 | 793690.200 | 388880.900 | 8.002 | 2.39 | 8.7 | 2.24 | 7.0 | 4.0 | 98 | |
| 10 | 311 | 793712.700 | 388859.100 | 7.681 | 2.37 | 9.5 | 2.20 | 7.6 | 4.2 | 96 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.8**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 24/03/21

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 24/03/21

ACCREDITED IANZ TESTING LABORATORY
All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **21/474**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 7**
Location : **Richmond**
Client : **Donaldson Civil**
Contractor : **Donaldson Civil**
Solid density (tested) : **2.8** ***t/m³**
Max dry density (tested) : **2.21** **t/m³**
Optimum water content (tested) : **8** **%**
MDD/OMC Lab Ref No: **20/1536**

Tested by : **Robbie Burns**
Date tested : **22/03/21**
Time tested: **10.00 am**
Nuclear densometer no : **Troxler 3430**

Copies to : **AJ Clarken**
**M Gray**
**Lab File**

**Nuclear Density Meter Test Results**

| Material | Lee Valley Quarry Hardfill | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Probe Depth (mm) | Backscatter | | | | | | | | | | |
| Test # | Lot # | Northings | Eastings | RL | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | Curve Reference No. |
| 1 | 302 | 793750.252 | 388845.436 | 7.652 | 2.41 | 8.3 | 2.27 | 6.1 | 5.2 | 103 | 20/1536 |
| 2 | 302 | 793740.117 | 388851.133 | 7.695 | 2.39 | 8.4 | 2.25 | 6.2 | 5.7 | 102 | |
| 3 | 303 | 793746.073 | 388863.365 | 7.571 | 2.40 | 9.4 | 2.24 | 7.0 | 4.4 | 101 | |
| 4 | 303 | 793758.900 | 388854.290 | 7.580 | 2.44 | 7.5 | 2.31 | 5.6 | 4.7 | 104 | |
| 5 | 307 | 793768.437 | 388868.294 | 7.565 | 2.44 | 8.7 | 2.29 | 6.4 | 3.4 | 104 | |
| 6 | RoW B | 793754.993 | 388877.943 | 7.442 | 2.42 | 8.9 | 2.27 | 6.6 | 3.8 | 103 | |
| 7 | 308 | 793757.288 | 388892.301 | 7.399 | 2.40 | 10.1 | 2.23 | 7.5 | 3.6 | 101 | |
| 8 | 307 | 793783.780 | 388887.887 | 7.472 | 2.35 | 8.4 | 2.22 | 6.2 | 7.1 | 100 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.74**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 24/03/21

*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 24/03/21

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Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **21/491**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 7**
Location : **Richmond**
Client : **Donaldson Civil**
Contractor : **Donaldson Civil**
Solid density (tested) : **2.8** ***t/m³**
Max dry density (tested) : **2.21** **t/m³**
Optimum water content (tested) : **8** **%**
MDD/OMC Lab Ref No: **20/1536**

Tested by : **Robbie Burns**
Date tested : **24/03/21**
Time tested: **9.00 am**
Nuclear densometer no : **Troxler 3430**

Copies to : **AJ Clarken**
**M Gray**
**Lab File**

**Nuclear Density Meter Test Results**

| Material | Lee Valley Quarry Hardfill | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Probe Depth (mm) | Backscatter | | | | | | | | | | |
| Test # | Lot # | Northings | Eastings | RL | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | Curve Reference No. |
| 1 | 304 | 793762.462 | 388862.531 | 7.681 | 2.50 | 9.3 | 2.34 | 6.9 | 0.4 | 106 | 20/1536 |
| 2 | 303 | 793747.309 | 388870.939 | 7.597 | 2.50 | 8.5 | 2.35 | 6.3 | 1.2 | 106 | |
| 3 | 302 | 793737.679 | 388854.380 | 7.682 | 2.52 | 7.9 | 2.38 | 5.8 | 1.1 | 108 | |
| 4 | 301 | 793751.673 | 388843.677 | 7.792 | 2.54 | 7.6 | 2.41 | 5.6 | 0.6 | 109 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.74**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 24/03/21

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 24/03/21

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



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Lab Ref No : **21/522**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 6**
Location : **Richmond West**
Client : **S Brookland**
Contractor : **Ching Contracting**

Solid density (tested) : **2.78** ***t/m³**
Max dry density (tested) : **2.28** **t/m³**
Optimum water content (tested) : **7** **%**
MDD/OMC Lab Ref No : **19/691**

Tested by : **Robbie Burns**
Date tested : **29/03/21**
Time tested : **1.30 pm**
Nuclear densometer no : **Troxler 3430**

Copies to : **S Brookland**
**M Gray**
**Lab File**

**Nuclear Density Meter Test Results**

| Material | Sandy Gravel, Silty | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Probe Depth (mm) | Backscatter | | | | | | | | | | |
| Test # | Lot # | Northings | Eastings | RL | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | MDD Lab Ref # |
| 1 | 425 | 793642.65 | 388992.17 | 6.63 | 2.37 | 11.9 | 2.17 | 9.5 | 1.5 | 95 | 19/691 |
| 2 | 424 | 793651.91 | 388972.64 | 6.60 | 2.35 | 12.3 | 2.14 | 9.8 | 2.1 | 94 | |
| 3 | 362 | 793660.57 | 388951.77 | 6.48 | 2.33 | 12.6 | 2.11 | 10.1 | 2.7 | 93 | |
| 4 | 364 | 793671.57 | 388927.16 | 6.71 | 2.33 | 12.3 | 2.12 | 9.8 | 2.9 | 93 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4407:2015, Test 3.1 for aggregates

**Moisture correction factor used : 0.8**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 29/03/21

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 29/03/21

ACCREDITED IANZ TESTING LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **21/541**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 7**
Location : **Richmond**
Client : **Donaldson Civil**
Contractor : **Donaldson Civil**
Solid density (tested) : **2.8** ***t/m³**
Max dry density (tested) : **2.21** **t/m³**
Optimum water content (tested) : **8** **%**
MDD/OMC Lab Ref No: **20/1536**

Tested by : **Robbie Burns**
Date tested : **01/04/21**
Time tested: **8.30 am**
Nuclear densometer no : **Troxler 3430**

Copies to : **AJ Clarken**
**M Gray**
**Lab File**

**Nuclear Density Meter Test Results**

| Material | Lee Valley Quarry Hardfill | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Probe Depth (mm) | Direct Transmission | | | | | | | | | | |
| Test # | Lot # | Northings | Eastings | RL | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | Curve Reference No. |
| 1 | 307 | 793769.924 | 388876.647 | 7.753 | 2.42 | 11.0 | 2.24 | 8.1 | 1.8 | 101 | 20/1536 |
| 2 | 307 | 793780.135 | 388892.515 | 7.747 | 2.33 | 10.4 | 2.17 | 7.7 | 5.9 | 98 | |
| 3 | 308 | 793767.487 | 388898.933 | 7.680 | 2.37 | 10.3 | 2.20 | 7.6 | 4.8 | 99 | |
| 4 | 308 | 793754.683 | 388904.091 | 7.557 | 2.41 | 11.2 | 2.22 | 8.3 | 2.1 | 101 | |
| 5 | 308 | 793754.056 | 388891.539 | 7.651 | 2.42 | 11.3 | 2.23 | 8.4 | 1.5 | 101 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.74**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 01/04/21

**This report may only be reproduced in full**

*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 01/04/21

ACCREDITED IANZ TESTING LABORATORY
All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **21/550**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

| | | | | | |
|---|---|---|---|---|---|
| Project : | **The Meadows Stage 6** | | | Tested by : | **Kieron Boardman** |
| Location : | **Richmond West** | | | Date tested : | **06/04/21** |
| Client : | **S Brookland** | | | Time tested : | **3:00 pm** |
| Contractor : | **Ching Contracting** | | | Nuclear densometer no : | **Troxler 3430** |
| Solid density (tested) : | | **2.78** | ***t/m³** | Copies to : | **S Brookland** |
| Max dry density (tested) : | | **2.28** | **t/m³** | | **M Gray** |
| Optimum water content (tested) : | | **7** | **%** | | **Lab File** |
| MDD/OMC Lab Ref No : | | **19/691** | | | |

**Nuclear Density Meter Test Results**

| **Material** | **Sandy Gravel, Silty** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Lot #** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **MDD Lab Ref #** |
| **1** | **425** | **793645.04** | **388983.54** | **7.170** | **2.40** | 9.2 | **2.24** | **7.4** | **3.1** | **98** | **19/691** |
| **2** | **424** | **793650.98** | **388973.25** | **7.257** | **2.39** | 8.3 | **2.24** | **6.6** | **4.6** | **98** | |
| **3** | **362** | **793666.53** | **388949.06** | **7.765** | **2.34** | 9.3 | **2.18** | **7.4** | **5.5** | **96** | |
| **4** | **364** | **793670.83** | **388921.73** | **6.860** | **2.42** | 9.6 | **2.25** | **7.7** | **1.8** | **99** | |

| | |
|---|---|
| Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2 | **Moisture correction factor used : 0.8** |
| Water Content : NZS 4407:2015, Test 3.1 for aggregates | **Sites selected by Kieron Boardman** |
| | *** Not IANZ Endorsed** |

Date reported : 06/04/21

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*Mick Zeewoldt*
Designation : *Laboratory Manager*
**IANZ Approved Signatory**
Date : 06/04/21

ACCREDITED IANZ TESTING LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **21/573**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 7**
Location : **Richmond**
Client : **Donaldson Civil**
Contractor : **Donaldson Civil**
Solid density (tested) : **2.8** ***t/m³**
Max dry density (tested) : **2.21** **t/m³**
Optimum water content (tested) : **8** **%**
MDD/OMC Lab Ref No: **20/1536**

Tested by : **Kieron Boardman**
Date tested : **09/04/21**
Time tested: **2:00 pm**
Nuclear densometer no : **Troxler 3430**

Copies to : **AJ Clarken**
**M Gray**
**Lab File**

**Nuclear Density Meter Test Results**

| Material | | | Lee Valley Quarry Hardfill | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Probe Depth (mm | | | Direct Transmission | | | | | | | | | |
| Test # | Lot # | # | Northings | Eastings | RL | Wet Density (t/m³) | NDM Water Content (%) | Dry Density (t/m³) | Oven Corrected Water Content (%) | Air Voids (%) | % of MDD | Curve Reference No. |
| 1 | 301 | 1 | 793754.122 | 38821.770 | 7.750 | 2.43 | 9.5 | 2.27 | 7.0 | 2.9 | 103 | 20/1536 |
| 2 | | 2 | 793764.955 | 38819.347 | 7.816 | 2.45 | 8.2 | 2.31 | 6.1 | 3.3 | 105 | |
| 3 | | 3 | 793746.619 | 388835.088 | 7.737 | 2.45 | 10.2 | 2.28 | 7.5 | 1.6 | 103 | |
| 4 | 302 | 1 | 793740.246 | 388844.580 | 7.700 | 2.40 | 10.6 | 2.22 | 7.8 | 3.2 | 101 | |
| 5 | | 2 | 793777.627 | 388842.575 | 7.461 | 2.46 | 9.5 | 2.30 | 7.0 | 1.8 | 104 | |
| 6 | 304 | 1 | 793771.707 | 388854.280 | 7.478 | 2.51 | 6.0 | 2.40 | 4.4 | 3.5 | 109 | |
| 7 | | 2 | 793763.545 | 388841.696 | 7.506 | 2.42 | 9.3 | 2.26 | 6.9 | 3.6 | 102 | |
| 8 | | 3 | 793766.130 | 388835.190 | 7.529 | 2.37 | 9.4 | 2.22 | 7.0 | 5.3 | 100 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.74**
**Sites selected by Client**
*** Not IANZ Endorsed**

Date reported : 11/04/21

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*Mick Zeewoldt*
Designation : *Laboratory Manager*
**IANZ Approved Signatory**
Date : 11/04/21

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **21/595**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 7**
Location : **Richmond**
Client : **Donaldson Civil**
Contractor : **Donaldson Civil**
Solid density (tested) : **2.8** ***t/m³**
Max dry density (tested) : **2.21** **t/m³**
Optimum water content (tested) : **8** **%**
MDD/OMC Lab Ref No: **20/1536**

Tested by : **Robbie Burns**
Date tested : **14/04/21**
Time tested: **12.00 noon**
Nuclear densometer no : **Troxler 3430**

Copies to : **AJ Clarken**, **M Gray**, **Lab File**

| Nuclear Density Meter Test Results | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Material** | **Lee Valley Quarry Hardfill** | | | | | | | | | | |
| **Test Probe Depth (mm)** | **Backscatter** | | | | | | | | | | |
| **Test #** | **Lot #** | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **Curve Reference No.** |
| 1 | 301 | 793772.424 | 388834.050 | 7.850 | 2.36 | 9.9 | 2.20 | 7.3 | 5.2 | 100 | 20/1536 |
| 2 | 301 | 793760.610 | 388837.620 | 7.765 | 2.31 | 9.5 | 2.16 | 7.0 | 7.6 | 98 | |
| 3 | 304 | 793769.245 | 388849.932 | 7.747 | 2.36 | 9.9 | 2.20 | 7.3 | 5.2 | 100 | |
| 4 | 304 | 793779.035 | 388844.828 | 7.749 | 2.34 | 10.0 | 2.18 | 7.4 | 6.1 | 99 | |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4402:1986, Test 2.1 for soils

**Moisture correction factor used : 0.74**
**Sites selected by Robbie Burns**
*** Not IANZ Endorsed**

Date reported : 14/04/21

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*Robbie Burns*
Designation : *Assistant Laboratory Manager*
**IANZ Approved Signatory**
Date : 14/04/21

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation



Tasman District Council / AlphaOne Multiproof Approval – 107

Lab Ref No : **21/752**

**Civil Engineering Laboratory Services Ltd**
**PO Box 1424, Nelson**
**Ph 03 547 0110 Mob 027 4457071**

# NDM COMPACTION CONTROL TEST RESULTS

Project : **The Meadows Stage 13**
Location : **Richmond West**
Client : **S Brookland**
Contractor : **Ching Contracting**

Tested by : **Andrew Hayward**
Date tested : **14/05/21**
Time tested : **1:00 PM**
Nuclear densometer no : **Troxler 3430+**

| | | |
|---|---|---|
| Solid density (tested) : | **2.78** | ***t/m³** |
| Max dry density (tested) : | **2.28** | **t/m³** |
| Optimum water content (tested) : | **7** | **%** |
| MDD/OMC Lab Ref No : | **19/691** | |

Copies to : **S Brookland**, **M Gray**, **Lab File**

**Nuclear Density Meter Test Results**

| **Material** | **Sandy Gravel, Silty** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test Probe Depth (mm)** | **Direct Transmission** | | | | | | | | | | |
| **Test #** | | **Northings** | **Eastings** | **RL** | **Wet Density (t/m³)** | NDM Water Content (%) | **Dry Density (t/m³)** | **Oven Corrected Water Content (%)** | **Air Voids (%)** | **% of MDD** | **MDD Lab Ref #** |
| **1** | | **793624.78** | **389020.64** | **6.60** | **2.44** | 10.4 | **2.25** | **8.3** | **0.4** | **99** | |
| **2** | | **793627.88** | **389014.24** | **7.60** | **2.33** | 9.7 | **2.16** | **7.8** | **5.5** | **95** | |
| **3** | | **793645.88** | **388982.68** | **7.67** | **2.46** | 10.0 | **2.28** | **8.0** | **0.0** | **100** | **19/691** |
| **4** | | **793667.12** | **388940.69** | **7.85** | **2.36** | 11.3 | **2.16** | **9.0** | **2.8** | **95** | |
| **5** | | **793670.34** | **388918.54** | **7.87** | **2.36** | 11.1 | **2.17** | **8.9** | **2.8** | **95** | |

| | **Scala Results** | |
|---|---|---|
| | **1a** | **1b** |
| Depth (mm) | Blows per 50mm | |
| 50 | **3** | **8** |
| 100 | **2** | **3** |
| 150 | **2** | **2** |
| 200 | **2** | **3** |
| 250 | **2** | **3** |
| 300 | **4** | **2** |
| 350 | **10** | **4** |
| 400 | **15** | **6** |
| 450 | | **15** |

Insitu Density : NZS 4407:2015, Test 4.2.1 or 4.2.2
Water Content : NZS 4407:2015, Test 3.1 for aggregates
Dynamic Cone Penetrometer Hand Method NZS 4402 : 1986 Test 6.5.2

**Moisture correction factor used : 0.8**
**Sites selected by Andrew Hayward**
*** Not IANZ Endorsed**

Date reported : 14/05/21

**This report may only be reproduced in full**

*Andrew Hayward*
Designation : *Senior Laboratory Technician*
**IANZ Approved Signatory**
Date : 14/05/21

ACCREDITED IANZ TESTING LABORATORY 1021

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022

Level 1, 24 Moorhouse Ave, Addington / PO Box 589, Christchurch 8140
0800 999 333 / admin@do.co.nz / www.do.co.nz



Job No(s): 37435 Date: 14/01/20 Time: 11:29

Job Name / Address: The Meadows McShane Road

Inspection: 1

People: MG

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | Yes |
| Are you able to get help if you need it? | Yes, onsite with staff |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Not Required |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

Multiproof Approval – 107
Tasman District Council / AlphaOne Multiproof

## Site Inspection Record

Item 1

| | |
|---|---|
| Comments/Observations: | Topsoil strip inspection Lots 365, 366 & 423 -427 |
| Action Required: | Minor areas of organics and unsuitable soils marked up and are to be cut to waste prior to blending of clay with in situ gravels. Refer photos |
| Description of Variation: | |

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0800 999 333 / admin@do.co.nz / www.do.co.nz


Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

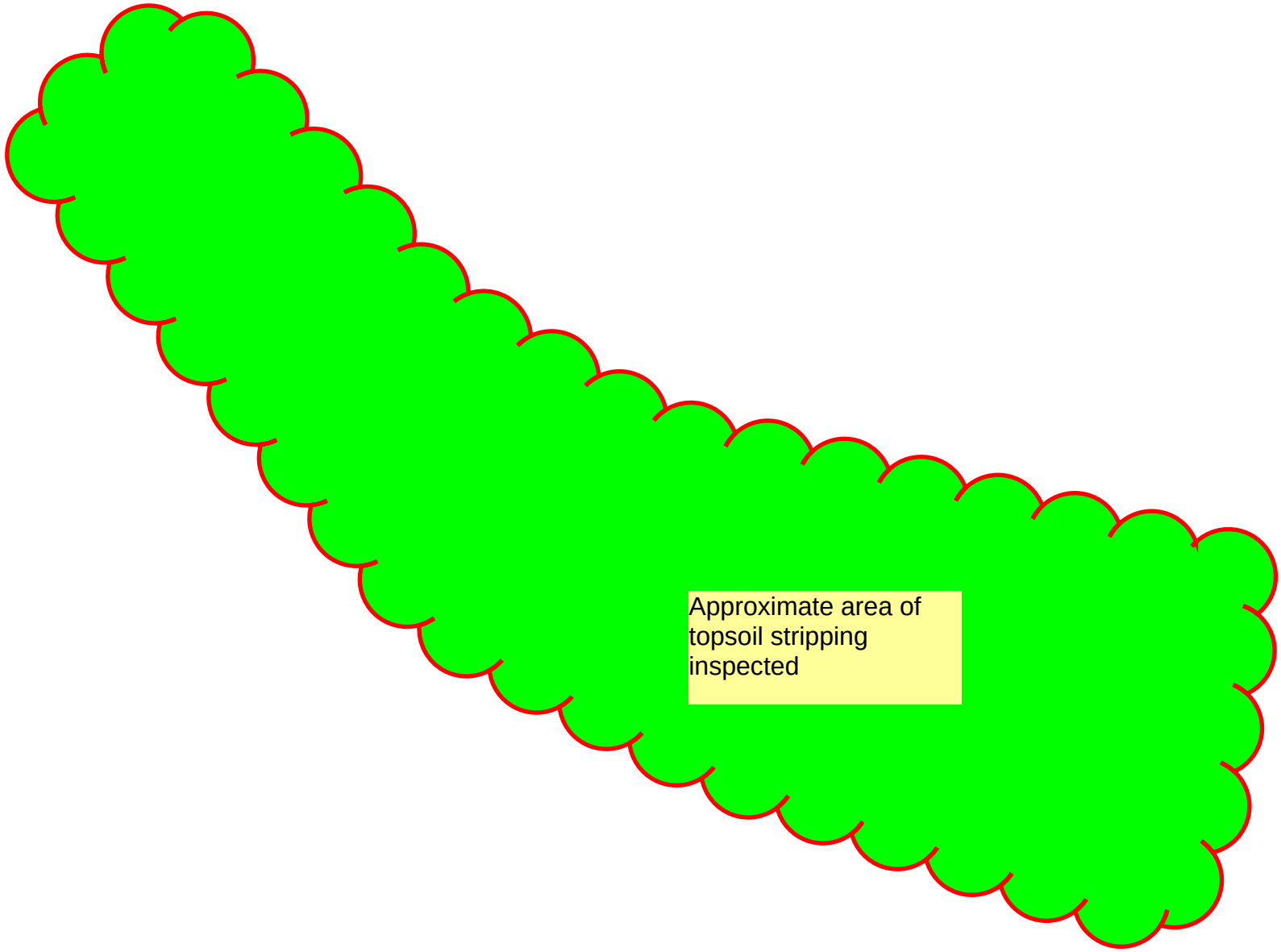
Email: markg@do.nz

Issued to: Drew Chalmers (Donaldson Civil)

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council / AlphaOne Multiproof Approval – 107



Approximately 200 mm of "silt" to be blended with in-situ gravels

Minor organics and loose material at surface to be removed prior to blending

Tasman District Council / AlphaOne Multiproof Approval – 107

Minor organics to be cut to waste (estimated thickness 100 mm)

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Level 1, 24 Moorhouse Ave, Addington / PO Box 589, Christchurch 8140
0800 999 333 / admin@do.co.nz / www.do.co.nz



Job No(s): 37435b Date: 19/02/20 Time: 11:00

Job Name / Address: The Meadows (Donaldson's) McShane Road, Richmond

Inspection: 200219

People: MG

Contractor / Client: Donaldson's

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | Yes |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Not Required |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 24 Moorhouse Ave, Addington / PO Box 589, Christchurch 8140
0800 999 333 / admin@do.co.nz / www.do.co.nz
DAVIS OGILVIE ENGINEERS / SURVEYORS / PLANNERS

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| Comments/Observations: | Strip out of unsuitable soils in progress. Old shelter belt, targetting roots. |
| Action Required: | |
| Description of Variation: | |

Item 2

Received from contractor

Received from contractor

| | |
|---|---|
| Comments/Observations: | Stripped to suitable subgrade as discussed onsite |
| Action Required: | |
| Description of Variation: | |

Level 1, 24 Moorhouse Ave, Addington / PO Box 589, Christchurch 8140
0800 999 333 / admin@do.co.nz / www.do.co.nz
DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: OK to fill Lot 311 & L356 (PART)

Name: Mark Gray

Email: markg@do.nz

Issued to: Drew Chalmers

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435b Date: 21/02/20 Time: 08:30

Job Name / Address: The Meadows (Donaldson's) McShane Road, Richmond

Inspection: 202221

People: MG

Contractor / Client: Donaldson's

Weather/Ground conditions: Overcast

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | Yes |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Not Required |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 24 Moorhouse Ave, Addington / PO Box 589, Christchurch 8140
0800 999 333 / admin@do.co.nz / www.do.co.nz
DAVIS OGILVIE ENGINEERS / SURVEYORS / PLANNERS

Side wall of excavation showing gravel subgrade

Gravel subgrade

Tasman District Council / AlphaOne Multiproof Approval – 107

Water at northern end approx 250mm deep

| | |
|---|---|
| Comments/Observations: | Subgrade inspection part of Lot 300 and 299 |
| Action Required: | Place bricks and biddim prior to filling |
| Description of Variation: | |

Item 2

Bricks and biddim being placed

| |
|---|
| Comments/Observations: |

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| | |
|---|---|
| Action Required: | Continue with bricks and biddim for all areas of standing water |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Lots 300 & 299 (part). OK to fill once bricks and biddim placed over areas of standing water

Name: Mark Gray

Email: markg@do.nz

Issued to: Drew Chalmers

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Tasman District Council / AlphaOne Multiproof Approval – 107

Job No(s): 37435c Date: 01/05/20 Time: 09:51

Job Name / Address: The Meadows Stage 7 McShane Road

Inspection: 1

People: MG

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Fine, some undulating ground

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | DCP |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

The Meadows Stage 7 Lots 304 to 307. Part of stripped area. DCP results satisfactory. Approximately 1.2 m of fill required to achieve deisgn ground level.

Approved Approval – 107
Tasman District Council / AlphaOne Multiproof

Excavated PVC pipe trench

Partially excavated channel with silty gravel subgrade.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Item 2

Buried stump

Roots and topsoil to be removed

| | |
|---|---|
| Comments/Observations: | Remediated during inspection |

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

| | |
|---|---|
| Action Required: | |
| Description of Variation: | |

Item 3

Subsoil drain in approximately 0.3 m wide trench. Expected to be approximately 2 m below finished ground level. No flowing water observed.

Cut side wall showing excavation below topsoil layer.

Tasman District Council / AlphaOne Multiproof Approval 16

| | |
|---|---|
| Comments/Observations: | Leave drain in ground. Survey eastern extent of channel where it passes beneath stockpiles. |
| Action Required: | |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Also identified geotechnical test pit 09 which was excavated, backfilled and track rolled.
Survey eastern end of subsoil drain trench.
OK to continue.

Name: Mark Gray

Email: markg@do.nz

Issued to: Drew Chalmers

Signature:

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Tasman District Council / AlphaOne Multiproof Approval – 107

Job No(s): 37435c Date: 07/05/20 Time: 12:00

Job Name / Address: The Meadows Stage 7 McShane Road

Inspection: 2

People: MG

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Very strong wind

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | Very strong wind |
| What are the potential consequences of these hazards, should an incident occur? | Damage to vehicle, dust in eyes. |
| For each hazard identified above how are the risks minimised isolated or eliminated? | Park facing into wind or in sheltered area. Hold car doors while opening. Wear safety glasses. |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Lot 301

Lot 301

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| Comments/Observations: | Suitably stripped. No significant organics. |
| Action Required: | |
| Description of Variation: | |

Item 2

Lot 307 and 308. Natural subgrade surface.

Minor organics (stumps and roots)

| | |
|---|---|
| Comments/Observations: | |

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(03) 548 4425 / nelson@do.nz / www.do.nz
DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

| | |
|---|---|
| Action Required: | |
| Description of Variation: | |

Item 3

Subsoil drain approximately 0.5 m below stripped surface.

Trench approximately 0.2 m wide backfilled with drainage aggregate.

Tasman District Council / AlphaOne Multiproof Approval – 16

| | |
|---|---|
| Comments/Observations: | Due to drain dimensions and expected minimum 1 m of engineered fill cover it is considered appropriate to leave the drain in the ground. |
| Action Required: | |
| Description of Variation: | |

Item 4

Site won fill. Appears to be going down well with sheep foot roller. No significant organics observed in fill.

Some minor weaving where truck has been turning to tip loads of fill. Not considered significant at this stage of fill operation as likely to be remediated during spreading and compaction of overlying lifts.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Remove organics as spray painted on site.
Survey eastern end of subsoil drain trench.

Name: Mark Gray

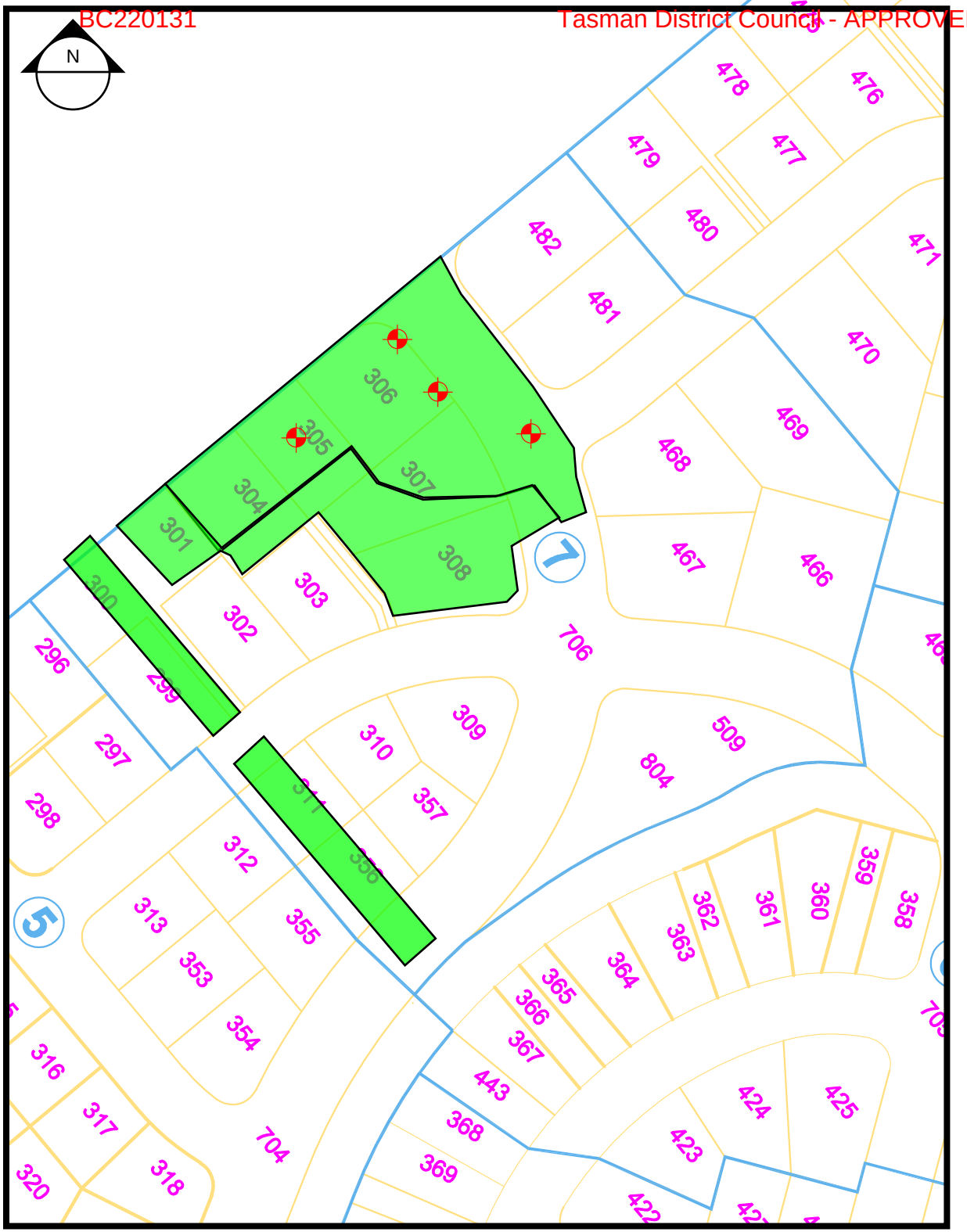
Email: markg@do.nz

Issued to: Drew Chalmers

Signature: MG

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022


The Meadows Stage 7
Geotechnical Engineering
Plan of Strip Inspections
Updated: 07/05/2020
Engineer: MG
Job No: 37435
Note: All locations are approximate

Legend

Subgrade DCP locations

Area OK to continue

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Tasman District Council / AlphaOne Multiproof Approval – 107

Job No(s): 37435c Date: 08/05/20 Time: 14:30

Job Name / Address: The Meadows Stage 7 McShane Road

Inspection: 3

People: MG

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Area of subgrade inspection. Lots 304, 307 and 308.
DCP results satisfactory.

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Item 2

Traces of organic material in subgrade

| | |
|---|---|
| Comments/Observations: | Remove prior to filling. |
| Action Required: | |
| Description of Variation: | |

Item 3

Patch of soil with high concentration of dried grass and trace organic scent.

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Excavator scrape of area in photo above identified thin layered of buried topsoil beneath fill.

Buried topsoil undercut during inspection.

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Item 4

Fill in process of being compacted. No significant unsuitable materials identified in fill. Fill appears to be going down well with sheep foot roller.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Remove organics as spray painted on site.

Name: Mark Gray

Email: markg@do.nz

Issued to: Drew Chalmers

Signature: MG

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 14/05/20 Time: 15:05

Job Name / Address: The Meadows Stage 7 McShane Road

Inspection: 4

People: MG

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Area of inspection. Lots 307, 308 and part of 303. Gravelly and silty subgrade exposed with some buried roots observed. DCP results into subgrade acceptable.

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Item 2

Buried organics.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Remove organics as spray painted on site.
When fill maintain approximately 0.5 m offset from unstripped areas.
OK to fill once organics undercut.

Name: Mark Gray

Email: markg@do.nz

Issued to: Drew Chalmers

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Tasman District Council / AlphaOne Multiproof Approval – 107

Job No(s): 37435d Date: 10/06/20 Time: 09:00

Job Name / Address: The Meadows Stage 5 McShane Road

Inspection: 10

People: MG

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Not Required |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Fill final level walkover inspection Lots 314 to 323. Fill generally appears stable, some minor wheel rutting and areas weaving under load on Lots 319 to 323 in the top 100 mm of fill (approximate) . NDM results satisfactory.

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Item 2

Large rock to be removed prior to top soiling.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Lots 314 to 318 are ok to place topsoil following removal of any large rocks.

Lots 319 to 323 - Due to forecast rain, contractor may topsoil these lots at their risk taking care to keep heavy plant off wet areas. If future DCP tests indicate that condition of fill has not improved, reworking of fill may be required.

Confirmation of design levels is beyond the scope of this inspection record.

Name: Mark Gray

Email: markg@do.nz

Issued to: Drew Chalmers

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435d Date: 19/06/20 Time: 13:36

Job Name / Address: The Meadows Stage 5 McShane Road

Inspection: 15

People: MG

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Overcast/Raining

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Not Required |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Morning subgrade inspection. Part of lots 297 and 298.
Very stiff, low plasticity, clayey silts up to 100 mm thick overly the gravel soils in places.
Signficant concentrations of organics within the silts and gravels including tree limbs and stumps as indicated in photographs below.

Approved Approval – 107
Tasman District Council / AlphaOne Multiproof

Note clayey silt in left of image overlying gravel soils. Shear vane results in cohesive soils indicate a very stiff consistency.

| |
|---|
| Comments/Observations: |
| Action Required: |
| Description of Variation: |

Item 2

Buried organics. Spray can for scale.

Large stump. Spray can for scale.

Partially decayed tree.

| |
|---|
| Comments/Observations: |

| | |
|---|---|
| Action Required: | |
| Description of Variation: | |

Item 3

Afterndon inspection - Majority of significant organics undercut and excavations filling with rain water run off.

Tasman District Council / AlphaOne Multiproof Approval - 107

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Item 4

Areas of remaining organics to be undercut as identified on site.
Additional areas also marked out not included as photographs in this inspection record.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: 1. Undercut organics as marked on site.
2. Pump rain water from excavations prior to filling.
3. Take care when filling to protect areas of clayey silt subgrade.
4. Organics observed extending below existing Stage 3 access road. Test pits to be conducted through access road (when alternate route established) to assess if road was stripped of unsuitable materials prior to construction. Test pits to be observed by D.O.

Name: Mark Gray

Email: markg@do.nz

Issued to: Drew Chalmers

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 10

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435d Date: 24/06/20 Time: 10:30

Job Name / Address: The Meadows Stage 5 McShane Road

Inspection: 17

People: MG

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Not Required |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

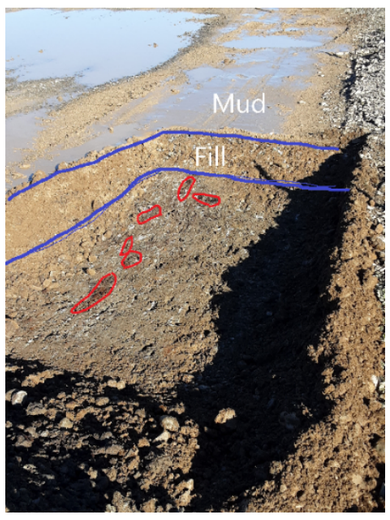
## Site Inspection Record

Item 1

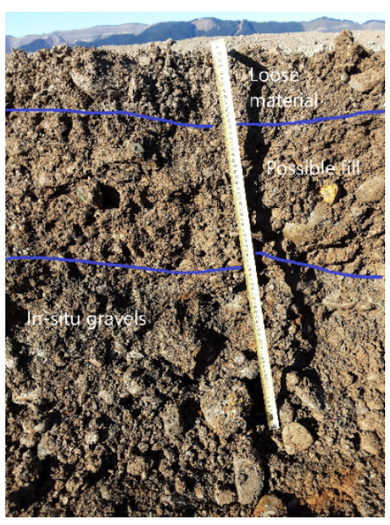
BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Overview photograph of inspected area. 24 JULY 2020 AM.
(1)Fill being placed and compacted.
(2) Natural subgrade with significant quantities of organic matter.
(3) Former Chings haul road.
(4) Completed lots
(5) Not part of this inspection. To be inspected at a later date.




Test pit 3 located opposite northern corner of Lot 314 in proposed road area. Note organics underlying fill as indicated by red polygons.




Test pit 4 located opposite Lot 323.
0.0 - 0.15 m Loose gravel and mud.
0.15 - 0.35 m Possible silty gravel fill.
0.35 - 0.7 m In-situ Appleby gravel with trace organics.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Item 2

Organics in area (2) marked out for further undercut.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Undercut identified organics and advise D.O. to reinspect. |
| Description of Variation: | |

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Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Where the Chings haul road is located within proposed lots:

1. Remove mud and loose soil from haul road surface where located within proposed lots. This material is unsuitable for re-use as fill. Expected to be up to 150 mm thick.

2. Undercut fill beneath haul road to expose in-situ gravels. This material is suitable for re-use as fill on roads or lots provided no organics are identified by contractor during excavation. Expected to be 200 to 450 mm thick.

3. D.O. to inspect exposed in-situ gravels and assess any further undercutting of organics that may be required.

Decision on area of haul road that is not within proposed lots to be made at a later date.

Name: Mark Gray

Email: markg@do.nz

Issued to: Drew Chalmers

Signature:

Tasman District Council / Alpha One Multiproof Approval – 10

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435d Date: 10/07/20 Time: 08:58

Job Name / Address: The Meadows Stage 5 McShane Road

Inspection: 20

People: MG

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Not Required |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| | Fill inspection, Lots 297 to 300. Areas of weaving fill observed.<br><br>NDM results satisfactory. |
| | Lot 300, fill appears stable. |
| | Patch of soft weaving fill. |
| | Soft weaving fill. |
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Due to forecast rain, contractor may topsoil these lots at their own risk. If future DCP tests indicate that condition of the fill has not improved, reworking or replacing of the fill may be required.

Name: Mark Gray

Email: markg@do.nz

Issued to: Drew Chalmers

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131
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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 08/09/20 Time: 07:30

Job Name / Address: The Meadows Stage 7 McShane Road

Inspection: 5

People: MG

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Subgrade inspection - Reserve 804 and Road 509 and Part of Lot 467.

Subsoil drains crossing site. Slotted pipes expected to be at least 1 m below finished surface.

As above.

Subsoil drain damaged by excavator. This was repaired during inspection.

| | |
|---|---|
| Comments/Observations: | Survey alignment of subsoil drains. |
| Action Required: | |
| Description of Variation: | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Subgrade considered suitable for reserve and road areas and part of lot.
Some larger stumps were marked up to be undercut.
Survey alignment of subsoil drains.

Name: Mark Gray

Email: markg@do.nz

Issued to: Drew Chalmers, Darryl Shadbolt

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 18/09/20 Time: 09:26

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 6

People: MG

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Raining

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

View of part of stripped subgrade surface. Part of lots 358 to 363 and 444 to 446. Topsoil in this area was removed by motor scraper. Surface water is from rain.

Approved Approval – 107
Tasman District Council / AlphaOne Multiproof

Approximate northern edge of stripped area (stripping completed in direction of arrow)

Patch of soft soil where scraper has rutted subgrade.

| | |
|---|---|
| Comments/Observations: | Exposed subgrade comprises mix of gravel and silt/clay. Shear vane tests in silt/clay indicate stiff to very stiff consistency. Large organics also encountered as detailed below. |
| Action Required: | |
| Description of Variation: | |

Item 2

Example of organics exposed in subgrade. To be removed.

Large stump to be removed.

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| | Concentration of large roots to be removed. |
| | Partially decayed logs to be removed. |
| Comments/Observations: | Photographs provide examples only, other organics have been identified and spray painted across the inspected area for removal. |
| Action Required: | |
| Description of Variation: | |

Item 3

| | |
|---|---|
| | Narrow subsoil drain. |
| | Second narrow subsoil drain. |
| Comments/Observations: | The drain trenches are narrow (approx. 100 mm) and are expected to be located below approximately 500 to 800 mm of fill. Therefore, we recommend these are left in the ground and the start and end points surveyed and the coordinates kept on file. |
| Action Required: | |
| Description of Variation: | |

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Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: 1- Remove organics and soft soils marked on site.
2-Areas of silt/clay subgrade are suitable. Ensure these areas do not deteriorate during next stages of earthworks (filling)
3- Prepare subgrade as per the fill methodology document leaving silt/clay subgrades as they are.
4- A new compaction curve and particle size distribution curve are required on the Borck Creek fill material. Ok to use existing curves while this is being prepared, provided erratic/unusual results are not being return. Provide bulk sample to lab as soon as possible.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 102

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Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 21/09/20 Time: 14:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 7

People: MG

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

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Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



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| | |
|---|---|
| | Subgrade strip inspection part of Lots 359 and 360. Mix of gravelly and clay subgrades exposed. Shear vane tests in clay indicate generally stiff consistency (suitable subgrade). Some isolated organics encountered to be undercut as detailed below. |
| | Roots and soft soils to be undercut by approximately 200 mm. |
| | Partially decayed organic matter. To be undercut by approximately 150 mm. |
| | Organics to be undercut by approximately 100 mm. |
| Comments/Observations: | Note- Other areas requiring undercut also painted up on site and shown to earthworks crew.<br>For areas where organics have been marked for undercut within the proposed Swale area, these still need to be removed to ensure that the soil cut from the Swale is suitable for use as fill and free of significant organics. |
| Action Required: | |
| Description of Variation: | |

Item 2

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Borck Creek fill location. Well graded, typical Appleby Gravel Formation. Remove rubbish prior to placing as fill.

Tasman District Council / AlphaOne Multiproof Approval – 107

As above.

| | |
|---|---|
| Comments/Observations: | Provide ~~bulk~~ samples to lab for preparation of a compaction curve (vibratory hammer test). |
| Action Required: | |
| Description of Variation: | |

Item 3



Left - Bork Creek fill being spread by dozer.
Right - Compacted fill. No evidence of weaving, appears stable and well graded.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: 1- Remove organics and soft soils marked on site.
2-Areas of silt/clay subgrade are suitable. Ensure these areas do not deteriorate during next stages of earthworks (filling)
3- Provide photographs of undercut areas.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 107

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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 22/09/20 Time: 11:30

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 8

People: MG

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Subgrade strip inspection (morning). Lots 464 and 447. Area stripped by motor scraper. Gravel and clay subgrades exposed. Clay is stiff to very stiff and generally, holding up well to heavy vehicle traffic.

Tasman District Council / AlphaOne Multiproof Approval – 107

Channel of buried organic silt crossing site in northeast to southwest direction. To be undercut.

Hand excavated pit in channel, organics continue below 0.4 m depth.

Partially decayed organic material (tree stump or limb). To be undercut.

| | |
|---|---|
| Comments/Observations: | Instruction was given to undercut unsuitable soils and strip remaining topsoil ridges. |
| Action Required: | |
| Description of Variation: | |

Item 2

Reinspection of subgrade strip (afternoon). Channel of buried organics has been undercut to gravel to form narrow V shaped trench up to 1 m deep (approximately)

Ridge of organics to be undercut.

Organic material to be undercut.

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| Comments/Observations: | Other patches of unsuitable soils were also marked out for removal. |
| Action Required: | |
| Description of Variation: | |

Item 3

Western limit of approved subgrade. This line was spray painted on site. Ok to fill on left (eastern) side of this line following removal of marked out unsuitable soils and provision of photographs.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

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Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: 1- Remove organics and soft soils marked on site and provide photographs.
2-Modify sides of V shaped channel so that there is a smoother transition from shallow to deep filling. Either cut benches or make batters shallower with digger or dozer prior to filling.
3- A seperate inspection record will be provided for the finished level fill following receipt of laboratory NDM test report.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 107

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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 23/09/20 Time: 11:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 9

People: MG

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Finished level subgrade inspection Lots 444 to 446.

Some minor areas of fill pumping near test location on Lot 445

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| Comments/Observations: | In general, fill appears stable with suitable grading and composition. There are some small areas where the fill is pumping due to being placed wet of optimum water content.<br>NDM results based using older Borck Creek OM curve appear to be OK. |
| Action Required: | Contractor may spread topsoil, however, there is a risk that the areas of pumping fill may not improve. If future DCP tests indicate that the condition of the fill has not improved, localised reworking or removal of the fill may be required at the contractors risk. |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Ok to continue.
NDM results indicate some of the fill may be being placed slightly wet of optimum. Blend or dry wet fill prior to placing as required to achieve optimum water content (+/- 3% as per the earthworks specification).
Confirmation that design levels have been achieved is beyond the scope of this inspection record.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

BC220131
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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 25/09/20 Time: 07:30

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 10

People: MG

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Overcast/Raining

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | Shear vane. |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Lots 444 to 446. Additional fill placed after Inspection Record #9 was issued. We understand that upto 100 mm of additonal fill was placed. No significant issues observed from visual inspection of the fill.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | DO to review NDM test results prior to signing off the fill. |
| Description of Variation: | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Item 2

Strip inspection part of Lots 465 and 466. Area stripped with D9 Dozer.

Patches of soft, plastic clay with organics encountered in subgrade. Undercut to waste as marked on site.

As above.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Item 3

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Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Strip level is potentially too deep in some locations, aim to only strip topsoil prior to DO inspection.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Undercut marked out soft clay and roots.
Provide photographs of undercut areas.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 01/10/20 Time: 21:30

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 11

People: MG

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Reinspection of Lot 465 and part of Lot 466 following period of heavy rainfall and dewatering of the cut.

Saturated loose gravels encountered on eastern side (green polygon).

Red indicates location of dewatering sump.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Remove loose, saturated gravel, allow to dry and reuse as fill.<br>Undercut soft, saturated soil from sump prior to filling. |
| Description of Variation: | |

Tasman District Council / AlphaOne Multiproof Approval – 137

Item 2

Channel of organic soils undercut. Note groundwater ponding.

Near surface organic soils to be cut to topsoil.

View of western side of strip following removal or organic rich clays. Note groundwater ponding.

| | |
|---|---|
| Comments/Observations: | Ok to place fill. If first layer shows signs of pumping and is difficult to compact, remove fill and place bricks or ballast in areas of groundwater ponding. Wrap in Biddim A39 |
| Action Required: | |
| Description of Variation: | |

Item 3

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

| | |
|---|---|
| | Sticks and organics present in windrow at the edge of previously placed fill. |
| | Old drain trench filled with topsoil running through stripped area. To be removed. |
| Comments/Observations: | Remove soil containing organics. |
| Action Required: | |
| Description of Variation: | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Refer to main body of report for actions.
Provide photographs of undercut areas.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 02/10/20 Time: 13:30

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 12

People: MG

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz
DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Subgrade inspection Lot 366. Prior to undercuts. Area was proof rolled prior to inspection which highlighted an area of soft, pumping gravel (green polygon)

Area with high concentration of organics.

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Item 2

Fibrous peat encountered below gravel and above blue silty clay.

In situ gravels overlying blue silty clay.

Test pit excavated in area of soft gravel revealed buried stump.

| |
|---|
| Comments/Observations: |

| | |
|---|---|
| Action Required: | |
| Description of Variation: | |

Item 3

Test pit nearby did not reveal any significant organics or cohesive soils. This information and visual inspection of the stripped surface indicated a localized area of unsuitable soils.

Tasman District Council / AlphaOne Multiproof Approval - 10

Following undercut of soft gravel and underlying organic rich silty clay.

Excavated stump. Approximately 0.7 m long by 0.5 m wide.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Item 4

Area of soft silt with high concentration of roots.

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Following undercut of soft material.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:
Unsuitable soils removed during site inspection.
There is a channel of organic rich clay trending northward across the site.
Ok to continue.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

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BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 06/10/20 Time: 09:30

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 13

People: MG

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

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## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
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Final level subgrade inspection. Lot 445 and 446.
No signs of significant pumping observed.
NDM results satisfactory.

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| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Ok to place topsoil. |
| Description of Variation: | |

Item 2

Lots 358 to 361 finished level subgrade inspection. Fill generally stable, some very minor areas of pumping fill. NDM results satisfactory.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Ok to place topsoil. |
| Description of Variation: | |

Item 3

Lot 447, finished level subgrade. Fill is well compacted and stable. NDM result satisfactory.

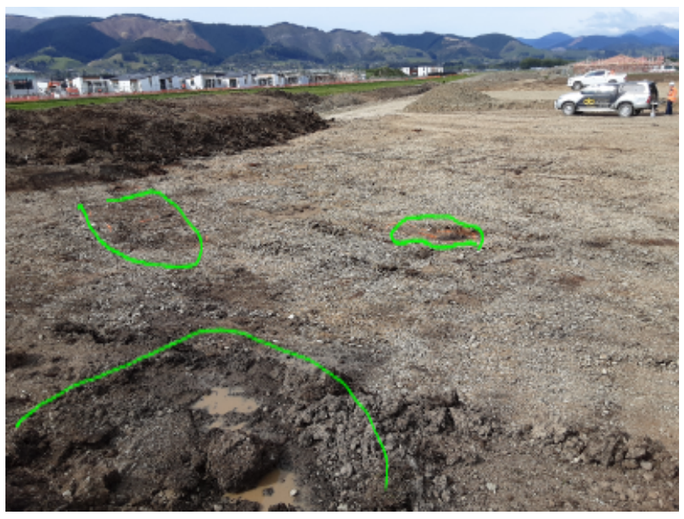
| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Ok to place topsoil. |
| Description of Variation: | |

Item 4

Natural subgrade inspection, Lots 448 and 449.
Appleby Gravels encountered with patches of very stiff surficial silt. DCP and shear vane test results satisfactory.
Drain observed crossing Lots as indicated by green lines. To be undercut.

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz





Localised areas of soft silt and/or organic rich soils encountered. To be undercut.

Patch of organic rich soil. To be undercut.

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| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Undercut marked out areas of unsuitable soil to waste or topsoil depending on organic content.<br>Following completion of above, OK to begin filling. |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:
Provide photographs of undercut areas.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 15/10/20 Time: 19:15

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 17

People: MG, Adam (Taylors)

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

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## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

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Level 1, 42 Oxford Street / Richmond 7020
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Fill inspection Lot 448. Ridge of pumping,wet fill running across the Lot as indicated in photograph. Spot DCP tests returned less than 5 blows per 100 mm over the top 400 mm. NDM results are satisfactory.

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Fill inspection on Lot 449. Area of wet pumping fill as indicated in the photograph. Spot DCP tests returned less than 5 blows per 100 mm over top 200 to 600 mm. NDM test results satisfactory.

| | |
|---|---|
| Comments/Observations: | Fill achieves density and OMC targets but fails due to areas of soft pumping ground. |
| Action Required: | It is possibly that as pore pressures reduce the areas of pumping fill will densify, however, there is no guarantee that this is the case. Contractor has the option to rework the areas of soft fill or place topsoil at their risk. If future DCP test results do not show an improvement in the density of the fill the topsoil will need to be removed and the fill |
| Description of Variation: | |

Item 2

Lot 470 strip inspection. Continuation of historic drain undercut to gravel and is filling with ground water.

Excavated shallow pit at southwest corner of lot to check for continuation of blue clay layer. No unsuitable soils identified.

| | |
|---|---|
| Comments/Observations: | Lot 470 is suitably stripped of topsoil. Ok to begin filling. Bricks or ballast rock wrapped in Biddim may be required in drain undercut if fill is observed to be pumping groundwater during compaction. |
| Action Required: | |
| Description of Variation: | |

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Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markham@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

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BC220131
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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 02/12/20 Time: 11:45

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 29

People: MP

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Finished level subgrade inspection. Site won fill. Lots 455 to 459. NDM results are satisfactory. DCP tests and visual inspection indicates some wet, weaving fill generally within the final lift.

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| | |
|---|---|
| Comments/Observations: | Contractor has option to rework weaving fill or they can place topsoil at their risk. If future investigations (e.g. DCP tests) do not show an improvement in the strength of the fill the topsoil would need to be removed and the fill reworked. |
| Action Required: | |
| Description of Variation: | |

Item 2

Fill on Lots 467 and 468. Several large roots observed at surface of fill.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Remove all roots prior to placing next lift. |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

BC220131
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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 08/12/20 Time: 11:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 31

People: MP

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Overcast

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

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## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Strip inspection of Lots 464 and 465 (468 to 469 using old numbering system). Note drain undercut on left of photograph.

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Overview photograph showing silt pond undercut in progress.

Drainage ditch. Soft silts and organics removed under DO supervision.

| | |
|---|---|
| Comments/Observations: | Gravel subgrade with localised silt patches encountered.DCP tests in subgrade returned satisfactory results. Approximately 1.3 m of fill expected including topsoil across most of the stripped area. |
| Action Required: | |
| Description of Variation: | |

Item 2

Silt pond undercut. Soft silts and organics removed under DO supervision. Side walls battered at approximately 2H:1V to avoid sharp contrast in fill thickness.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Place bricks to maximum of 200 mm above water level and cover with Biddim A29 prior to placing hardfill. Provide photographs of covered bricks. |
| Description of Variation: | |

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:
Ok to begin filling once actions completed.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131
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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 18/01/21 Time: 15:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 34

People: MP

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Finished level subgrade inspection of Lots 464 and 465 (formerly 468 and 469). Lee Valley Quarry overburden used as fill material. In general grading is suitable and minimal deflections were observed under the passage of the roller and loaded trucks. NDM, DCP and Clegg Hammer test results satisfactory. One oversize rock observed which was removed during the inspection.

Final lift in south western corner of Lot 464 was being placed and compacted during inspection.

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| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Ok to proceed with topsoil spreading on the inspected lots.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 05/02/21 Time: 11:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 39

People: MP

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Subgrade inspection Lots 475, 478, 479 and 482 (formerly 479, 482, 483 and 486). Area has been suitability stripped. Three DCP tests conducted with satisfactory results returned.

Excavator undertaking minor scrape along banks of undercut drain to allow DO to check the material. Drain has been suitability stripped.

Groundwater ponding in undercut area near drain.

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| | |
|---|---|
| Comments/Observations: | |
| Action Required: | For consistency with seepage treatment within the lots and roadways and giving consideration to future construction of services the following is required:<br>Within lots place bricks to approximately 100 mm above water level. Cover in biddim A29.<br>Within road hard fill can be placed in the drain provided the water is not causing the fill to weave. |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Ok to place fill.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Brendan Dodd, Fergus Moffat

Signature:

BC220131
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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 05/02/21 Time: 12:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 40

People: MG

Contractor / Client: Donaldson Civil/ Taylors

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Strip inspection of area previously beneath stockpiles (approximate location Lot 302, 309, 310). Several patches of organics and large roots identified and marked up for removal (some examples below).

Tasman District Council / AlphaOne Multiproof Approval – 107

Ancient logs.

Ancient logs.

Large recent roots.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Organics requiring undercut were marked out and removed. Area was reinspected by DO at 1 pm to confirm removal. |
| Description of Variation: | |

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz



Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Ok to place fill in stripped area. Leave sufficient buffer between fill and un stripped areas so that topsoil does not become accidentally buried.
DO or Donaldsons to measure up stripped area and confirm that it extends beyond the polygon provided by DO.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, Drew Chalmers

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 10

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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 10/02/21 Time: 11:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 41

People: MG

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

Strip inspection part Lot 309 and 357. In general the subgrade has been suitably stripped of the overlying uncompacted fill (former haul road). Four DCP tests conducted across the area stripped between 5 to 10 February with satisfactory results returned.

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Two V drains were cut through the stripped surface to at northern end to confirm depth to natural subgrade (less than 100 mm of fill remains). No unsuitables observed at the contact. Ok to leave overlying fill in place.

Material won from the strip is appropriate for re use as fill provided any obvious unsuitables are removed. This material should be spread thinly over the entire stripped area and compacted.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Ok to place fill in stripped area.

NDM testing required per 0.5m thickness of filling and/or prior to placing a lift of a new fill type (e.g. before changing from site won to imported fill). Each fill type should be continuous horizontally (i.e. no mixing within a lift).

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, AJ

Signature:

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Level 1, 24 Moorhouse Ave, Addington / PO Box 589, Christchurch 8140
0800 999 333 / admin@do.co.nz / www.do.co.nz



Job No(s): 37435c Date: 23/02/21 Time: 14:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 43

People: MG

Contractor / Client: Donaldsons Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 24 Moorhouse Ave, Addington / PO Box 589, Christchurch 8140
0800 999 333 / admin@do.co.nz / www.do.co.nz
DAVIS OGILVIE ENGINEERS / SURVEYORS / PLANNERS

Strip inspection part of Lots 311 and 356. Area suitably stripped of topsoil and significant organics.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Ok to place fill in this area. |
| Description of Variation: | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Item 2

Material won from haul road strip. Mix of angular gravel, sand and silt. Well graded and generally clear of organics.

Haul road material described above in place prior to stripping.

| | |
|---|---|
| Comments/Observations: | In this instance, given the quality (grading and angularity) and limited volume of the material it is appropriate to place as a thin layer of fill, no more than 100 mm uncompacted thickness. Additon of water will be required to aid compaction as per normal practices. Please note that for larger volumes and/or greater thicknesses of placed material a compaction curve may be required. |
| Action Required: | DO to inspect the spread material to confirm the uncompacted thickness meets our specification above. |
| Description of Variation: | |

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Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, AJ

Signature:

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131
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Job No(s): 37435c Date: 24/02/21 Time: 13:30

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 44

People: MG

Contractor / Client: Donaldsons Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

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Strip inspection part of lots 311 and 356. Subgrade suitably prepared. Three DCP tests conducted with satisfactory results.

Photograph showing topsoil (in process of being stripped) and engineered fill placed during Stage 5 earthworks. This image shows that topsoil stripping has extended a sufficient distance toward Stage 5. Taken looking toward the east.

Image showing that there is additional material that needs to be removed and the subgrade inspected. Boundary lines are indicative only. Taken looking toward the west.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Ok to place fill in the inspected area. |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, AJ Clarken

Signature:

BC220131
Tasman District Council - APPROVED DOCUMENTS
23/02/2022

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 26/02/21 Time: 12:30

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 45

People: MG

Contractor / Client: Donaldsons Civil

Weather/Ground conditions: Overcast

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

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Strip inspection remainer of Lots 311 and 356. Excavator operator made 4 scrapes along the edge of the strip under direction from DO. Inspect of these revealed that the strip surface overlaps the fill placed previously to the southwest.

A deep undercut was required to remove large tree roots. The excavated material is unsuitable for use as fill.

A second, shallower undercut was required to remove some organic rich material. The excavated material is unsuitable for use as fill.

Tasman District Council / AlphaOne Approval – 107

| | |
|---|---|
| Comments/Observations: | Area has been suitability stripped and is ok to begin placing fill. |
| Action Required: | |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, AJ Clarken

Signature:

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23/02/2022

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 23/03/21 Time: 15:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 47

People: MG

Contractor / Client: Donaldsons Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

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DAVIS OGILVIE ENGINEERS / SURVEYORS / PLANNERS

18 March 2021. Finished level subgrade inspection for part of lots 310, 311, 356 and 357. Fill appears stable and NDM results are satisfactory.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | ok to place topsoil. |
| Description of Variation: | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Item 2

23 March 2021. Finished level subgrade inspection Lots 302 and 303. Lee Valley overburden, in general the material is breaking down to a suitably graded fill. Some larger rocks to be removed. NDM results satisfactory.

Example of large rock in fill to be reworked (crushed to less than 100 mm) or removed.

| | |
|---|---|
| Comments/Observations: | Several other large rocks were marked out to be removed or crushed. |
| Action Required: | Following removal or crushing of large rocks topsoil can be spread on these lots. |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke Donaldson, AJ Clarken

Signature:

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23/02/2022

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Tasman District Council / AlphaOne Multiproof Approval – 107

Job No(s): 37435c Date: 29/03/21 Time: 15:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 48

People: MG

Contractor / Client: Ching Contracting Ltd.

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

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DAVIS OGILVIE ENGINEERS / SURVEYORS / PLANNERS

26 March 2021. Strip inspection of temporary swale. Majority of swale had been adequately stripped. A section of the true right bank at the down stream end is yet to be stripped and inspected.

There are two live stormwater pipes draining into the temporary swale.

Tasman District Council / AlphaOne Multiproof Approval – 107

Fill bund at upstream end of temporary swale.

| | |
|---|---|
| Comments/Observations: | Instruction given to:<br>Place bricks and cover with biddim prior to filling (photos were subsequently received from the contractor showing this being done).<br>Cut fill bund to lot boundary at upstream end of the swale |
| Action Required: | Live stromwater drains must be connected across the swale as soon as possible to avoid saturation of the fill being placed. |
| Description of Variation: | |

Item 2

29 March 2021. Inspection of the swale bank fill at upstream end of the swale. The bund is underlain by buried topsoil, there are  large quantities of grass in the fill and a strong organic odour.

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DAVIS OGILVIE ENGINEERS / SURVEYORS / PLANNERS

Photograph showing grass and organic silts in fill.

| | |
|---|---|
| Comments/Observations: | Swale bank fill considered unsuitable and is to be removed and replaced with engineered compacted fill. |
| Action Required: | Contractor to determine methodology and sequence for breaking through to the live swale. We recommend placing bricks to the invert level of the swale. Bricks to be covered with biddim. Fill should be placed as per the fill methodology for Stages 6 to 8. |
| Description of Variation: | |

Tasman District Council - AlphaOne Authproof Approval – 107

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: DO to inspect subgrade following removal of the unsuitable swale bank fill.

Name: Mark Gray

Email: markg@do.nz

Issued to: Scott Brookland,Chris Lowe

Signature:

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022

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DAVIS OGILVIE ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 31/03/21 Time: 15:01

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 49

People: MG, BC

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Raining

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

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DAVIS OGILVIE ENGINEERS / SURVEYORS / PLANNERS

Strip inspection part of lots 299, 300, 301, 302. Areas of soft silt and organics undercut during the inspection.

Evidence of overfilling over topsoil from previous stage

As above

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Cut back into area of previous earthworks and chase out buried organics. Take care to separate grassed topsoil from fill. If layer extends more than 1.0 m into area of previous works, stop work and advise DO. |
| Description of Variation: | |

Item 2

Lot 307 and 308 finished level inspection. Fill passes preliminary DCP test and appears stable and well graded.

| | |
|---|---|
| Comments/Observations: | A thin (50 mm thick) blinding layer had been spread and compacted. |
| Action Required: | NDM test probe must be pushed through the blinding layer or test locations scraped to expose Lee Valley fill.<br>Permission to spread topsoil will be required from DO once the NDM test report has been received and reviewed. |
| Description of Variation: | |

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Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markg@do.nz

Issued to: AJ, Luke

Signature:

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DAVIS OGILVIE ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 06/04/21 Time: 10:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 50

People: MG, JL

Contractor / Client: Ching Contracting

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

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DAVIS OGILVIE ENGINEERS / SURVEYORS / PLANNERS

Strip inspection of the southern bank of temporary swale.

| | |
|---|---|
| Comments/Observations: | Adequately stripped. Ok to place bricks and fill. Site won gravelly fill to be used. |
| Action Required: | |
| Description of Variation: | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markg@do.nz

Issued to: Chris, Scott

Signature:

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 07/04/21 Time: 15:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 51

People: MG, Brian, AJ

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

| | |
|---|---|
| Comments/Observations: | Reinspection of edge of Lot 300 where buried organics were previously observed (refer to inspection record #49). Organics appear to have been undercut and suitably chased out.<br><br>Strip inspection part of Lots 301 and 304. Subgrade has been adequately stripped. Contractor's intention is to place Lee Valley fill, this will result in mixed fill types within the lot which should be avoided where possible (site win fill was previously placed on the western third of the sections in February 2020). |
| Action Required: | For consistency of fill types we recommend cutting the existing site win fill down by 0.5m and side casting this into the stripped area. The entire sections (301 and 304) can then be brought up to to finished level using the Lee Valley fill. |
| Description of Variation: | |

Tasman District Council / Alpha One Multiproof Approval – 107

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke, AJ

Signature:

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 12/04/21 Time: 15:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 52

People: MG, Brian

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

| | |
|---|---|
| | Finished level fill walkover inspection Lots 301 and 302. Lee Valley Quarry overburden has been used and in general was well graded and stable. NDM results satisfactory. Some areas of poor grading were observed as outlined below. |
| | Fill on southern side near road was loose due to lack of fines. Instruction was given to scrape the loose rock (top 50 to 100 mm) and replace with more weathered material containing more fines. |
| | Excavator in process of scraping loose surficial material. |
| | Some larger rocks were observed in the fill and these were removed. |

| | |
|---|---|
| Comments/Observations: | The scraped loose rock can be released for use in Lots 304 and 305. |
| Action Required: | Fill in scraped area with more fine rich material and compact. Provide photographs of finished surface. |
| Description of Variation: | |

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Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Ok to place topsoil once actions completed.

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke, AJ

Signature:

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Level 1, 24 Moorhouse Ave, Addington / PO Box 589, Christchurch 8140
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Job No(s): 37435c Date: 14/04/21 Time: 14:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 53

People: MG, JL, Brian

Contractor / Client: Donaldson Civil

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

Tasman District Council / AlphaOne Multiproof Approval – 107

## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Finished level fill walkover inspection Lots 301 and 305.
Lee Valley Quarry overburden used.
Fill appears well graded and no significant deflections were observed under load from dump truck.
2 DCP tests conducted with satisfactory results.
NDM test results satisfactory.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Ok to place topsoil |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markg@do.nz

Issued to: Luke, AJ

Signature:

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BC220131
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Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 10/05/21 Time: 13:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 54

People: MG, Scott Brookland

Contractor / Client: Ching Contracting

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

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## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
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Weaving fill at western end of backfilled swale. DCP results indicate top 0.3 m (approximately) is soft. Refer to attached plan.

Eastern end of backfilled swale. No signs of weaving.

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| | |
|---|---|
| Comments/Observations: | Several DCP tests were completed with some lower blow counts recorded. NDM tests were not completed as fill was being placed. |
| Action Required: | 1. Rework top 0.3m of weaving fill at western end of swale and complete NDM tests. DO to reinspect.<br><br>2. Arrange for NDM testing of fill. At least 3 of these tests are required at 1.0 m depth. DO to be present for NDM tests in the 1.0 m deep holes to conduct additional DCP tests at this level. NDMs at finished level to be completed at normal spacing (1 per lot or 20 m which ever is less). |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markg@do.nz

Issued to: Scott, Chris

Signature:

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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 14/05/21 Time: 14:30

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 55

People: MG, Chris Lowe

Contractor / Client: Ching Contracting

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

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## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Inspection of 1m deep NDM test pit. DCP test conducted in base of pit with satisfactory results returned. NDM test results acceptable. Fill appears well graded.

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| | |
|---|---|
| Comments/Observations: | Eastern and central portions of swale backfill appear suitably compacted and stable.<br>The western end of the swale returned passing NDM test results but material is wet and likely soft at present. |
| Action Required: | 1. Backfill test pit with NDM testing at completion of each 0.5 m of fill placed.<br>2. DO to inspect and test western end fill once dry. |
| Description of Variation: | |

Item 2

Test scrape conducted in area of former access ramp to Donaldsons Stage 4 office.
Organic silt encountered.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | DO survey to set out limit of stripped and measured ground.<br>Excavated within setout area to natural gravels.<br>DO to inspect stripped surface prior to filling. |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markg@do.nz

Issued to: Scott, Chris, Nathan Lines

Signature:

BC220131
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23/02/2022

Level 1, 42 Oxford Street / Richmond 7020
(03) 548 4425 / nelson@do.nz / www.do.nz

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Job No(s): 37435c Date: 24/05/21 Time: 14:00

Job Name / Address: The Meadows Stages 6 - 8 McShane Road

Inspection: 57

People: MG, Chris Lowe, Scott Brookland

Contractor / Client: Ching Contracting

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number PS4? Not required

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## HEALTH & SAFETY 'TAKE 5'

| | |
|---|---|
| Have you reviewed the project hazard sheet on file? | Yes |
| Do you understand the scope of works required? | Yes |
| Do you have the correct equipment? | Yes |
| Specify Equipment | |
| Does the office know where you are? | No |
| Are you able to get help if you need it? | Yes |
| Is there any notifiable work? | No |
| If yes, has MBIE been notified? | |
| Do you need to be inducted to the site? | Yes |
| If required, have you signed in? | Yes |
| Have you reviewed the site hazard board? | Yes |
| If no hazard board or project hazard sheet on file, please identify all hazards on site accordance with Health & Safety policy | |
| Are there any hazards that may be a danger without your remedial action? | No |
| Specify Hazards | |
| What are the potential consequences of these hazards, should an incident occur? | |
| For each hazard identified above how are the risks minimised isolated or eliminated? | |
| General Comments | |

## Site Inspection Record

Item 1

Level 1, 42 Oxford Street / Richmond 7020
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Subgrade inspection Lot 366. No significant organics or otherwise unsuitable soils observed within the stripped area.

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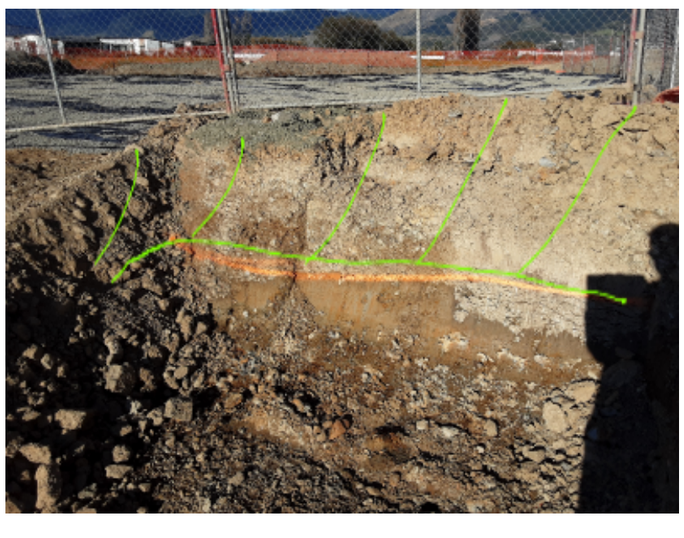
Buried topsoil at western end of lot. Material has been cut to lot boundary. A small offset will be required for future buildings.

| | |
|---|---|
| Comments/Observations: | |
| Action Required: | Ok to place fill. |
| Description of Variation: | |

Item 2

Lot 454 subgrade inspection. Suitably excavated. No evidence of buried topsoil along southern side of excavation indicating excavation overlaps previous Taylors strip surface.



Uncontrolled fill at eastern end of excavation to be removed.

As above.

Level 1, 42 Oxford Street / Richmond 7020
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| | |
|---|---|
| | Historic fill and buried organics on northern side of cut. These may affect the proposed retaining wall if located within the foundation zone of influence. |
| Comments/Observations: | DO to advise RWDCL of potential geotechnical issues that could affect the proposed retaining wall. |
| Action Required: | Wait for further instruction prior to filling this area. |
| Description of Variation: | |

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Item 3

| | |
|---|---|
| | Wet fill Lot 364 365. Top 300 mm was previously found to be soft (refer to Inspection Record 54, 10 May 2021). Four additional tests were conducted with similar results to previous inspection. NDM results satisfactory. |
| Comments/Observations: | Top 300 mm of fill has failed inspection. |
| Action Required: | Rework fill. Alternatively contractor can place topsoil at their risk, If future investigations (e.g. DCP tests) do not show an improvement in the strength of the fill the topsoil would need to be removed and the fill reworked. |
| Description of Variation: | |

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments:

Name: Mark Gray

Email: markg@do.nz

Issued to: Scott, Chris, Nathan Lines

Signature:

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**APPENDIX E**

Davis Ogilvie Geotechnical Investigation Report (2018)

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

# PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT

37435 / THE MEADOWS SUBDIVISION, MCSHANE ROAD, RICHMOND

/ RICHMOND WEST DEVELOPMENT COMPANY LTD

Tasman District Council / AlphaOne Multiproof Approval – 107

0800 999 333
hello@do.nz

Second Floor, Gourdies Building
277 Hardy Street, Nelson 7010
www.do.nz

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DAVIS OGILVIE
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## Quality Assurance

| | |
|---|---|
| **Title:** | Preliminary Geotechnical Investigation Report |
| **Client:** | Richmond West Development Company Ltd |
| **File Location:** | \\donelson\data\Projects\20000+\37435 - RWDCL - The Meadows\Engineering\006 Reports\NN37435_The Meadows Geotechnical Rpt_180817.docx |
| **Version:** | 1 |
| **Date:** | 21 August 2018 |
| **Project No** | 37435 |

| | | |
|---|---|---|
| **Prepared By:** | **Bex Hawksworth**<br>Engineering Geologist<br>BSc (Hons) | **Signature:** |
| **Reviewed By:** | **Andrew Smith**<br>Principal Engineering Geologist<br>MSc, BSc CGeol, CMEngNZ (PEngGeol) | **Signature:** |

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## Disclaimer

This engineering report has been prepared at the specific instruction of Richmond West Development Company Ltd. It addresses geotechnical conditions underlying the proposed subdivision 'The Meadows', McShane Road, Richmond (Lot 2 DP 467493; Sec 9, Sec 12, Sec 13 and Sec 16 of SO 455144).

Davis Ogilvie did not perform a complete assessment of all possible conditions or circumstances that may exist at the site. Conditions may exist which were undetectable given the limited investigation of the site and have not been taken into account in the report.

Davis Ogilvie's opinions are based upon information that existed at the time of the production of this document. Assessments made in this report are based on the conditions found onsite and published sources detailing the recommended investigation methodologies described. No warranty is included—either expressed or implied—that the actual conditions will conform to the assessments contained in this report.

Davis Ogilvie has provided an opinion based on observations, site investigations, and analysis methodologies current at the time of reporting. The report cannot be used by any third party without the written approval of Davis Ogilvie. The report cannot be used if there are changes in the referenced guidelines, analysis methodologies, laws or regulations.

Only Richmond West Development Company Ltd and the Local and Regional Territorial Authorities are entitled to rely upon this engineering report. Davis Ogilvie & Partners Ltd accepts no liability to anyone other Richmond West Development Company Ltd in any way in relation to this report and the content of it and any direct or indirect effect this engineering report may have. Davis Ogilvie & Partners Ltd does not contemplate anyone else relying on this report or that it will be used for any other purpose.

Information included in this report was obtained/created from maps and/or data extracted from the New Zealand Geotechnical Database (https://www.nzgd.org.nz), which were prepared and compiled for the Earthquake Commission (EQC) to assist in assessing insurance claims made under the Earthquake Commission Act 1993. The source maps and data were not intended for any other purpose. EQC and its engineers, Tonkin & Taylor, have no liability for any use of the maps and data or for the consequences of any person relying on them in any way.

Should anyone wish to discuss the content of this report with Davis Ogilvie & Partners Ltd, they are welcome to contact us on 0800 100 200 or at Second Floor, Gourdies Building, 277 Hardy Street, Nelson 7010.

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DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

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**Appendix C** - Davis Ogilvie Boreholes (BH04 – BH07)
**Appendix D** - TDC well records 21005; 21016; 22272 and 20845
**Appendix E** - Groundwater level data plots BH04 – BH07

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DAVIS OGILVIE
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## 1.0 Purpose of Report

Davis Ogilvie & Partners Limited (Davis Ogilvie) has been commissioned by Richmond West Development Company Ltd (RWDC) ('the client') to undertake a preliminary geotechnical investigation across five land parcels in Richmond West proposed for residential subdivision (referred to as 'the site').

This report summarises the findings of the geotechnical field investigation, provides a summary of the ground conditions encountered and information to aid in the earthworks design for the development.

The geotechnical feasibility of the site for residential subdivision has also been assessed with reference to potential hazards in accordance with Section 106 of the Resource Management Act (RMA).

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## 2.0 Site Description

The site is located north-west of Richmond town-centre; bound by McShane Road along the north-western boundary and Borck Creek along the south-eastern boundary, largely undeveloped paddocks with some lifestyle block residential sections are located along the south-western boundary and approximately 300 m west of the site boundary is the Appleby Highway (SH60).

The site covers an approximate land area of 37 hectares and is formed of five land parcels including Legal Titles Sec 9, Sec 12; Sec 13 and Sec 16 of SO 455144 and Lot 2 DP 467 493. Refer Figures 1 and 2.

The site comprises open paddocks and horticultural land. Topography of the site is generally flat with a drop in elevation towards the north-east towards the Waimea Inlet. Elevations at the southern corner of the site are approximately 11.5 m RL1 and the northern most corner is at approximately 6.0 m RL.

A series of shallow creeks / drainage channels run through the site and a small pond is located centrally within the site (shown on Drawing 600A dated October 2017 attached).

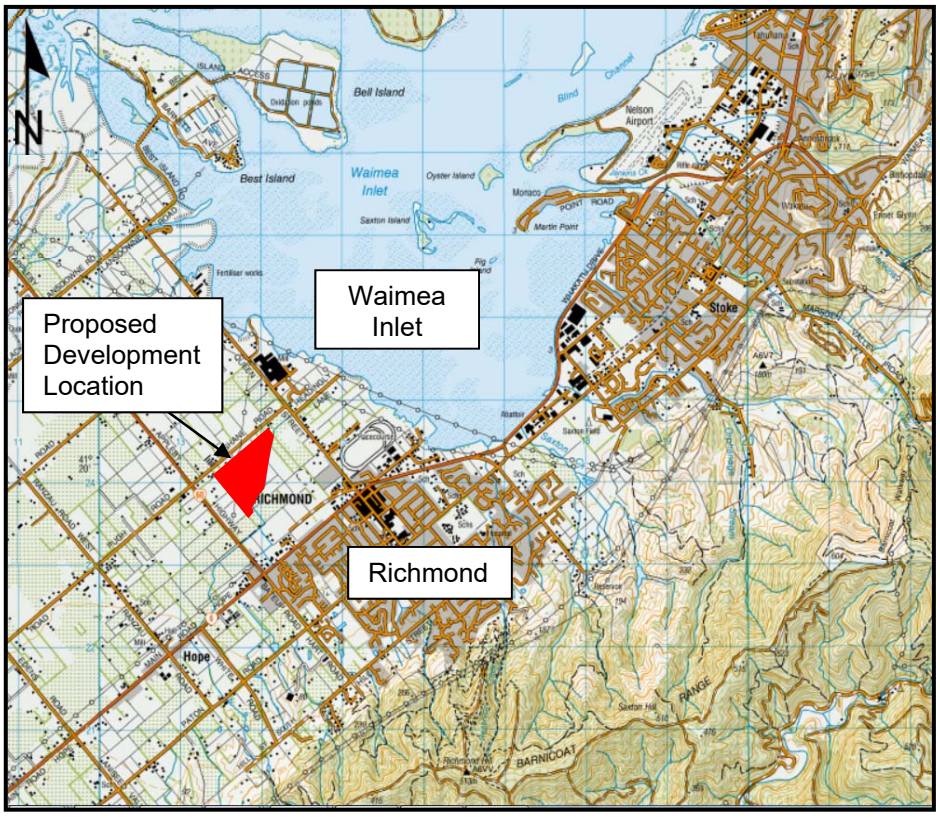


**Figure 1: Site location plan showing general location of The Meadows Development (sourced from www.topomaps.co.nz)**

[1] Relative Level in terms of New Zealand Vertical Datum 2016 (NZVD2016)

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## 3.0 Proposed Development

No concept scheme plans are available for the development at the time of reporting, however, it is understood that the site is proposed to be subdivided into approximately 510 residential sections with associated road and infrastructure network. Land to the east of the site is also proposed for future residential development and the road network will connect with the adjacent proposed developments.

A reserve is proposed to be located adjacent to the eastern boundary of the site following the Borck Creek alignment. The reserve land is owned by Tasman District Council

The subdivision is anticipated to require only minor earthworks involving stripping of topsoil and filling up to the designed finished ground level (FGL). At this stage the source of fill material and finished ground levels are unknown.

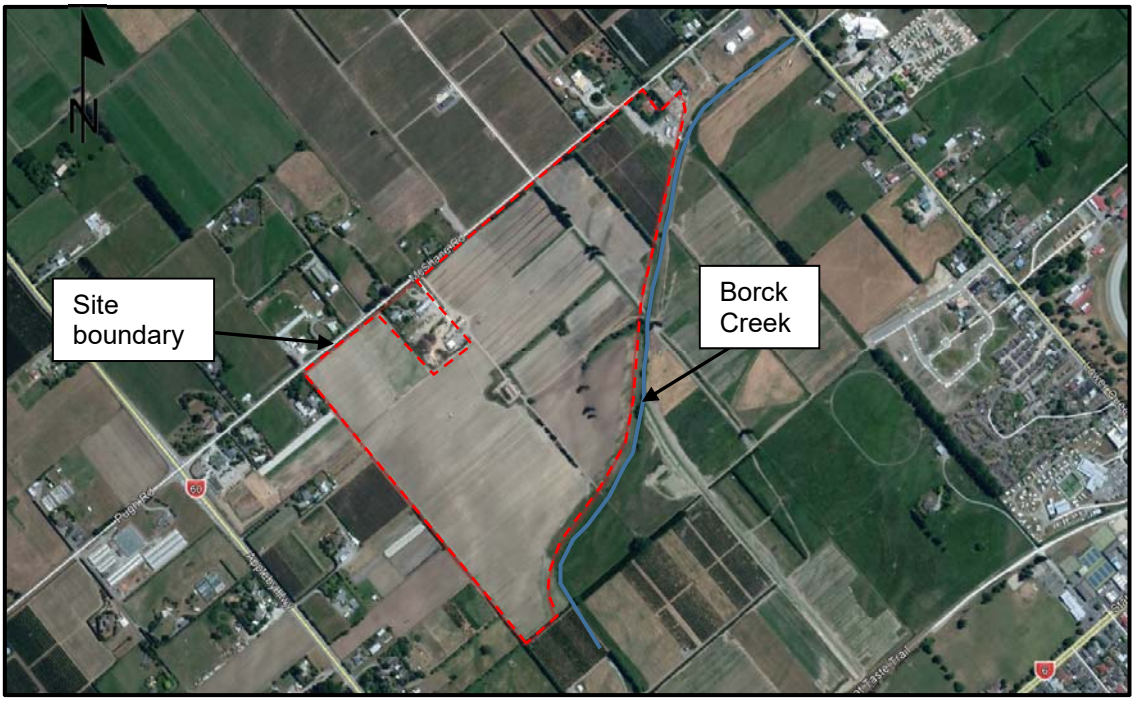


**Figure 2: Aerial photograph showing approximate outline of proposed development area (source: Google Earth 2018 image).**

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## 4.0 Aerial Photography Review

A review of historical aerial photography has been utilised to infer the location of some site features as described below.

### 4.1 Historical Shelter Belts

A historical aerial photograph from 1981[2] shows that the site was largely vegetated with open pasture. Multiple rows of trees forming shelter belts can be seen in the aerial, some of which correspond to the location of present day trees and some shelter belts have been removed. No additional shelter belts are shown in the 1940's[3] aerials.

Buried roots associated with historical shelter belts will likely require removal during earthworks. The location of the historical shelter belts are shown on the attached plan Drawing G01A dated April 2018 attached. Ground conditions in the vicinity of the shelter belts are further described in Section 6.

### 4.2 Historical Channels

Potential buried channels discernible in present day aerial photography4 and 1980's and 1940's historical aerials are orientated in an approximate south-west to north-east direction towards the Waimea Inlet. From our knowledge of the area, and as identified in part by the shallow investigation (discussed in Section 5 and 6 below), these channels can contain soft and / or organic material which may require removal during earthworks. The location of potential buried channels are shown on the attached plan Drawing G01A dated April 2018 attached.

### 4.3 Drone Survey

Elevation data from a drone survey completed by DO in January 2018 has been used to create a gradient plan of the site. The plan highlights the fall in elevation to the north-east and also identifies depressions in the site which highlights potential historical channels. The shallow ground investigation targeted these potential channel areas and although no silty or organic material was encountered in the channels across the southern portion of the site it is considered prudent to anticipate buried channels in this area. The location of all potential buried channels are shown on the attached plan Drawing G01A dated April 2018 attached.

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[2] 11/01/1981; NZ Aerial Mapping Ltd, Scale 1:2000
[3] Nelson City Council Historical Aerial for the 1940's.
[4] Davis Ogilvie drone footage taken 25 January 2018

## 5.0 Tasman District Council Well Records

New Zealand Water Well records held at Tasman District Council for wells located within the site have been reviewed. Four wells located within the site[5] identify the presence of gravels (Appleby Gravel Formation) to a maximum proven depth of 36 m below existing ground level.

The logs indicate that the site is underlain by an aquifer with water bearing gravels generally available below 25 m below ground level.

A summary of deep borehole data completed on the site is given in Table 1 below.

**Table 1: Deep borehole data[1 2]**

| Borehole Location | Borehole Termination Depth (m bgl) | Layer 1 | Layer 2 | Layer 3 | Layer 4 | Layer 5 |
|---|---|---|---|---|---|---|
| | | (m bgl to base of layer) | | | | |
| BH4 | 15 | Sandy GRAVEL (2.0) | Silty GRAVEL (5.0) | Clayey GRAVEL (8.0) | Sandy GRAVEL (14.0) | GRAVEL in clay matrix (15.0) |
| BH5 | 15 | Sandy, silty GRAVEL (2.0) | GRAVEL in a clay matrix (15) | - | - | - |
| BH6 | 15 | Sandy GRAVEL (0.6) | GRAVEL in a silty, clay matrix (15) | - | - | - |
| BH7 | 5 | SILT (0.3) | Sandy GRAVEL (5.0) | - | - | - |
| Well 21005 | 34 | GRAVEL with some sand lenses (6) | GRAVEL & Sand (13) | GRAVEL & Clay (19) | GRAVEL with sand & clay lenses (24) | GRAVEL & coarse sand (34) |
| Well 21016 | 35 | GRAVEL & sand (8) | GRAVEL sand & clay (26) | Clay and sand (27) | GRAVEL & sand (33) | Clay bound GRAVEL (36) |
| Well 22272 | 34 | GRAVEL with cemented sand (5.2) | GRAVEL & sand (13.1) | GRAVEL & clay (18.9) | GRAVEL sand & clay lenses (24.4) | GRAVEL and sand (34) |
| Well 20845 | 36 | GRAVEL to sand (11) | Clay bound GRAVEL to sand (24.5) | Soft CLAY / CLAY some gravel (30) | GRAVEL to sand / clay (36) | - |

[1] Material description as per drillers logs / summarised. Where gravel grading referred to in logs gravel has been presented.
[2] Aquifer generally encountered below 25 m depth

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[5] TDC well cards 21005 (TDC ref: log 28); 21016 (TDC ref: log 29); 22272 (TDC ref: log 55) and 20845 (TDC ref: log 244)

# 6.0 Geotechnical Investigation

## 6.1 Shallow Testing

A shallow geotechnical investigation was undertaken between 6 and 8 March 2018 and comprised 24 machine excavated test pits and trenches (designated TP301 to TP324 inclusive) with adjacent Dynamic Cone Penetrometers (DCP) tests to test the relative density of the subsoils. Groundwater levels were recorded in each test pit location.

Test pits were progressed to a maximum depth of 2.0 m below ground level (bgl) with a 10 Tonne excavator[6].

A summary of ground conditions is presented in Section 6. DCP results are summarised on Table 2 below and on the attached test pit logs.

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[6] Operated by Jo Keen of Dirtworks Nelson.

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**Table 2: Summary of DCP Results**

| Depth (m BGL) | Penetrometer Results (number blows / 100mm penetration) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TP 301 | TP 302 | TP 303 | TP 304 | TP 305 | TP 306 | TP 307 | TP 308 | TP 309 | TP 310 | TP 311 | TP 312 | TP 313 | TP 314 | TP 315 | TP 316 | TP 317 | TP 318 | TP 319 | TP 320 | TP 321 | TP 322 |
| 0.1 | 3 | 2 | 6 | 5 | 1 | 1 | 1 | 3 | 3 | 4 | 2 | 4 | 8 | 2 | 1 | 6 | 2 | 1 | 2 | 5 | 8 | 3 |
| 0.2 | 5 | 3 | 4 | 5 | 1 | 2 | 7 | 5 | 2 | 2 | 2 | 6 | 10 | 6 | 4 | 9 | 6 | 2 | 1 | 6 | 12 | 5 |
| 0.3 | 4 | 3 | 4 | 7 | 2 | 5 | 7 | 3 | 8 | 5 | 4 | 7 | 11 | 7 | 5 | 9 | 4 | 4 | 5 | 4 | 8 | 3 |
| 0.4 | 4 | 7 | 5 | 9 | 4 | 8 | 3 | 5 | 11 | 16 | 7 | 11 | 7 | 9 | 8 | 9 | 2 | 2 | 8 | 4 | 7 | 12 |
| 0.5 | 10 | 11 | 6 | 19 | 3 | 15 | 2 | 5 | 10 | 13 | 6 | 9 | 8 | 7 | 7 | 6 | 6 | 2 | 11 | 13 | 10 | 11 |
| 0.6 | 8 | 6 | 5 | 15 | 10 | 11 | 1 | 9 | 11 | 11 | 7 | 9 | 9 | 8 | 4 | 9 | 10 | 5 | 17 | 20+ | 8 | 22 |
| 0.7 | 14 | 5 | 7 | 18 | 18 | 15 | 4 | 9 | 5 | 10 | 14 | 6 | 22 | 10 | 5 | 13 | 6 | 10 | 22 | | 7 | 30 |
| 0.8 | 25+ | 8 | 9 | 14 | 15 | 11 | 7 | 10 | 5 | 14 | 12 | 15 | 17 | 15 | 4 | 13 | 14 | 8 | 24 | | 11 | |
| 0.9 | | 13 | 10 | 10 | 13 | 14 | 11 | 12 | 17 | 15 | 9 | 22 | 15 | 16 | 3 | 22 | 20 | 6 | | | 20 | |
| 1.0 | | 18 | 23 | 17 | | 21 | 12 | 17 | 15 | | 6 | | | | 2 | | | 3 | | | | |
| 1.1 | | 15 | | | | | 10 | | 22 | | 8 | | | | 3 | | | 7 | | | | |
| 1.2 | | 15 | | | | | 8 | | | | 13 | | | | 4 | | | 16 | | | | |
| 1.3 | | 19 | | | | | 13 | | | | 21 | | | | 3 | | | 13 | | | | |
| 1.4 | | | | | | | 13 | | | | | | | | 9 | | | 13 | | | | |
| 1.5 | | | | | | | 11 | | | | | | | | 5 | | | 15 | | | | |
| 1.6 | | | | | | | 11 | | | | | | | | 2 | | | 12 | | | | |
| 1.7 | | | | | | | 13 | | | | | | | | 10 | | | 13 | | | | |
| 1.8 | | | | | | | 10 | | | | | | | | 7 | | | 18 | | | | |
| 1.9 | | | | | | | 15 | | | | | | | | 8 | | | | | | | |

Orange shaded results do not meet the requirements of NZS 3604:2011 due to low blow counts and / or the presence of organic material and may require stripping.

Green shading indicates the topsoil thickness

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## 6.2 Deep Testing

Site specific deep geotechnical testing comprised four machine progressed boreholes (designated BH04 to BH07). Boreholes were progressed using a cable tool rotary drill rig by CW Drilling. Due to shallow groundwater on site no drill fluid was used to progress the bores. Standpipe, backfill and installation details are given on the borehole logs appended to this report.

The purpose of the deep testing was to confirm the consistency, grading and relative density of the Appleby Gravel Formation[7] and to install level loggers[8] to monitor groundwater levels and inform design of the storm-water system and earthworks considerations.

Boreholes 4, 5 and 6 (BH04; BH05 and BH06)[9] were progressed to 15 m depth and Borehole 7 (BH07) was progressed to 5 m depth. BH07 was terminated shallow as it was primarily completed for groundwater monitoring purposes. All boreholes were installed with screened borehole piezometers.

During excavation of the boreholes Standard Penetration Tests (SPTs) were undertaken to determine the relative density of the soils. SPTs were undertaken at 1.0 m intervals to a depth of 5 m and 1.5 m intervals below 5 m depth. An energy efficiency ratio certificate of the SPT hammer has been supplied by CW Drilling.

Borehole locations are shown on the attached plan (Drawing G01A dated April 2018) and borehole logs attached to this report.

## 6.3 Groundwater Monitoring

Level loggers[10] were installed in each of the boreholes to record groundwater levels at hourly increments. The level logger installation included installation of a barometer to monitor atmospheric pressure changes and adjust groundwater level recordings accordingly.

An interpretation of groundwater monitoring data is discussed in Section 7.5.

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[7] Consistency of the deposit and its grading and density has also been used by Davis Ogilvie to undertake an area wide liquefaction hazard assessment.
[8] Level loggers installed by Geotechnics Ltd on 9/4/18
[9] Borehole numbering starts at BH4 as Davis Ogilvie have completed three other deep boreholes in the vicinity of the site. Boreholes 1 to 3 within the Appleby Gravel Formation showed comparable ground conditions to BH4 to BH7 so have not been specifically referred to in this report.
[10] Level loggers installed by Geotechnics Ltd on 9/4/18

# 7.0 Ground Conditions

Test pitting and deep boreholes indicate that the generalised vertical stratigraphic sequence includes topsoil over the Appleby Gravel Formation with some localised areas of alluvial deposits. Each unit is described in detail in the following sections.

## 7.1 Topsoil

Topsoil measured as being generally between 0.3 m and 0.4 m thick across the site and generally comprised a gravelly silt with organics including roots and rootlets.

## 7.2 Appleby Gravel Formation

These deposits were generally encountered directly under the topsoil and comprised gravel with some silt and sand, medium dense becoming very dense, well graded fine to coarse with some cobbles, sub-rounded to sub-angular gravels. Subtle variations in grading and fines content across the site are anticipated.

Appleby Gravels were proven to a maximum depth of 15 m in BH04; BH05 and BH06 by Davis Ogilvie. Standard Penetrometer Testing (SPT) was available for all boreholes and was undertaken at 1.0 and 1.5 m intervals. The SPT data shows a general increase in relative density of the underlying gravels with depth. N-values[11] from SPTs in the upper 2.0 m of the soil profile generally ranged from 15 to 25 (medium dense) with the exception of BH05 with an N-value of 9.0 at 2.0 m bgl. Below 2.0 m depth N-values generally ranged from 25 to refusal (50+) indicating generally medium dense to very dense ground conditions. BH06 was the exception where an N-value of 12 was encountered at 5.0 m below ground level indicating looser ground conditions at this depth.

The extent of the gravels beyond the depth tested by Davis Ogilvie (15 m) is shown on well card records. Four available well cards identify that the gravels extend to a maximum proven depth of 36 m below ground level. It is noted that within the logs some lenses of 'clay' material were identified. Lenses usually describe thin layers and the majority of the material underlying the site is gravel.

## 7.3 Alluvial Deposits

Alluvial deposits and historical buried channels were identified in numerous test pits largely across the northern two thirds of the site and generally comprised a gravelly SILT with organics; silty gravel with organics; gravelly silt and silt. Organics generally comprised decomposing wood fragments and the silt material is generally firm to very stiff[12]. These silts are known from local experience to soften significantly once the material is exposed to water during earthworks.

[11] Uncorrected N-values presented
[12] Density based on DCP results and correlation to Shear Strength from Look B.G 2007 Table 5.10

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Where organic and / or silty material is encountered during site stripping the material will likely require removal as part of the development and replaced with compacted engineered fill. Maximum proven thicknesses of potential areas requiring over-excavation are summarised in Table 3 and indicative buried channel areas are shown on the attached plan (Drawing G01A dated April 2018).

### 7.4 Uncontrolled Fill

Minor quantities of uncontrolled fill were encountered in TP318 and TP317. The fill is anticipated to be associated with infilling of a low, wet area associated with a spring and historical channel in the vicinity of TP3018 and TP317.

**Table 3: Potential areas requiring possible over-excavation during earthworks**

| Test Pit Location | Material | Maximum proven depth of material (m bgl) |
|---|---|---|
| TP303 | Gravelly SILT with organics (~5 – 20%) | 1.3 |
| TP307 | Gravelly SILT with organics (~10 – 15%) | 1.1 |
| TP311 | Gravelly SILT / Silty GRAVEL with organics (~20%) | 1.1 |
| TP315 | Loose silty GRAVEL and Silty GRAVEL with organics (~10%) | 1.4 |
| TP317 | SILT and SILT with trace gravel (fill) | 0.6 |
| TP318 | SILT with some organics (fill) | 0.8 |

The location of the alluvial deposits encountered on site generally corresponds to the location of the historical channels as identified by the historical aerial photography. The inferred extent of the channels and potential dig out areas are shown on the attached plan (Drawing G01A dated April 2018).

It should also be anticipated that additional discrete channels exist which haven't been intercepted during the investigation or identified from historic aerial photography.

### 7.5 Groundwater and Springs

Groundwater levels were measured during the shallow and deep groundwater investigation (March 2018) and on-going groundwater monitoring has been undertaken via level-loggers installed in the boreholes piezometers by Geotechnics Limited. Groundwater has been monitored from the time of installation in April 2018 to July 2018.

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Ground water levels generally show a hydraulic gradient towards the Waimea Inlet with deeper groundwater at the southern end of the site and generally becoming shallower towards the north.

Groundwater is discussed further below.

### 7.5.1 Level Logger interpretation

The level logger groundwater data recorded at BH04 and BH07 located centrally within the site shows that at these borehole locations groundwater levels are generally sensitive to rainfall; groundwater levels peak rapidly during and following a rainfall event and levels recede back to base flows within approximately 2 days. Base groundwater levels are generally at 0.9 m bgl (RL 8.4) in Borehole 4 and 0.4 m bgl (RL 7.65) in BH07.

BH06, which is the closest to the Waimea Inlet (at the north-eastern side of the site) shows a slower, less peaky reaction to rainfall when compared to BH04 and BH07. Groundwater levels at BH06 generally peak at a similar rate to BH04 and BH07 but generally take longer (approximately 5 days) to recede back to base levels. Base groundwater levels are generally at 1.05 m bgl (RL 5.8) at the location of BH06. No evidence of tidally influenced groundwater was observed in the groundwater monitoring data for BH06 (in closest proximity to the Waimea Inlet).

BH05, at the south-western side of the site, furthest from the Waimea Inlet, shows a deeper groundwater profile when comparted to the other boreholes across the site. Groundwater levels at BH05 are also relatively constant with less sensitivity to rainfall. Base groundwater levels are generally around 2.1 / 2.3 m bgl (RL 8.9 to 9.1) for the period recorded.

Groundwater monitoring data is attached (BH04 to BH07 graphical plots) and a summary of groundwater levels provided in Table 4. A summary of the level logger data is given in Table 5.

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| Table 4: Summary of Groundwater Levels<br>Measured March 2018 field testing | | | | |
|---|---|---|---|---|
| **Test Location** | **Ground Level*** | **Test Depth** | **Groundwater Depth (m EGL)** | **Groundwater Level (RL)** |
| BH4 | 9.35 | 15.0 | 0.8 | 8.5 |
| BH5 | 11.20 | 15.0 | 2.6 | 8.5 |
| BH6 | 6.85 | 15.0 | 1.3 | 5.5 |
| BH7 | 8.07 | 5.0 | 1.7 | 6.2 |
| TP301 | 9.3 | 1.4 | 1.2 | 8.1 |
| TP302 | 8.5 | 1.4 | 0.9 | 7.6 |
| TP303 | 7.8 | 1.8 | 0.9 | 6.9 |
| TP304 | 6.3 | 1.7 | 0.9 | 5.4 |
| TP305 | 10.2 | 1.5 | 1.3 | 8.9 |
| TP306 | 8.8 | 1.5 | 0.8 | 8.0 |
| TP307 | 7.4 | 2.0 | 1.1 | 6.3 |
| TP308 | 6.9 | 1.8 | 1.0 | 5.9 |
| TP309 | 9.7 | 1.7 | 1.5 | 8.2 |
| TP310 | 8.7 | 1.0 | 0.7 | 8.0 |
| TP311 | 7.9 | 1.4 | 1.1 | 6.8 |
| TP312 | 10.8 | 1.4 | 1.4 | 9.4 |
| TP313 | 9.7 | 1.5 | 0.9 | 8.8 |
| TP314 | 8.5 | 1.9 | 1.0 | 7.5 |
| TP315 | 8.0 | 1.9 | 1.1 | 6.9 |
| TP316 | 11.3 | 1.8 | 1.4 | 9.9 |
| TP317 | 9.1 | 1.0 | 0.5 | 8.6 |
| TP318 | 9.3 | 1.1 | 0.7 | 8.6 |
| TP319 | 8.9 | 1.4 | 0.9 | 8.0 |
| TP320 | 10.1 | 1.6 | 1.1 | 9.0 |
| TP321 | 11.0 | 1.8 | 1.5 | 9.5 |
| TP322 | 11.6 | 2.0 | 1.5 | 10.1 |

*Locations surveyed in by Davis Ogilvie on 4 March 2018
TP323 and TP324 were added at the time of investigation and were shallow Test Pits where no groundwater was encountered and no survey data is available

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| Table 5: Summary of Groundwater Levels<br>Measured April 2018 to July 2018 (level logger data summary) | | | | | |
|---|---|---|---|---|---|
| **Test Location** | **Ground Level*** | **Base GWL (RL)** | **Average Base GWL (m bgl)** | **Peak GWL (RL)** | **GWL range (m bgl)** |
| BH4 | 9.35 | 8.3 - 8.4 | 0.95 | 8.7 | 0.65 - 1.05 |
| BH5 | 11.20 | 8.9 – 9.1 | 2.1 – 2.3 | 9.5 | 1.7 – 2.3 |
| BH6 | 6.85 | 5.8 | 1.05 | 6.5 | 0.35 – 1.05 |
| BH7 | 8.07 | 7.65 | 0.4 | 7.9 | 0.2 – 0.4 |
| *Locations surveyed in by Davis Ogilvie on 2 May 2018 | | | | | |

### 7.5.2 Test pit and borehole groundwater levels

At the time of the test pitting and borehole drilling groundwater levels were measured in meters below existing ground level (EGL) as given in Table 5 attached. Relative groundwater levels are also given in Table 4 (relative datum NZVD_2016).

Particularly shallow groundwater was encountered in the vicinity of TP317 which is considered to be associated with a nearby spring and historical buried channel. Groundwater at this location was observed with a high flow velocity and hydraulic gradient towards the north-east (high groundwater flows were observed to enter the south-western wall of the test pit).

## 7.6 Ground Bearing Capacity

The DCP results collected adjacent to each test pit are given in Table 2 above and have been compared against the requirements of 'Good Ground' as defined in NZS 3604:2011. In summary at this stage 'Good Ground' or an ultimate bearing capacity of 300 kPa is generally available below the topsoil. Some localised areas will need stripping down to varying depths largely associated with the presence of silty and / or organic material as discussed above (Alluvial deposits / buried channels.

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# 8.0 RMA Hazard Assessment

With respect to Resource management Act (RMA) Section 106, natural hazards to be assessed for this site are discussed in the following sections.

## 8.1 Erosion

Due to the setback imposed by the reserve area between Borck Creek and the eastern boundary of the site the proposed allotments are unlikely to be subject to erosion associated with Borck Creek flows.

## 8.2 Falling Debris

There are no sources of falling debris at the site and the proposed allotments are unlikely to be subject to inundation by falling debris.

## 8.3 Subsidence

Generally, ground conditions encountered during the ground investigation comprised non-compressible medium dense Appleby Gravels which are not considered compressive under normal residential structural loading. The risk from ground subsidence and differential settlement through static loading is therefore considered unlikely.

At the time of preparing this report the Institute of Geological and Nuclear Sciences (GNS) active faults database[13] did not identify the presence of any active faults beneath the subject site and as such the site is not considered to be at risk from subsidence resulting from fault rupture.
The potential for subsidence due to liquefaction is discussed below.

### 8.3.1 Liquefaction

An area wide SPT based liquefaction hazard assessment has been performed by Davis Ogilvie[14]. Design earthquakes scenarios assessed are the Serviceability Limit State (25 year return period, SLS); the Ultimate Limit State scenario (500 year return period, ULS) and a 1/100 year event for infrastructure (25 year return period).

Seismic design peak ground accelerations (PGAs) for these scenarios have been calculated following the procedure from the NZTA Bridge Manual[15] as recommended by the current MBIE and NZGS Guidelines[16].

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[13] https://data.gns.cri.nz/af/ accessed 17/08/18
[14] Davis Ogilvie internal document – Richmond West Area Wide Liquefaction Assessment (based on BH01 to BH07 with reference to site specific BH04 to BH07 results).
[15] NZTA Bridge Manual, Third Edition, Amendment 2, effective May 2016
[16] Earthquake geotechnical engineering practise, Module 1: Overview of the Guidelines; MBIE and NZGS, March 2016 and Earthquake geotechnical engineering practice – Module 3 Identification, assessment and mitigation of liquefaction hazards. Published by MBIE and NZGS dated May 2016

A 'Class C' Subsoil Site as defined in NZS 1170.5: 2004 has conservatively been adopted in the design. Structures have been assumed to be an IL2 structure as defined by NZS 1170 Table 3.2[17]. Effective magnitude ($M_w$) values have been derived from the NZTA Bridge Manual considering each earthquake return period.

The following design PGAs and moment magnitudes have been adopted:

| | | | |
|---|---|---|---|
| **SLS** | **0.11g** | **Mw** | **6.0** |
| **ULS** | **0.45g** | **Mw** | **6.0** |
| **1/100** | **0.11g** | **Mw** | **6.0** |

The results of the assessment for the boreholes within the site (BH04 to BH07) are in accordance with a liquefaction performance level of L1 (mild)[18] under SLS seismic loading. General performance levels of L1 deposits are characterised as:

*'Limited excess pore water pressures, negligible deformation of the ground and small settlements',*

The risk from ground subsidence and differential settlement through seismically induced loading is therefore considered unlikely.

### 8.3.2 Lateral Spreading

Due to the setback imposed by the reserve area along the margin of Borck Creek (~15 to 50 m Council reserve) the proposed allotments are considered unlikely to be subject to lateral spreading.

## 8.4 Slippage

Due to the relatively level topography of the site the proposed allotments are unlikely to be subject to slippage.

## 8.5 Inundation

The site at its north-eastern end is located approximately 1.0 km from the shoreline of the Waimea Inlet. The effects of inundation by sea-level rise is considered beyond the scope of this report and should be assessed on an area wide level in accordance with the latest Ministry for the Environment guidance[19] with recommended finished floor levels determined by Tasman District Council.

It is understood that the effects of the development on storm-water flows and potential flooding is being assessed by others[20].

[17] NZS1170.5: 2004; Structural Design Actions – Part 5: Earthquake Actions
[18] Earthquake geotechnical engineering practice – Module 3 Identification, assessment and mitigation of liquefaction hazards. Published by MBIE and NZGS dated May 2016 Table 5.1.
[19] Ministry for the Environment; December 2017: Coastal Hazards and Climate Change
[20] Land & River Ltd



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### 8.6 Subsequent Use

Proposed changes to the land includes the development of residential housing. Such development is considered unlikely to adversely affect or worsen the site's susceptibility to material damage.

The effect on neighbouring land with regard to storm water flow increases is being assessed by others.

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# 9.0 Earthworks Considerations

The following has been prepared based on the information summarised in the preceding sections to assist contractors in pricing the construction works required to form the final subdivision. These items also apply to the excavation required to install services across the subdivision.

To enable fill certification for the site to be issued the following considerations must be adopted during the earthworks.

## 9.1 Inspection

Prior to placing engineered fill the stripped surface must be inspected by a suitably qualified engineering geologist or geotechnical engineer (consulting engineer) to ensure that all topsoil, non-engineered fill, alluvium, organic material including tree roots, identified soft spots and infilled buried channels are removed.

## 9.2 Over-excavation

It is expected that areas of over-excavation will be required where buried channels / historical shelter belts / drainage channels / ponds exist across the site. It is expected that most undercut material will be unsuitable for re-use as engineered fill due to its high organic content and / or soft, plastic nature. Gravelly silts cut out from the road alignment may be suitable for re-use at the supervising engineer's discretion.

**Historical Buried Channels / Storm-water Drainage Channels / Pond**

Test pitting and DCP test results as given in Table 2 indicate there are areas which will need over-excavation and removal of alluvium and other identified soft spots in historical channels or undesirable site features such as drainage channels and ponds.

Drawing G01A attached gives an approximate location of anticipated areas which may require over-excavation. It should be noted that these are indicative only and the final volume of undercutting is dependent on the actual site conditions uncovered during the earthworks.

Experience on previous sites in the area indicates that shallow perched groundwater can be associated with buried channel features. Depressions such as drainage channels and ponds are also likely to be below ground-water levels.

Remediation of such site features is anticipated to require removal of all organic / soft material and backfilling with compacted engineered fill. Rock or coarse no fines backfill may be required in the base of the excavation below the water level to enable filling above. A layer of compacted AP40 and then AP20 should be placed over the rock to provide a smooth surface for placement of a heavy gauge filter fabric at the base of the engineered fill. The filter fabric is required to prevent future fines migration. This is subject to specific investigation by a supervising engineer.

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**Historical Shelter Belts**

Where organic material is encountered it will require removal and replacement with compacted engineered fill.

Tree roots associated with historical shelter belts are anticipated to require undercutting. The location of the historical shelter belts are shown on the attached plan (Drawing G01A dated April 2018).

TP307 at the location of a present-day shelter belt identified the presence of tree roots (approximately 10 – 15% of soil composition) to 1.1 m depth, however, TP305 and TP312 at the location of historical shelter belts contained no organic material. The depth and presence of tree roots in the vicinity of the shelter belt locations are therefore likely to be variable but provision for removal of these is recommended.

Tree roots associated with the current fruit trees and saplings will also be present in the upper surface layers and will also require removal during earthworks.

## 9.3 Disused Services and Existing Structures

It is likely that historical buried site drainage and irrigation lines will be uncovered during the site strip, these should be excavated out and replaced with compacted fill.

According to TDC records four water wells are located on the site. Any wells to be decommissioned as part of the earthworks must be to an appropriate standard such as NZS 4411:2001[21].

Foundations and hard standing areas associated with the existing sheds will require excavation and removal as part of the site earthworks. Approximately three drop toilets are located on site. The underground chamber for the toilets will need to be excavated out and disposed of in a suitable controlled fashion and the excavation backfilled with compacted fill.

## 9.4 Road Pavement Construction

No site specific CBR laboratory samples or scala penetrometers have been collected along the road alignments as the road alignment plans were still conceptual at the time of the investigation. This should be undertaken to aid in the pavement design.

Experience from neighbouring subdivisions indicates that sub-grade comprising silts and / or gravelly silts are sensitive to wetting with a marked decrease in strength. This has led to additional undercutting and replacement with compacted imported fill (up to original sub-grade level) or replacement with AP65 or replacement with AP65 as part of the pavement construction.

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[21] NZS 4431: 1989 Code of Practise for Earth Fill for Residential Development

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## 9.5 Engineered Fill

Placement and compaction of fill must be to the requirements of NZS 4431:1989 and the site-specific Earthworks Specification. Davis Ogilvie should be given the opportunity to review the earthworks specification prior to earthworks commencing.

At the time of writing the source of fill material was unknown. Any imported fill will require standard or vibratory hammer compaction curves (depending on the fill type). Particle size analysis and particle density testing is also recommended to assist in the in-situ NDM validation testing.

Fill validation must have sufficient Nuclear Densometers (NDM's) to the testing frequency given in the Earthworks Specification. Fill compaction may be validated with a scala penetrometer at the consulting engineers discretion. On areas of imported compacted material such as AP65 or AP40 a Clegg Hammer can be used to validate compaction.

Experience from the neighbouring subdivision is that the natural moisture content from material locally excavated below the groundwater is greater than the optimum moisture content required to achieve the maximum dry density. In these instances fill must be conditioned and dried out prior to placement. Bulk filling during summer months is recommended to expedite this drying.

Where groundwater is shallow; in the vicinity of TP318 and the spring, the underlying material may be prone to minor liquefaction upon vibration from a dynamic roller thereby precluding fill placement. These areas will require likely require placement of fill under static rolling only. The consulting engineer must be informed and a suitable remedial solution sought.

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## 10.0 Conclusion

- Earthworks are anticipated to require removal of soft, plastic silts and material with a high organic content and disused buried services. Earthworks are required in accordance with NZS 4431:1989 and the site-specific Earthworks Specification.

- Following completion of the recommended earthworks and on confirmation of required finished floor levels the area assessed and described herein contains geotechnically feasible residential building platforms which are unlikely to be subject to hazards under Section 106 of the RMA.

- Specific development conditions for each allotment will be required to be determined following completion of the subdivision earthworks.

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## Appendix A

Site Plan G01 A – Geotechnical Test Location plan and site features

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Test locations are approximate (scaled and aligned using aerial imagery).
Aerial image obtained from LINZ (dated 2012 - 2013).
Boundaries are taken from Quickmap.

0m 50m 100m 200m 300m 400m 500m
Scale 1:5000

| issue | date | reason | approved |
|---|---|---|---|
| A | 04/18 | Geotechnical Report Diagram | BH |

CAD ref: 20180528.KT.siteplan.dwg

DAVIS OGILVIE
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Christchurch, Timaru, Greymouth

# Geotechnical Test Location Plan & Site Features
## The Meadows Subdivision, Richmond
## LOT 2 DP 467 493; SEC 9, SEC 12, SC 13 & SEC 16 of SO 455144

| design | drawn | QA check | dwg | issue |
|---|---|---|---|---|
| BH | KT | BH | G01 | A |
| scale @ A3 | date | file | | |
| 1:5000 | 05/18 | 37435 | | |

# Appendix B

Davis Ogilvie Test pit logs (TP301 – TP324)

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DAVIS OGILVIE
Davis Ogilvie & Partners Limited
1st Floor, 277 Hardy Street, Nelson 7010
Office 0800 999 333 Email nelson@do.co.nz
www.do.co.nz

# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP301**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 06/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 8:00 AM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 9.3m RL | **Width:** 0.9 | **Length:** 1.4 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm TP301 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | Gravelly SILT with roots; dark brown. Moist [0.40m] | TS | TOPSOIL | | M | | | | 0.0 |
| 0.5 | Silty GRAVEL; grey brown, fine to coarse with some cobbles, sub-rounded to sub-angular, slightly weathered.Dense to very dense. Silt; medium to high plasticity. Moist to wet [1.00m]<br>0.6m: with orange mottling<br>0.8m: with a partly decomposed tree root (~150mm length) | | APPLEBY GRAVEL | 07/03/2018 | W | D-VD | 14 25 | | 0.5 |
| 1.0 | Test Pit terminated at 1.40m - | | | | | | | | 1.0 |
| 1.5 | | | | | | | | | 1.5 |

**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:** Side-wall collapse below 0.5 m

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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Produced with Core-GS by Geroc

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Davis Ogilvie & Partners Limited
1st Floor, 277 Hardy Street, Nelson 7010
Office 0800 999 333 Email nelson@do.co.nz
www.do.co.nz

# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP302**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 06/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 9:00 AM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 8.5m RL | **Width:** 0.8 | **Length:** 2.2 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm TP302 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | Gravelly SILT with fine roots; grey / brown. Moist [0.30m] | TS | TOPSOIL | | M | | | | |
| 0.5 | Silty GRAVEL; grey / brown, fine to coarse, sub-angular to sub-rounded, slightly weathered. Medium dense to very dense. Silt; medium plasticity. Moist to wet [1.10m] | | APPLEBY GRAVEL | 06/03/2018 | M-W | MD-VD | 11 | | 0.5 |
| 1.0 | 1.1m: bcoming orang brown with some sub-rounded cobbles and boulders | | | | | | 13 18 15 15 19 | | 1.0 |
| | Test Pit terminated at 1.40m - | | | | | | | | |
| 1.5 | | | | | | | | | 1.5 |

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**Logged By:** BH
**Plotted By:** BH
**Checked By:** AS

**Notes:** Pit terminated due to side wall collapse below groundwater

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

Produced with Core-GS by Geroc

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www.do.co.nz

# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP303**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 06/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 10:00 AM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 7.8m RL | **Width:** 0.8 | **Length:** 2.1 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm TP303 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | Gravelly SILT; dark brown. Moist [0.30m] | TS | TOPSOIL | | M | | | | |
| 0.5 | Silty GRAVEL with trace organics; grey / brown, fine to coarse, sub-angular to sub-rounded, slightly weathered. Medium dense to dense. Silt; medium plasticity. Organics; roots ~ 300mm x 100mm <5%. Moist to wet [0.70m] | | APPLEBY GRAVEL | 06/03/2018 | M-W | MD-D | | | 0.5 |
| 1.0 | with some organics; blue / grey, fine to cobbles, sub-rounded to sub-angular. Very dense. Organics; roots and rootlets ~ 20%. Wet [0.30m] | | | | | | 23 | | 1.0 |
| | becoming brown, organics absent. Very dense. Wet [0.50m] | | | | W | VD | | | |
| 1.5 | Test Pit terminated at 1.80m - | | | | | | | | 1.5 |

Tasman District Council / AlphaOne Multiproof Approval – 107

**Logged By:** BH
**Plotted By:** BH
**Checked By:** AS

**Notes:** Pit terminated due to side wall collapse below groundwater

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

Produced with Core-GS by Geroc

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP304**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 06/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 11:00 AM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 6.3m RL | **Width:** 0.8 | **Length:** 2.3 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm — TP304 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | Gravelly SILT; dark brown. Moist [0.30m] | TS | TOPSOIL | | M | | | | |
| 0.5 | Silty GRAVEL; grey brown, fine to coarse with some cobbles, sub-rounded to sub-angular, slightly weathered. Dense. Trace fine rootlets. Moist to wet [1.40m] | | APPLEBY GRAVEL | 06/03/2018 | | | 19 15 18 14 | | 0.5 |
| 1.0 | 0.9m: becoming orange / brown, trace boulders and some roots ~ 20 mm diameter | | | | M-W | D | | | 1.0 |
| 1.5 | 1.2m: becoming blue / grey | | | | | | | | 1.5 |
| | Test Pit terminated at 1.70m - | | | | | | | | |

Tasman District Council / AlphaOne Multiproof Approval – 107

**Logged By:** BH
**Plotted By:** BH
**Checked By:** AS

**Notes:** Minor side-wall collapse below 1.0

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP305**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 06/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 12:00 PM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 10.2m RL | **Width:** 1.1 | **Length:** 3.3 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm — TP305 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | Silty GRAVEL with rootlets, dark brown. Moist [0.40m] | TS | TOPSOIL | | -M | | | | |
| 0.5 | Sandy, silty GRAVEL; grey / brown, fine to coarse with some cobbles, sub-rounded to sub-angular, slightly weathered. Dense to very dense. Silt; medium to high plasticity. Sand; medium to coarse grained. Moist to wet [1.10m] | | APPLEBY GRAVEL | 07/03/2018 | M-W | D-VD | 18 / 15 / 13 | | 0.5 |
| 1.0 | | | | | | | | | 1.0 |
| 1.5 | Test Pit terminated at 1.50m - | | | | | | | | 1.5 |

Tasman District Council / AlphaOne Multiproof Approval – 107

**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:** Minor side-wall collapse below 1.3 m

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job Nº / **NN37435**
Test Nº / **TP306**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 06/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 1:00 PM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 8.8m RL | **Width:** 1 | **Length:** 2.2 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm — TP306 (1 2 3 4 5 6 7 8 9) | | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gravelly SILT with rootlets; dark brown. Moist [0.30m] | TS | TOPSOIL | | M | | | | | |
| 0.5 | Silty GRAVEL; brown, fine to coarse, sub-angular to sub-rounded, slightly weathered. Dense to very dense. Silt; medium plasticity. Moist to wet [1.20m] | | APPLEBY GRAVEL | 06/03/2018 | M-W | D-VD | | 15 | | 0.5 |
| | 0.5m: with some fine rootlets | | | | | | | 11 | | |
| | | | | | | | | 15 | | |
| | 0.8m: becoming orange / brown and cobbly, with some boulders (sub-rounded) | | | | | | | 11 | | |
| | | | | | | | | 14 | | |
| 1.0 | | | | | | | | 21 | | 1.0 |
| 1.5 | Test Pit terminated at 1.50m - | | | | | | | | | 1.5 |

Tasman District Council / AlphaOne Multiproof Approval – 107

**Logged By:** BH
**Plotted By:** BH
**Checked By:** AS

**Notes:** Pit terminated due to side wall collapse below groundwater

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP307**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 06/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 2:00 PM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 7.4m RL | **Width:** 1 | **Length:** 2.4 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm (TP307) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | SILT with pockets of organic silt; dark brown. Moist [0.40m] | TS | TOPSOIL | | M | | | | |
| 0.5 | Gravelly SILT with trace organics; grey, brown. Gravel; fine to coarse, sub-rounded to sub-angular, slightly weathered. Silt; low plasticity. Organics; roots / rootlets, 5 - 50mm, ~10%. Firm to Very Stiff. Moist to wet [0.70m] | | | | M-W | F-VSt | 11 12 | | 0.5 |
| 1.0 | 1.0m: becoming blue / grey with cobbles. Organics ~ 15% | | | 06/03/2018 | | | | | 1.0 |
| | Silty GRAVEL; blue / grey, fine to coarse, sub-angular to sub-rounded, slightly weathered. Dense. Silt; medium plasticity. Wet [0.90m] | | APPLEBY GRAVEL | | | | 13 13 11 | | |
| 1.5 | 1.4m: becoming brown with some cobbles and | | | | W | D | 11 13 15 | | 1.5 |
| | Test Pit terminated at 2.00m - | | | | | | | | |

Tasman District Council / AlphaOne Multiproof Approval – 107

| | | | |
|---|---|---|---|
| **Logged By:** | BH | **Notes:** | No side-wall collapse, minor frittering of gravels from side walls |
| **Plotted By:** | BH | | Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building. |
| **Checked By:** | AS | | |

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP308**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 06/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 3:00 PM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 6.9m RL | **Width:** 0.8 | **Length:** 2.3 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm — TP308 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | SILT with some gravels and rootlets; dark brown. Moist [0.40m] | | TOPSOIL | | M | | | | |
| 0.5 | Silty GRAVEL; grey brown with trace orange mottling. Fine to medium, sub-rounded to sub-angular, slightly weathered. Medium dense to very dense. Silt; low plasticity. Trace fine rootlets. Wet [1.40m] | | APPLEBY GRAVEL | 06/03/2018 | W | MD-VD | | | 0.5 |
| | 1.0m: Rootlets absent | | | | | | 12 | | |
| 1.0 | 1.1m: With some sub-rounded cobbles | | | | | | 17 | | 1.0 |
| | 1.2m: Becoming orange brown and saturated | | | | | | | | |
| 1.5 | 1.5m: Becoming blue / grey | | | | | | | | 1.5 |
| | Test Pit terminated at 1.80m - | | | | | | | | |

**Logged By:** BH
**Plotted By:** BH
**Checked By:** AS

**Notes:** Minor side-wall collaps e below 0.8 m

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

Tasman District Council / AlphaOne Multiproof Approval – 107

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP309**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 06/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 4:00 PM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 9.7m RL | **Width:** 0.9 | **Length:** 3.5 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm TP309 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | Gravelly SILT with some roots; dark brown. Moist [0.30m] | TS | TOPSOIL | | M | | | | |
| 0.5 | Sandy, silty GRAVEL; grey / brown, fine to coarse, sub-rounded to sub-angular, slightly weathered. Dense. Silt; medium to high plasticity. Sand; medium to coarse grained. Moist to wet [0.40m] | | APPLEBY GRAVEL | | | D | 11, 11 | | 0.5 |
| | Lense of SILT with some gravel; grey with orange mottling, medium plasticity. Moist to wet [0.10m] | | | | | St | | | |
| | 0.8m: Becoming wet | | | | | | | | |
| | [0.10m] | | | | | D | 17 | | |
| | Lense of SILT with some gravel; grey with orange mottling, medium plasticity. Wet [0.10m] | | | | | St | 15 | | |
| 1.0 | [0.70m] | | | | M-W | | 22 | | 1.0 |
| | | | | 07/03/2018 | | D | | | |
| | 1.5m: Becoming saturated | | | | | | | | |
| 1.5 | Test Pit terminated at 1.70m - | | | | | | | | 1.5 |

Tasman District Council / AlphaOne Multiproof Approval – 107

**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:** Side-wall collapse below 1.4 m

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job Nº / **NN37435**
Test Nº / **TP310**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 06/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 5:00 PM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 8.7m RL | **Width:** 1 | **Length:** 3.3 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm TP310 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | SILT with some gravel and rootlets, dark brown. Moist [0.20m] | TS | TOPSOIL | | M | | | | |
| | Gravelly SILT withn some sand; grey / brown, low plasticity. Gravel; fine to medium, sub-angular to sub-rounded, slightly weathered. Sand; fine to medium. Moist [0.20m] | | ALLUVIAL DEPOSITS | | | St | V 16 | | |
| 0.5 | Sandy GRAVEL with some silt; reddish brown, fine to medium, sub-rounded, slightly weathered. Medium dense. Sand; fine to medium. Wet [0.30m] | | | 06/03/2018 | W | MD | V 13<br>V 11 | | 0.5 |
| | Becoming gravelly SAND; greyish red / brown, fine to medium. Gravel; fine. Wet [0.20m] | | | | | | V 14 | | |
| | Sandy GRAVEL; greyish brown, fine to coarse with some cobbles, sub-rounded to sub-angular, slightly weathered. Dense. Wet [0.10m] | | BY GRAVE | | | D- | V 15 | | |
| 1.0 | Test Pit terminated at 1.00m - | | | | | | | | 1.0 |
| 1.5 | | | | | | | | | 1.5 |

Tasman District Council / AlphaOne Multiproof Approval – 107

**Logged By:** BH
**Plotted By:** BH
**Checked By:** AS

**Notes:**

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP311**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 07/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 8:00 AM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 7.9m RL | **Width:** 0.8 | **Length:** 2.1 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm — TP311 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | SILT with some gravel and rootlets; dark brown. Moist [0.30m] | TS | TOPSOIL | | M | St-VSt | | | |
| 0.5 | Gravelly SILT; grey brown, medium plasticity, stiff to very stiff. Gravel; fine to coarse, sub-rounded to sub-angular, slightly weathered. Moist [0.30m] | | APPLEBY GRAVEL | | | | | | 0.5 |
| | Silty GRAVEL with some organics; blue / grey with orange mottling.Gravel; fine to coarse, sub-rounded to sub-angular, slightly weathered. Medium dense to dense. Organics; roots ~300 x 50mm, ~ 20%. Slight anoxic odour. Moist to wet [0.50m] | | | 06/03/2018 | M-W | MD-D | > 14<br>> 12 | | |
| 1.0 | Silty GRAVEL; grey / brown, fine to coarse with some cobbles, sub-rounded to sub-angular, slightly weathered. Very dense. Wet [0.30m] | | | | W | VD | > 13<br>> 21 | | 1.0 |
| | Test Pit terminated at 1.40m - | | | | | | | | |
| 1.5 | | | | | | | | | 1.5 |

**Logged By:** BH
**Plotted By:** BH
**Checked By:** AS

**Notes:** Pit terminated due to side wall collapse below groundwater

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP312**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 07/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 9:00 AM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 10.8m RL | **Width:** 0.9 | **Length:** 1.3 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm TP312 | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | Gravelly SILT with rootlets; dark brown. Moist [0.30m] | | TOPSOIL | | -M | | | | |
| 0.5 | Silty GRAVEL; orange / brown, fine to coarse with some cobbles, sub-angular to sub-rounded, slightly weathered. Medium dense to very dense. Silt; low plasticity. Moist to wet [1.10m] | | APPLEBY GRAVEL | | M-W | MD-VD | 11 / 15 / 22 | | 0.5 |
| 1.0 | Test Pit terminated at 1.40m - | | | 07/03/2018 | | | | | 1.0 |
| 1.5 | | | | | | | | | 1.5 |

Tasman District Council / AlphaOne Multiproof Approval – 107

**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:**

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP313**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 07/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 10:00 AM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 9.7m RL | **Width:** 0.9 | **Length:** 2.7 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm — TP313 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| 0 | SILT; dark black / brown [0.40m] | TS | TOPSOIL | | | | 11 | | 0 |
| 0.5 | Silty, sandy GRAVEL; grey / brown with some orange mottling, fine to coarse with some cobbles, sub-angular to sub-rounded, slightly weathered. Dense to very dense. Silt; medium to high plasticity. Sand; coarse. Moist [1.10m] | | APPLEBY GRAVEL | 07/03/2018 | M | D-VD | 22 | | 0.5 |
| 1.0 | | | | | | | 17 | | 1.0 |
| 1.5 | Test Pit terminated at 1.50m - | | | | | | 15 | | 1.5 |

Tasman District Council / AlphaOne Multiproof Approval – 107

**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:** Side wall collapse below 0.7 m

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP314**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 07/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 11:00 AM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 8.5m RL | **Width:** 0.9 | **Length:** 2.6 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm — TP314 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | Gravelly SILT with rootlets; dark brown. Moist [0.20m] | TS | TOPSOIL | | M | | | | |
| | Silty GRAVEL; grey brown with trace orange mottling. Fine to medium, sub-rounded to sub-angular, slightly weathered. Medium dense to dense. Silt, low plasticity. Trace fine rootlets. Moist [1.70m] | | APPLEBY GRAVEL | 06/03/2018 | M- | MD-D | | | |
| 0.5 | 0.7m: Becoming orange / brown, fine to coarse grained with some sub-rounded cobbles | | | | | | > 15 | | 0.5 |
| 1.0 | 1.2m: beecoming blue / grey. Fine to coarse grained | | | | | | > 16 | | 1.0 |
| 1.5 | Test Pit terminated at 1.90m - | | | | | | | | 1.5 |

Tasman District Council / AlphaOne Multiproof Approval – 107

**Logged By:** BH
**Plotted By:** BH
**Checked By:** AS

**Notes:** Side wall collapse below 0.6 m

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

Produced with Core-GS by Geroc

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP315**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 07/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 12:00 PM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 8.0m RL | **Width:** 1 | **Length:** 2.5 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm — TP315 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | Silty GRAVEL; dark brown with some roots. Moist [0.30m] | TS | TOPSOIL | | M | | | | |
| 0.5 | Silty GRAVEL; grey brown with trace orange mottling. Fine to coarse with some cobbles, sub-rounded to sub-angular, slightly weathered. Loose to medium dense. Silt, low plasticity. Moist to wet [0.80m] | | APPLEBY GRAVEL | 06/03/2018 | M-W | L-MD | | | 0.5 |
| 1.0 | 1.1m: Becoming orange/ brown with some organics; roots ~ 400 x 50mm, ~10%. Medium dense. Wet [0.30m] | | | | W- | | | | 1.0 |
| 1.5 | Becoming blue/ grey, organics absent. [0.50m] | | | | W | MD | | | 1.5 |
| | Test Pit terminated at 1.90m - | | | | | | | | |

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**Logged By:** BH
**Plotted By:** BH
**Checked By:** AS

**Notes:** Side wall collapse below 0.8 m

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP316**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 07/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 1:00 PM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 11.3m RL | **Width:** 1 | **Length:** 1.4 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm — TP316 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | Gravelly SILT with roots and rootlets; dark brown. Dry to moist [0.40m] | TS | TOPSOIL | | D-M | | | | 0.0 |
| 0.5 | Sandy SILT; orange brown, no plasticty. Stiff to very stiff. Sand; medium to coarse. Dry to moist [0.20m] | | ALLUVIUM | | | St-VSt | | | 0.5 |
| | Silty, sandy GRAVEL with some organics; dark grey / brown with some orange mottling, fine to coarse with trace cobbles, sub-angular to sub-rounded, slightly weathered. Dense to very dense. Organics; fine rootlets ~10%. Moist to wet [1.00m] | | APPLEBY GRAVEL | 07/03/2018 | M-W | D-VD | V 13; V 13; V 22 | | |
| 1.0 | 1.3m: with pocket of fine rootlets | | | | | | | | 1.0 |
| 1.5 | Test Pit terminated at 1.80m - | | | | | | | | 1.5 |

Tasman District Council / AlphaOne Multiproof Approval – 107

**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:** Side-wall collapse below 1.2 m

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP317**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 07/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 2:00 PM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 9.1m RL | **Width:** 0.8 | **Length:** 11.5 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm TP317 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| 0 | SILT; dark brown with roots and rootlets. Moist [0.30m] | TS | TOPSOIL FILL | | M | | | | 0 |
| | SILT; dark blackish brown. Moist [0.10m] | TS | TOPSOIL | | M- | | | | |
| 0.5 | SILT with trace gravel; grey brown with blue / orange mottling, high plasticity.Stiff to very stiff. Gravel; medium grained, sub-rounded, slightly weathered. Moist to wet [0.20m] | | ALLUVIAL DEPOSITS | 06/03/2018 | M-W | St-VSt | | | 0.5 |
| | Silty GRAVEL; brown, fine to coarse with some cobbles, sub-rounded to sub-angular, slightly weathered. Medium dense to very dense. Wet [0.20m] | | APPLEBY GRAVEL | | W | MD-VD | 14 / 20 | | |
| 1.0 | Test Pit terminated at 1.00m - | | | | | | | | 1.0 |
| 1.5 | | | | | | | | | 1.5 |

| | | | | |
|---|---|---|---|---|
| **Logged By:** | BH | **Notes:** | Trench - 11.5m wide through historical infilled channel. | Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building. |
| **Plotted By:** | BH | | Groundwater rapidly flowing in northern side of trench at 0.5 m depth. | |
| **Checked By:** | AS | | Channel partly infilled naturally and with topsoil fill. | |

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP318**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 07/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 3:00 PM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 9.3m RL | **Width:** 1.1 | **Length:** 11 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm — TP318 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| 0 | SILT; dark black / brown. Moist [0.30m] | TS | TOPSOIL | | M | | | | 0 |
| 0.5 | SILT with some organics and trace gravel; dark brown. Medium plasticity. Stiff to very stiff. Moist to wet [0.50m] | | TOPSOIL FILL | 07/03/2018 | M-W | S-VSt | | | 0.5 |
| 1.0 | Silty GRAVEL; grey with orange mottling, medium to coarse grained with some cobbles, slightly weathered. Medium dense to very dense. Wet [0.30m] | | APPLEBY GRAVEL | | W | MD-VD | | | 1.0 |
| | Test Pit terminated at 1.10m - | | | | | | | | |
| 1.5 | | | | | | | V 16 | | 1.5 |
| | | | | | | | V 13 | | |
| | | | | | | | V 13 | | |
| | | | | | | | V 15 | | |
| | | | | | | | V 12 | | |
| | | | | | | | V 13 | | |
| | | | | | | | V 18 | | |

**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:**

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP319**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 07/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 4:00 PM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 8.9m RL | **Width:** 1 | **Length:** 2.4 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm TP319 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| 0 | Gravelly SILT; dark brown with rootlets. Moist [0.30m] | TS | TOPSOIL | | M | | | | 0 |
| 0.5 | Silty GRAVEL; grey / brown, fine to coarse, sub-angular to sub-rounded, slightly weathered. Dense to very dense. Silt; low plasticity. Moist to wet [1.10m] | | APPLEBY GRAVEL | 07/03/2018 | M-W | D-VD | 11 17 22 24 | | 0.5 |
| | 0.6m: Becoming wet with some cobbles | | | | | | | | |
| 1.0 | Test Pit terminated at 1.40m - | | | | | | | | 1.0 |
| 1.5 | | | | | | | | | 1.5 |

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**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:** Side-wall collapse below 0.9m infilling pit

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP320**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 07/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 5:00 PM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 10.1m RL | **Width:** 1 | **Length:** 2.7 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm TP320 (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | Gravelly SILT; dark brown with some roots. Moist [0.30m] | TS | TOPSOIL | | M | | | | |
| | SILT; orange / brown, medium to high plasticity. Stiff. Moist [0.20m] | | ALLUVIUM | | | St | V 13 | | |
| 0.5 | Silty GRAVEL; brown, fine to coarse with some cobbles and boulders, sub-rounded to sub-angular, slightly weathered. Dense to very dense. Silt; medium to high plasticity. Moist to wet [1.10m] | | APPLEBY GRAVEL | 07/03/2018 | M-W | D-VD | V 20 | | 0.5 |
| 1.0 | | | | | | | | | 1.0 |
| 1.5 | Test Pit terminated at 1.60m - | | | | | | | | 1.5 |

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**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:** Side-wall collapse below 0.3 m

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP321**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 08/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 8:00 AM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 11.0m RL | **Width:** 0.9 | **Length:** 2.7 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm — TP321 (1 2 3 4 5 6 7 8 9) | | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|---|
| | SILT; dark brown / black, with some roots. Moist [0.30m] | TS | TOPSOIL | | | | > | 12 | | |
| 0.5 | Silty GRAVEL; orange / grey brown, fine to coarse with trace cobbles, sub-rounded to sub-angular, slightly weathered. Dense to very dense. Silt; no to low plasticity. Moist [0.70m] | | APPLEBY GRAVEL | | M | D-VD | > | 11 | | 0.5 |
| | | | | | | | > | 20 | | |
| 1.0 | Becoming sandy with some cobbles and trace boulders, dark brown. Moist to wet [0.80m] | | | 07/03/2018 | M-W | VD | | | | 1.0 |
| 1.5 | Test Pit terminated at 1.80m - | | | | | | | | | 1.5 |

**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:** Side-wall collapse below 1.4 m

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP322**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 08/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 9:00 AM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** 11.6m RL | **Width:** 1 | **Length:** 3 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm — TP322 (1 2 3 4 5 6 7 8 9) | | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gravelly SILT with some rootlets; dark brown. Dry to moist [0.30m] | TS | TOPSOIL | | D-M | | | | | |
| | Silty GRAVEL with trace fine rootlets; orange brown, fine to coarse with some cobbles, sub-rounded to sub-angular, slightly weathered. Dense to very dense. Silt; no to low plasticity. Moist to wet [1.70m] | | APPLEBY GRAVEL | | | | | | | |
| 0.5 | | | | | | | | 12 | | 0.5 |
| | | | | | | | | 11 | | |
| | | | | | | | | 22 | | |
| | 0.7m: becoming grey / brown and sandy. Rootlets absent | | | | | | | 30 | | |
| 1.0 | | | | | M-W | D-VD | | | | 1.0 |
| | 1.3m: becoming dark grey / brown, wet | | | 07/03/2018 | | | | | | |
| 1.5 | | | | | | | | | | 1.5 |
| | Test Pit terminated at 2.00m - | | | | | | | | | |

**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:** Side-wall collapse below 1.4 m

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP323**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 07/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 9:00 AM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | **Elevation:** - | **Width:** 1.1 | **Length:** 12 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | SILT with organics; dark brown. Moist [0.40m] | TS | TOPSOIL | Groundwater Not Encountered | M | | | | |
| 0.5 | Sandy, silty GRAVEL; light grey / brown, fine to coarse with some cobbles, sub-angular to sub-rounded, slightly weathered. Dry [0.20m] | | APPLEBY GRAVEL | | D | | | | 0.5 |
| | Test Pit terminated at 0.60m - | | | | | | | | |
| 1.0 | | | | | | | | | 1.0 |
| 1.5 | | | | | | | | | 1.5 |

Tasman District Council / AlphaOne Multiproof Approval – 107

**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:** Trench to prove extent of shallow fill / silt in adjacent pits

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# SHALLOW INVESTIGATION RESULTS

Job N° / **NN37435**
Test N° / **TP324**

| | | | |
|---|---|---|---|
| **Project:** | The Meadows | **Date:** | 08/03/18 |
| **Client:** | Richmond West Development Company Ltd | **Time:** | 10:00 AM |
| **Test Location:** | Refer plan G01A | **Excavation Method:** | 10 T Excavator |
| **Coordinates:** | | **Elevation:** - | **Width:** 1.1 **Length:** 15 |

| DEPTH (m) | STRATA DESCRIPTION | Graphic Log | Geology / Unit | Water Table | Moisture Condition | Consistency / Density | BLOWS / 100 mm (1 2 3 4 5 6 7 8 9) | SHEAR VANE / LAB SAMPLES | DEPTH (m) |
|---|---|---|---|---|---|---|---|---|---|
| | SILT with some gravel and roots. Moist [0.40m] | TS | TOPSOIL | Groundwater Not Encountered | M | | | | |
| 0.5 | Gravelly SILT / Silty GRAVEL with organics; large tree roots ~ 10%. Moist to wet [0.20m] | | ALLUVIUM | | | | | | 0.5 |
| | Sandy, silty GRAVEL; orange / brown, fine to coarse, sub -angular to sub-rounded, slightly weathered. Moist to wet [0.50m] | | APPLEBY GRAVEL | | M-W | | | | |
| 1.0 | Test Pit terminated at 1.10m - | | | | | | | | 1.0 |
| 1.5 | | | | | | | | | 1.5 |

Tasman District Council / AlphaOne Multiproof Approval – 107

**Logged By:** HB
**Plotted By:** BH
**Checked By:** AS

**Notes:** Trench to prove extent of organic / silt deposits in burried channel

Dynamic Penetrometer and Test Bore log tests give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

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# Appendix C

Davis Ogilvie Boreholes (BH04 – BH07)

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CWDRILL

# WELL NUMBER BH04

PAGE 1 OF 1

**CLIENT** Davis Olgvie Ltd
**PROJECT NAME** Richmond Weste Geotech
**PROJECT NUMBER** BH04
**PROJECT LOCATION** 99 McShane Road Richmond

**DATE STARTED** 28/3/18 **COMPLETED** 29/3/18 **GROUND ELEVATION** _____ **HOLE SIZE** 115/40mm
**DRILLING CONTRACTOR** CW Drilling **GROUND WATER LEVELS:**
**DRILLING METHOD** Concentrics **AT TIME OF DRILLING** ---
**LOGGED BY** Darryl Keown **CHECKED BY** James Chapman **AT END OF DRILLING** 0.90 m
**NOTES** Geotech Bore, Monitoring well installed **AFTER DRILLING** ---

| DEPTH (m) | SAMPLE TYPE NUMBER | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | WELL DIAGRAM |
|---|---|---|---|---|---|
| | | Steel upstand toby installed at surface | | 0.30 Dark brown silt/topsoil | 40mm pn12 upvc blank pipe |
| | | SPT@1.0m, 5,7,7,4,5,4 | | Grey, well sorted sandy Gravels | Bentonite/cement to surface |
| 2 | | SPT@2.0m, 2,4,4,7,7,6 | | 2.00 Light brown, well sorted Gravels, silty matrix, water bearing | 40mm machine slotted upvc wellscreen Walton park washed Gravels |
| | | SPT@3.0m, 3,5,7,8,9,7 | | | |
| 4 | | SPT@4.0m, 4,5,5,10,8,7 | | | |
| | | SPT@5.0m, 4,5,6,7,7,8 | | 5.00 Light brown well sorted clayey Gravels | Bentonite seal |
| 6 | | SPT@6.5m, 1,5,11,11,11,10 | | | |
| 8 | | SPT@8.0m, 5,5,6,8,8,9 | | 8.00 Grey, well sorted sandy Gravels saturated | |
| | | SPT@9.5m, 13,16,12,15,19,6 refusal 50mm remaining | | | Natural pack backfill |
| 10 | | SPT@11.0m, 6,9,17,13,15,5 refusal 35mm remaining | | | |
| 12 | | SPT@12.5m, 7,12,13,18,14,13 | | | |
| 14 | | SPT@14.0m, 5,6,6,10,13,14 | | 14.00 Light brown well sorted gravels, clay matrix | |
| | | SPT@15.0m, 4,6,11,7,10,19 | | 15.00 Bottom of hole at 15.00 m. | |

GENERAL BH / TP / WELL DAVIS OLGVIE 99 MCSHANES ROAD BH04.GPJ CW DRILLING.GDT 5/4/18

Tasman District Council / AlphaOne Multiproof Approval 107

CWDRILL

# WELL NUMBER BH05

PAGE 1 OF 1

**CLIENT** Davis Olgvie Ltd
**PROJECT NAME** Richmond West Geotech
**PROJECT NUMBER** BH05
**PROJECT LOCATION** 99 McShane Road Richmond

**DATE STARTED** 3/4/18 **COMPLETED** 4/4/18 **GROUND ELEVATION** _____ **HOLE SIZE** 115/40mm
**DRILLING CONTRACTOR** CW Drilling **GROUND WATER LEVELS:**
**DRILLING METHOD** Concentrics **AT TIME OF DRILLING** ---
**LOGGED BY** Darryl Keown **CHECKED BY** James Chapman **AT END OF DRILLING** 2.70 m
**NOTES** Geotech Bore, monitoring well installed **AFTER DRILLING** ---

| DEPTH (m) | SAMPLE TYPE NUMBER | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | WELL DIAGRAM |
|---|---|---|---|---|---|
| | | Steel upstand toby installed at surface | | Brown well sorted sandy gravels, some silts | 40mm blank upvc pipe to surface; Bentonite cement |
| | | SPT@1.0m, 6,5,5,4,4,4 | | | |
| 2 | | SPT@2.0m, 3,2,2,2,2,3 | | 2.00 | |
| | | | | Light brown well sorted gravels, sandy silty matrix water bearing | Walton park washed gravels 40mm Machine slotted wellscreen |
| | | SPT@3.0m, 5,4,7,6,6,5 | | | |
| 4 | | SPT@4.0m, 5,6,11,10,9,9 | | | |
| | | SPT@5.0m, 5,8,8,7,7,8 | | 5.00 | Bentonite seal |
| | | | | Brown well sorted gravels, clayey matrix | |
| 6 | | SPT@6.5m, 5,9,12,11,10,10 | | | |
| 8 | | SPT@8.0m, 5,9,10,12,11,10 | | | |
| | | SPT@9.5m, 6,13,19,24,7 refusal 125mm remaining | | | Natural pack backfill |
| 10 | | | | | |
| | | SPT@11.0m, 6,9,12,14,13,10 | | | |
| 12 | | SPT@12.5m, 13,12,23,23,4 refusal 130mm remaining | | | |
| 14 | | SPT@14.0m, 6,7,7,7,8,18,11 | | | |
| | | SPT@15.0m, 4,10,13,10,11,14 | | 15.00 | |
| | | | | Bottom of hole at 15.00 m. | |

GENERAL BH / TP / WELL DAVIS OLGVIE 99 MCSHANE ROAD BH05.GPJ CW DRILLING.GDT 5/4/18

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# WELL NUMBER BH06

PAGE 1 OF 1

CWDRILL

**CLIENT** Davis Olgvie **PROJECT NAME** Richmond West Geotech

**PROJECT NUMBER** BH06 **PROJECT LOCATION** 99 McShane Road Richmond

**DATE STARTED** 26/3/18 **COMPLETED** 26/3/18 **GROUND ELEVATION** _____ **HOLE SIZE** 115/40mm

**DRILLING CONTRACTOR** CW Drilling **GROUND WATER LEVELS:**

**DRILLING METHOD** Concentrics **AT TIME OF DRILLING** 1.40 m

**LOGGED BY** Darryl Keown **CHECKED BY** James Chapman **AT END OF DRILLING** ---

**NOTES** Geotech bore, monitoring well installed **AFTER DRILLING** ---

| DEPTH (m) | SAMPLE TYPE NUMBER | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | WELL DIAGRAM |
|---|---|---|---|---|---|
| | | Steel upstand toby installed at surface | | Grey, well sorted sandy Gravels | 40mm PN12 upvc blank pipe<br>Bentonite cement |
| | | | | 0.60 | |
| | | SPT@1.0m, 2,3,4,5,4,4 | | Light brown, well sorted Gravels, silty clay matrix water bearing 1.5-15m | |
| 2 | | SPT@2.0m, 2,3,4,4,6,5 | | | Machine slotted wellscreen<br>Walton park washed gravels |
| | | SPT@3.0m, 5,8,7,6,6,7 | | | |
| 4 | | SPT@4.0m, 5,6,7,9,10,8 | | | Bentonite seal |
| | | SPT@5.0m, 6,6,6,3,2,1 | | | |
| 6 | | SPT@6.5m, 2,6,7,8,7,9 | | | |
| 8 | | SPT@8.0m, 7,12,14,11,11,11 | | | |
| | | SPT@9.5m, 7,13,16,16,13 refusal 75mm remaining | | | |
| 10 | | SPT@11.0m, 5,12,17,18,15 refusal 100mm remaining | | | Naturla pack backfill |
| 12 | | SPT@12.5m, 8,8,9,8,8,7 | | | |
| 14 | | SPT@14.0m, 7,7,6,10,13,20 | | | |
| | | SPT@15.0m, 11,13,21,16,14 refusal 135mm remaining | | 15.00 Bottom of hole at 15.00 m. | |

GENERAL BH / TP / WELL DAVIS OLGVIE 99 MCSHANE ROAD BH06.GPJ CW DRILLING.GDT 5/4/18

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CWDRILL

# WELL NUMBER BH07

PAGE 1 OF 1

**CLIENT** Davis Olgvie Ltd **PROJECT NAME** Richmond West Geotech

**PROJECT NUMBER** BH07 **PROJECT LOCATION** 99 McShane Road Richmond

**DATE STARTED** 28/3/18 **COMPLETED** 28/3/18 **GROUND ELEVATION** _____ **HOLE SIZE** 115/40mm

**DRILLING CONTRACTOR** CW Drilling **GROUND WATER LEVELS:**

**DRILLING METHOD** Cable Tool **AT TIME OF DRILLING** ---

**LOGGED BY** Darryl Keown **CHECKED BY** James Chapman **AT END OF DRILLING** 0.85 m

**NOTES** Geotech Bore monitoring well installed **AFTER DRILLING** ---

| DEPTH (m) | SAMPLE TYPE NUMBER | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | WELL DIAGRAM |
|---|---|---|---|---|---|
| | | Steel upstand toby installed at surface | | Bark brown silt/topsoil | 40mm blank upvc pipe to surface Bentonite/cement |
| | | | | 0.30 Grey, sandy Gravels | |
| 1 | | SPT@1.0m, 3,3,3,3,3,6 | | 1.00 Grey, well sorted sandy Gravels water bearing | |
| 2 | | SPT@2.0m, 3,4,4,3,4,4 | | | 40mm pn12 machine slotted upvc wellscreen Walton park washed Gravels |
| 3 | | SPT@4.0m, 5,5,6,5,5,7 | | | |
| 4 | | SPT@4.0m, 5,8,9,8,8,8 | | | Bentonite at bottom of hole |
| 5 | | SPT@5.0m, 6,6,7,7,7,8 | | 5.00 Bottom of hole at 5.00 m. | |

GENERAL BH / TP / WELL DAVIS OLGVIE LTD RICHMOND WEST GEOTECH BH07.GPJ CW DRILLING.GDT 5/4/18

Tasman District Council / AlphaOne Multiproof Approval - 107

# Appendix D

TDC well records 21005; 21016; 22272 and 20845

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# NEW ZEALAND WATER WELL DATA FORM

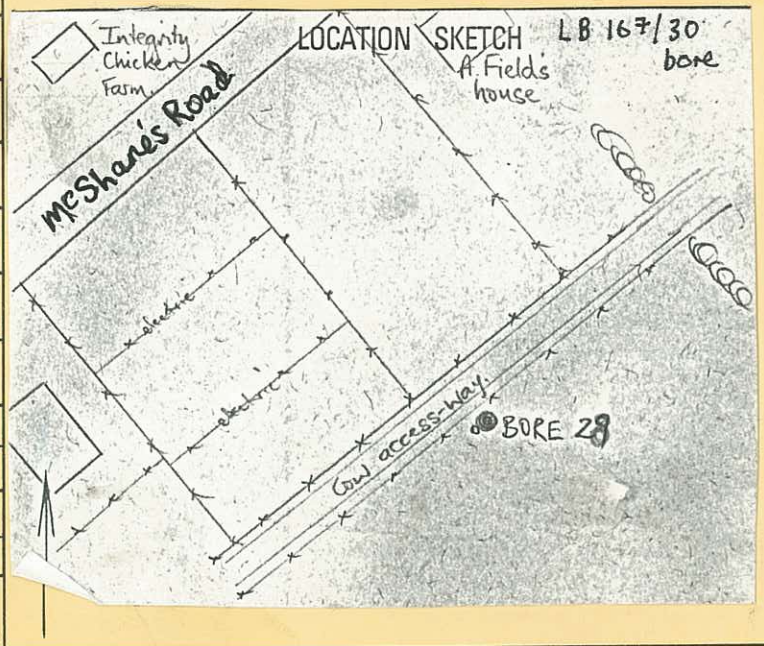
21005

(5215) 2357858O GPS 8/6/01 Trod
(2215) 2357858O

| | | | |
|---|---|---|---|
| SHEET No. (520) N27 3 | GRID REF (E) 8845931 2 11 | G.S. WELL No. W 28 15 | AREA central paddock next to A.S. F's house |
| CATCHMENT Waimea 16 | WATER AUTHORITY NEL N 17 | WATER USE IRR I 18 | PERMIT No. 690970 24 |

| | | | |
|---|---|---|---|
| Well depth (m) 34.1 28 | Measured / Reported | Well diameter (mm) 200 2 29 | Wellhead altitude (m) a.m.s.l. 10.38 33 |
| Yield (l/min) ~~m³/day~~ 1363.8 39 | Drawdown (m) 5.48 5.5 42 | Specific capacity (l/min/metre) ~~m³/day~~ 248 | |
| Driller A.M. Bisley & Co Ltd | Drilling date 640501 48 | Well status Drilled Screened A 49 | |
| Owner A.E. Field | Address McShane's Rd, RD Richmond. | | |
| Pump Type 21 H.P. Plunger Sub. 50 | Well Type Artesian B 51 | Type of development surging | |
| Screen Type Nold. | Slot sizes 4.76mm | Set at 28 - 34.1m A 52 | |
| Source of information on well location, log, etc driller | Date 790731 | | |

## LOCATION SKETCH




## STATIC WATER LEVELS (m below surface)

| HIGHEST | LOWEST | MEAN | RANGE | FREQUENCY OF MEASUREMENT 53 |
|---|---|---|---|---|
| | | 57 | | PERIOD OF MEASUREMENT 61 |

## AQUIFER CHARACTERISTICS

Transmissivity ($m^2$/day) 66 Storage coefficient 72 Water Temperature(°c) 73

Permeability (m/day) Specific yield

## TEST PUMPING / RECOVERY

| Drawdown (metres) | After time (min) | Residual Drawdown (m) | After Time (min) |
|---|---|---|---|
| | | | |

## REMARKS

Pump details:

Inlet diameter: 4"
outlet diameter: 4"
capacity details: 18,000 GPH
electric: direct drive
gate valve on discharge - no
irrigation type: rainbird 9/32" + 3/16"

Line details:

Pressure gauge - no
mainline diameter: 6"
sprinkler line diameter: 4" + 3"
Elevation 16m.
inspection plug rusted in.

E 2523571 N 5985808

## OTHER DATA

| | |
|---|---|
| Pump Test | 74 |
| Chemical Analysis | 75 |
| Geophysical Data | 76 |
| Lithological Log | 77 |
| Isotope Data | 78 |
| | 79 |
| | |
| Card Type | 80 |

Compiled by Date Checked by Date

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| REDUCED LEVEL IN METRES above+ below− m.s.l. | GRAPHIC LOG | DEPTH IN METRES Below ground surface | LITHOLOGY <=drillwater gain >= drill water loss | COLOUR | STATIC WATER LEVEL (a) Related to ground surface | STATIC WATER LEVEL (b) Related to m.s.l | CASING | SCREEN | Approximate yield (litres/min) ~~(m³/day)~~ | Specific capacity (litres/min/metre) ~~(m²/day)~~ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Reduced level of surface 10·2 | | | | | | | |
| +8·9 | | 0 | surface soil | | | | | | | |
| | | 2 | coarse to fine grey gravel, some lenses of cemented sand | Gry | | | | | | |
| | | 4 | | | | | | | | |
| +4·4 | | 6 | coarse to fine grey gravel & sand | | | | | | | |
| | | 8 | | Gry | | | | | | |
| m.s.l. | | 10 | | | | | | | | |
| | | 12 | | | | | | | | |
| -2·9 | | 14 | coarse to fine dirty brown gravel & brown clay | | | | | | | |
| | | 16 | | Br | | | | | | |
| | | 18 | | | | | | | | |
| -8·7 | | 20 | Med. to fine tight grey gravel sand & clay lenses. | Gry | | | | | | |
| | | 22 | | | | | | | | |
| -14·2 | | 24 | | | | | | | | |
| | | 26 | Med to fine grey gravel & coarse sand. W.B. | | | | | | | |
| | | 28 | | Gry | 3·81 | +6·39 | | | 13638 d.d. 5·5 | 248 |
| | | 30 | | | | | | | | |
| | | 32 | | | | | | | | |
| -23·9 | | 34 | | | | | | | | |
| | | 36 | | | | | | | | |

C.C.A.

E.T.A.

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# NEW ZEALAND WATER WELL DATA FORM

| | | | |
|---|---|---|---|
| SHEET No. S20 3 | GRID REF 5220 2112 8.8.4.5.9.3.1.2 11 | G.S. WELL No. W 28 15 | AREA RICHMOND |
| CATCHMENT WAIMEA 16 | WATER AUTHORITY NEL. N 17 | WATER USE 18 | PERMIT No. 24 |

| | | | |
|---|---|---|---|
| Well depth (m) 34.1 28 | Measured Reported | Well diameter (mm) 203 2 29 | Wellhead altitude (m) a.m.s.l. 10.38 33 |
| Yield l/min ~~m³/day~~ 1138.8 39 | Drawdown (m) 4.6 42 | Specific l/min/metre capacity ~~m²/day~~ 247.6 | |
| Driller BISLEY | Drilling date 64/1006 48 | Well status DRILLED & SCREENED A 49 | |
| Owner A. E. FIELD | Address MACSHANES RD | | |
| Pump Type 50 | Well Type 51 | Type of development SURGING | |
| Screen Type NOLD 3/16 SLOT | Slot sizes 3/16" | Set at (92-112') 28-34.1, BOTTOM OF WELL. A 52 | |
| Source of information on well location, log, etc BISLEY | | Date 781127 | |

LOCATION SKETCH

STATIC WATER LEVELS (m below surface)

| HIGHEST | LOWEST | MEAN | RANGE | FREQUENCY OF MEASUREMENT 53 |
|---|---|---|---|---|
| | | 57 | | PERIOD OF MEASUREMENT 61 |

AQUIFER CHARACTERISTICS

Transmissivity ($m^2$/day) 66 Storage coefficient 72 Water
Permeability (m/day) Specific yield Temperature(°c) 73

| TEST PUMPING | | RECOVERY | |
|---|---|---|---|
| Drawdown (metres) | After time (min) | Residual Drawdown (m) | After Time (min) |
| | | | |

REMARKS

WELL WAS ORIGINALLY DRILLED AT 154MM ON 64 0501 & LATER DRILLED TO 203MM ON 64/1006.

| Date | Time | WL | RL | |
|---|---|---|---|---|
| 4.4.78 | 11.00 | 10.00 | 0.38 | - Tidal. |
| 25.8.78 | 1110 | 2.90 | 7.48 | - Low tide 1000 - 12450 |
| 11, 11, 86 | | 4.825 | | pH cond. temp, 8.4 185 20°C |

OTHER DATA

| | |
|---|---|
| Pump Test | 74 |
| Chemical Analysis | 75 |
| Geophysical Data | 76 |
| Lithological Log | 77 |
| Isotope Data | 78 |
| | 79 |
| | |
| Card Type | 80 |

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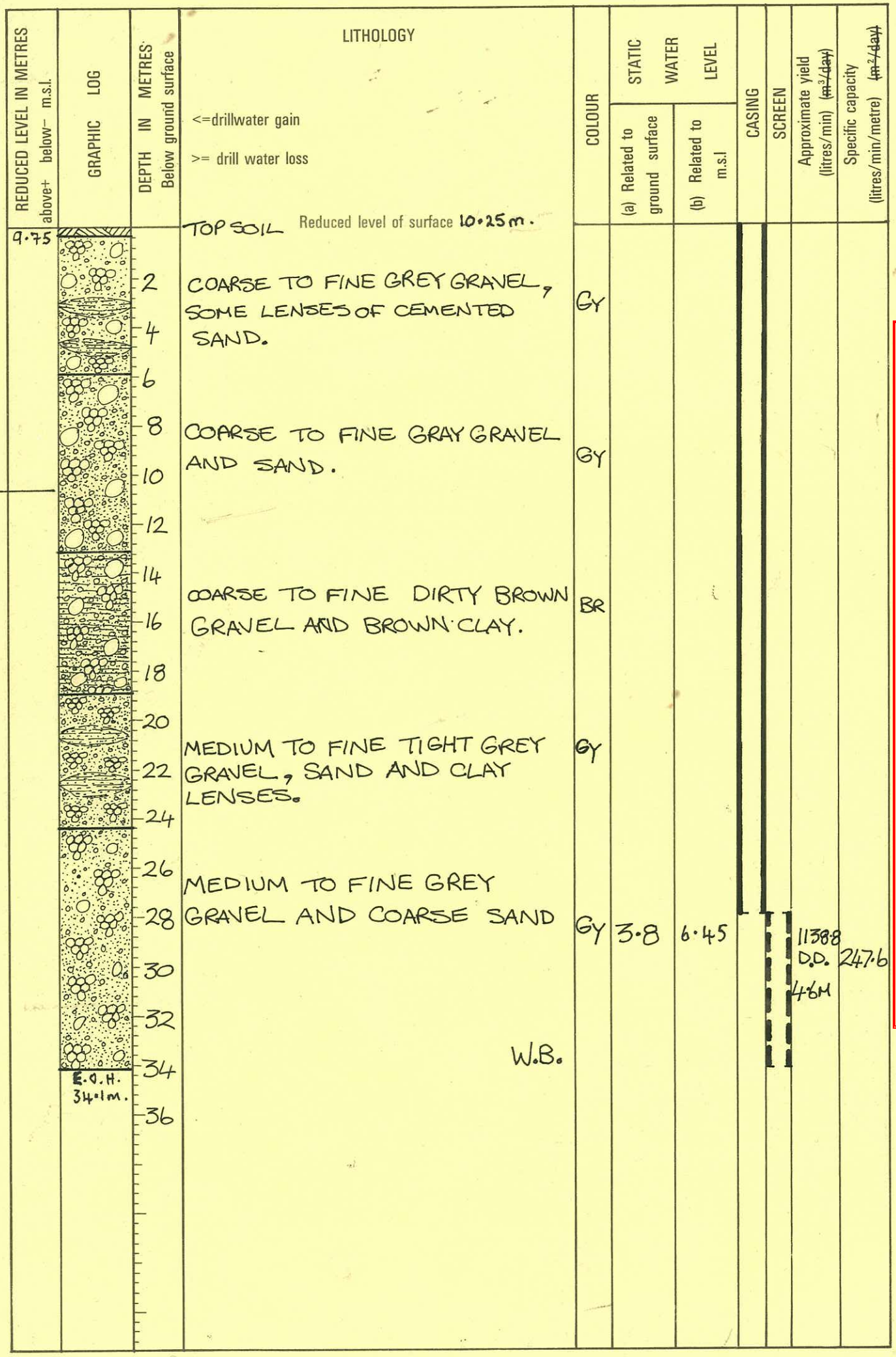


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# NEW ZEALAND WATER WELL DATA FORM

2.3948587 GPS - Fred 8/6/21

2406

SHEET No. (520) N27 3 | GRID REF (5259/2217) 2398858 8886932 11 | G.S. WELL No. W 29 15 | AREA behind cowshed 100m.

CATCHMENT Waimea 16 | WATER AUTHORITY NEL N 17 | WATER USE IRR I 18 | PERMIT No. 730480 24

Well depth (m) 35.8 28 | Measured Reported | Well diameter (mm) 200 2 29 | Wellhead altitude (m) a.m.s.l. 9.42 33

Yield (l/min) ~~m³/day~~ 727 39 | Drawdown (m) 6.1 42 | Specific capacity (l/min/metre) ~~m³/day~~ 119.2

Driller J.B. Hawkins | Drilling date 4.10.12 48 | Well status drilled screened A 49

Owner A.E. Field | Address McShanes Rd, Richmond.

Pump Type plunger sub 50 | Well Type Artesian B 51 | Type of development surging

Screen Type Nold | Slot sizes | Set at 29.9-35.8m. A 52

Source of information on well location, log, etc driller | Date

## STATIC WATER LEVELS (m below surface)

| HIGHEST | LOWEST | MEAN | RANGE | FREQUENCY OF MEASUREMENT 53 |
|---|---|---|---|---|
| | | 57 | | PERIOD OF MEASUREMENT 61 |

## AQUIFER CHARACTERISTICS

Transmissivity ($m^2$/day) 66 | Storage coefficient 72 | Water Temperature(°c) 73

Permeability (m/day) | Specific yield

## TEST PUMPING / RECOVERY

| Drawdown (metres) | After time (min) | Residual Drawdown (m) | After Time (min) |
|---|---|---|---|
| | | | |

## REMARKS

Pump details:

Inlet diameter: 4"
Outlet diameter: 4"
capacity details: 14,000 GPH
electric: direct drive
gate valve on discharge - yes
irrigation type: rainbird 7/32"

Line details:

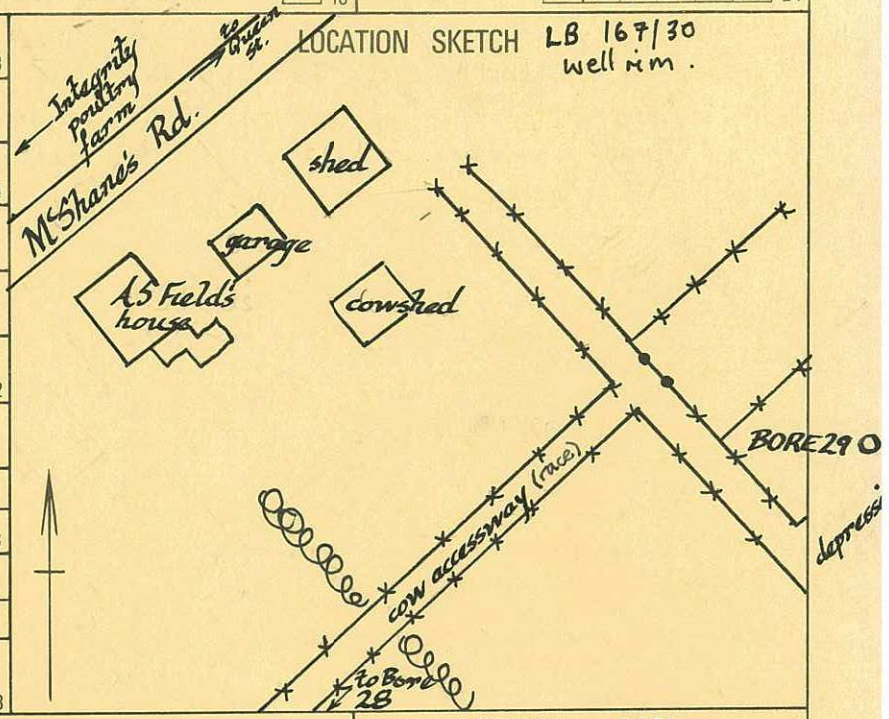
Pressure gauge - no
mainline diameter: 4"
sprinkler line diameter: 3"
- inspection plug rusted in.

E 2523940 N 5985874

## OTHER DATA

| | |
|---|---|
| Pump Test | 74 |
| Chemical Analysis | 75 |
| Geophysical Data | 76 |
| Lithological Log | 77 |
| Isotope Data | 78 |
| | 79 |
| | |
| Card Type | 80 |

## LOCATION SKETCH LB 167/30 well nm.

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| REDUCED LEVEL IN METRES above+ below− m.s.l. | GRAPHIC LOG | DEPTH IN METRES Below ground surface | LITHOLOGY <=drillwater gain >= drill water loss | COLOUR | STATIC WATER LEVEL (a) Related to ground surface | STATIC WATER LEVEL (b) Related to m.s.l | CASING | SCREEN | Approximate yield (litres/min) ~~(m³/day)~~ | Specific capacity (litres/min/metre) ~~(m³/day)~~ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Reduced level of surface 9·10m | | | | | | | |
| 8·8 | | | topsoil | | | | | | | |
| 8·2 | | | claybound grey gravel | Gry | | | | | | |
| 6·7 | | 2 | med. grey & coloured gravel & sand | Gry | | | | | | |
| | | 4 | brown & grey gravel & sand | Br & Gry | | | | | | |
| 1·2 | | 6 | | | | | | | | |
| | | 8 | grey gravel, sand & yellow clay | Gry & Y | | | | | | |
| −1·8 | | 10 | | | | | | | | |
| −3·1 | | 12 | large coloured gravel - sand | | | | | | | |
| | | 14 | clay bound gravel | | | | | | | |
| | | 16 | | | | | | | | |
| | | 18 | | | | | | | | |
| | | 20 | | | | | | | | |
| −12·8 | | 22 | coloured gravel & sand | | | | | | | |
| −14·4 | | | cemented grey gravel | Gry | | | | | | |
| −14·7 | | 24 | grey gravel & sand | Gry | | | | | | |
| −17·1 | | 26 | yellow clay & sand | Y | | | | | | |
| −17·7 | | | grey & brown gravel & sand W.B. L.C.A. | Gry & Br | | | | | | |
| L.C.A. | | 28 | | | | | | | | |
| −21·1 | | 30 | large gravel, very light, W.B. L.C.A. | | 1.98 | 7·12 | | | 727 d.d. 6.1 | 119.2 |
| −22·6 | | 32 | grey & brown gravel & sand. W.B. L.C.A. | Gry & Br | | | | | | |
| −23·8 | | | clay bound gravel | | | | | | | |
| −25·0 | | 34 | cemented gravel - grey | Gry | | | | | | |
| −26·3 | E.O.H. 35·8 m. | 36 | | | | | | | | |

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# NEW ZEALAND WATER WELL DATA FORM

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| | | | |
|---|---|---|---|
| SHEET No. S20 3 | GRID REF 8869322 11 | G.S. WELL No. W 29 15 | AREA |
| CATCHMENT 16 | WATER AUTHORITY N 17 | WATER USE 18 | PERMIT No. 24 |

| | | | |
|---|---|---|---|
| Well depth (m) 28 | Measured Reported | Well diameter (mm) 29 | Wellhead altitude (m) a.m.s.l. 9.42 33 |
| Yield l/min $m^3$/day 39 | Drawdown (m) 42 | | Specific l/min/metre capacity $m^2$/day |
| Driller | Drilling date 48 | | Well status 49 |
| Owner | Address | | |
| Pump Type 50 | Well Type 51 | | Type of development |
| Screen Type | Slot sizes | Set at 52 | |
| Source of information on well location, log, etc | | | Date |

LOCATION SKETCH

STATIC WATER LEVELS (m below surface)

| HIGHEST | LOWEST | MEAN | RANGE | FREQUENCY OF MEASUREMENT 53 |
|---|---|---|---|---|
| | | 57 | | PERIOD OF MEASUREMENT 61 |

AQUIFER CHARACTERISTICS

Transmissivity ($m^2$/day) 66 Storage coefficient 72 Water Temperature(°c) 73

Permeability (m/day) Specific yield

| TEST PUMPING | | RECOVERY | |
|---|---|---|---|
| Drawdown (metres) | After time (min) | Residual Drawdown (m) | After Time (min) |
| | | | |

REMARKS

Date Time WL RL
4.4.78 11.00 8.95 0.47 tidal
26.8.78 1100 1.80 7.62 - low tide

OTHER DATA

| | |
|---|---|
| Pump Test | 74 |
| Chemical Analysis | 75 |
| Geophysical Data | 76 |
| Lithological Log | 77 |
| Isotope Data | 78 |
| | 79 |
| | |
| Card Type | 80 |

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| REDUCED LEVEL IN METRES above+ below− m.s.l. | GRAPHIC LOG | DEPTH IN METRES Below ground surface | LITHOLOGY<br><=drillwater gain<br>>= drill water loss<br>Reduced level of surface | COLOUR | STATIC WATER LEVEL (a) Related to ground surface | STATIC WATER LEVEL (b) Related to m.s.l | CASING | SCREEN | Approximate yield (litres/min) ($m^3$/day) | Specific capacity (litres/min/metre) ($m^2$/day) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

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22272

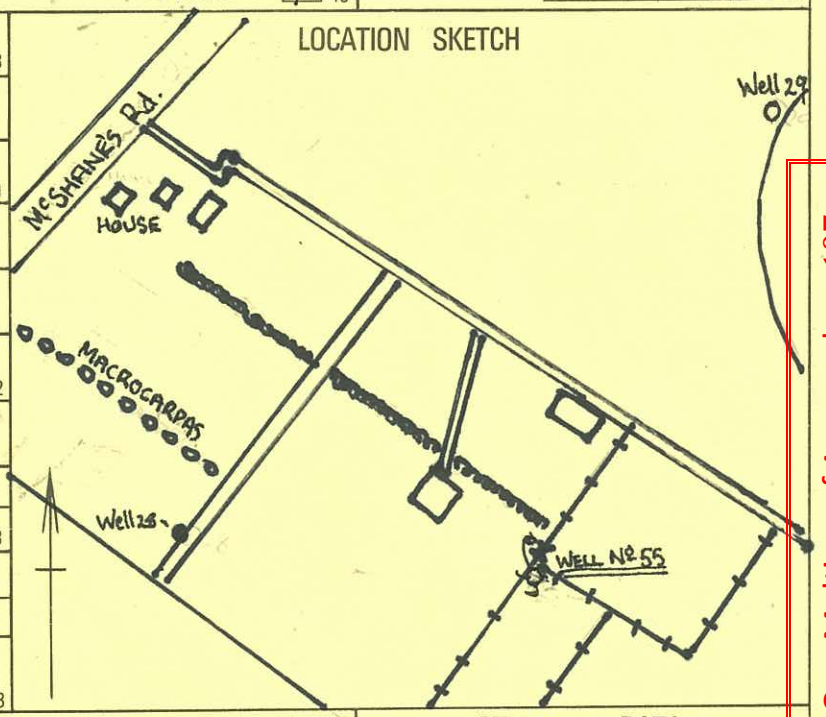
# NEW ZEALAND WATER WELL DATA FORM

Not on map

| | | | |
|---|---|---|---|
| SHEET No. S20 N27 3 | GRID REF 5235 2200 2,37,68,57,0 11 | G.S. WELL No. W 55 15 | AREA RICHMOND |
| CATCHMENT WAIMEA 16 | WATER AUTHORITY NEL N 17 | WATER USE IRRIG I 18 | PERMIT No. 24 |

| | | | |
|---|---|---|---|
| Well depth (m) 34·1 28 | Measured ~~Reported~~ | Well diameter (mm) 150 1 29 | Wellhead altitude (m) a.m.s.l. 33 |
| Yield l/min ~~m³/day~~ 1591 39 | Drawdown (m) 5·2 42 | | Specific l/min/metre capacity ~~m³/day~~ 306 |
| Driller BISLEY | Drilling date 640501 48 | | Well status DRILLED AND SCREENED A 49 |
| Owner A.E. FIELD | Address MACSHANES RD. RICHMOND | | |
| Pump Type 50 | Well Type DRILLED 51 | Type of development | |
| Screen Type NOLD 150 mm. | Slot sizes 4·76 mm. | Set at 28 – 34·1 m. Bottom of well A 52 | |
| Source of information on well location, log, etc DRILLER | | Date 690501 | |

LOCATION SKETCH




## STATIC WATER LEVELS (m below surface)

| HIGHEST | LOWEST | MEAN | RANGE | FREQUENCY OF MEASUREMENT 53 |
|---|---|---|---|---|
| | | 57 | | PERIOD OF MEASUREMENT 61 |

## AQUIFER CHARACTERISTICS

Transmissivity ($m^2$/day) 66 Storage coefficient 72 Water

Permeability (m/day) Specific yield Temperature(°c) 73

| TEST PUMPING | | RECOVERY | |
|---|---|---|---|
| Drawdown (metres) | After time (min) | Residual Drawdown (m) | After Time (min) |
| | | | |

REMARKS

Replaced with 203 mm well
The 2 workers at the cow shed said there is no well no. 55. Spoke to Barry Stratford no longer in existance? June 01.

OTHER DATA

| | |
|---|---|
| Pump Test | 74 |
| Chemical Analysis | 75 |
| Geophysical Data | 76 |
| Lithological Log | 77 |
| Isotope Data | 78 |
| | 79 |
| Card Type | 80 |

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| REDUCED LEVEL IN METRES above+ below− m.s.l. | GRAPHIC LOG | DEPTH IN METRES Below ground surface | LITHOLOGY | COLOUR | STATIC WATER LEVEL (a) Related to ground surface | STATIC WATER LEVEL (b) Related to m.s.l | CASING | SCREEN | Approximate yield (litres/min) ($m^3$/day) | Specific capacity (litres/min/metre) ($m^2$/day) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0 | <=drillwater gain<br>>= drill water loss<br>Reduced level of surface | | | | | | | |
| | | 0.3 | TOPSOIL | Br. | | | | | | |
| | | 2 | COARSE TO FINE GRAVEL<br>SOME LENSES OF CEMENTED SAND | Gry. | | | | | | |
| | | 4 | | | | | | | | |
| | | 5.8 6 | | | | | | | | |
| | | 8 | COARSE TO FINE GRAVEL<br>AND SAND | Gry. | | | | | | |
| | | 10 | | | | | | | | |
| | | 12 | | | | | | | | |
| | | 13.1 14 | | | | | | | | |
| | | 16 | COARSE TO FINE GRAVEL<br>AND CLAY | Br. | | | | | | |
| | | 18 | | | | | | | | |
| | | 18.9 20 | | | | | | | | |
| | | 22 | MEDIUM TO FINE TIGHT GRAVEL<br>SAND AND CLAY LENSES | Gry. | | | | | | |
| | | 24 | | | | | | | | |
| | | 24.4 26 | | | | | | | | |
| | | 28 | MEDIUM TO FINE GRAVEL<br>AND COARSE SAND. W.B. | | 3.8 m. | | | | | |
| | | 30 | | | | | | | | |
| | | 32 | | | | | | | | |
| | | 34 | | | | | | | | |
| | E.O.H. 34.1m. | 34.1 36 | | | | | | | | |

Tasman District Council / AlphaOne Multiproof Approval – 107

E.T.A.

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# NEW ZEALAND WATER WELL DATA FORM

1ST CARD OF 2 20845

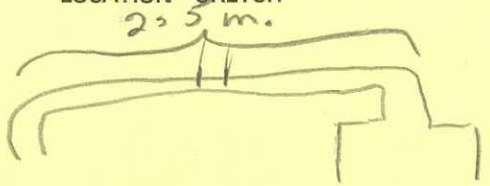
2384531 (GPS)

| | | | |
|---|---|---|---|
| SHEET No. S20/2 N27 3 | GRID REF 2390853 0 11 | G.S. WELL No. W 244 15 | AREA APPLEBY |
| CATCHMENT WAIMEA 16 | WATER AUTHORITY NELSON N 17 | WATER USE 18 | PERMIT No. 24 |

| | | | |
|---|---|---|---|
| Well depth (m) 35.2 28 | Measured ~~Reported~~ | Well diameter (mm) 200 2 29 | Wellhead altitude (m) a.m.s.l. 12.72 33 |
| Yield l/min / $m^3$/day 4.54 39 | Drawdown (m) 3.6 42 | | Specific l/min/metre capacity $m^2$/day 124.1 |
| Driller G. BUTLER (W.D.C.) | Drilling date 79.08.04 48 | | Well status DRILLED & SCREENED A 49 |
| Owner R.J. MALCOLM | Address S.H. Nº 60. APPLEBY. | | |
| Pump Type 50 | Well Type 51 | | Type of development Surging |
| Screen Type SLOTTED 150 mm. CASING | Slot sizes 10 mm. | Set at 30-36.0m. Bottom of well A 52 | |
| Source of information on well location, log, etc Driller | | | Date 790903 |

LB. 181/30

LOCATION SKETCH




STATIC WATER LEVELS (m below surface)

| HIGHEST | LOWEST | MEAN | RANGE | FREQUENCY OF MEASUREMENT 53 |
|---|---|---|---|---|
| | | 57 | | PERIOD OF MEASUREMENT 61 |

AQUIFER CHARACTERISTICS

Transmissivity ($m^2$/day) 66 Storage coefficient 72 Water
Permeability (m/day) Specific yield Temperature(°c) 73

| TEST PUMPING | | RECOVERY | |
|---|---|---|---|
| Drawdown (metres) | After time (min) | Residual Drawdown (m) | After Time (min) |
| | | | |

REMARKS

- Bore is 40 cm in diameter with a 90m. pipe.
- inspection plug rusted in, el[illegible]

E2523835N5985310 7/6/01 Fred

OTHER DATA

| | |
|---|---|
| Pump Test | 74 |
| Chemical Analysis | 75 |
| Geophysical Data | 76 |
| Lithological Log | 77 |
| Isotope Data | 78 |
| | 79 |
| | |
| Card Type | 80 |

Compiled by Date Checked by Date

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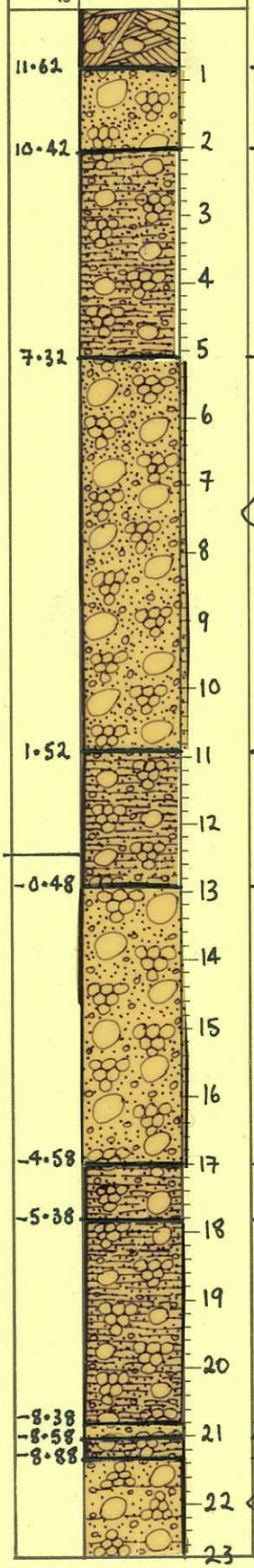

| REDUCED LEVEL IN METRES above+ below− m.s.l. | DEPTH IN METRES Below ground surface | LITHOLOGY | COLOUR | STATIC WATER LEVEL (a) Related to ground surface | STATIC WATER LEVEL (b) Related to m.s.l | CASING | SCREEN | Approximate yield (litres/min) ($m^3$/day) | Specific capacity (litres/min/metre) ($m^2$/day) |
|---|---|---|---|---|---|---|---|---|---|
| | | <=drillwater gain<br>>= drill water loss<br>Reduced level of surface 12.42 | | | | | | | |
| 11.62 | 1 | TOPSOIL, SOME PEBBLE & CLAY | Br. | | | | | | |
| 10.42 | 2 | COBBLE TO COARSE SAND | Br. | | | | | | |
| | 3 | CLAY-BOUND COBBLE TO MEDIUM SAND | Gy. | | | | | | |
| | 4 | | | | | | | | |
| 7.32 | 5 | | | | | | | | |
| | 6 | | | | | | | | |
| | 7 | COBBLE TO MEDIUM BROWN SAND, PWB | Gy. | | | | | | |
| | 8 | | | | | | | | |
| | 9 | | | | | | | | |
| | 10 | | | | | | | | |
| 1.52 | 11 | | | | | | | | |
| | 12 | CLAY-BOUND COBBLE TO MEDIUM SAND | Gy | | | | | | |
| MSL. | | | | | | | | | |
| -0.48 | 13 | | | | | | | | |
| | 14 | | | | | | | | |
| | 15 | COBBLE TO MEDIUM SAND, PWB. | Gy. | | | | | | |
| | 16 | | | | | | | | |
| -4.58 | 17 | | | | | | | | |
| -5.38 | 18 | CLAY-BOUND COBBLE TO MEDIUM SAND. | Gy. | | | | | | |
| | 19 | | | | | | | | |
| | 20 | CLAY-BOUND COBBLE TO MEDIUM SAND. | Y. | | | | | | |
| -8.38 | 21 | COBBLE TO MEDIUM SAND, PWB. | Gy. | 3.8 | 8.62 | | | | |
| -8.58 | | TIGHT, CLAY-BOUND COBBLE TO MEDIUM SAND | Gy. | | | | | | |
| -8.88 | 22 | COBBLE TO MEDIUM SAND, SOME YELLOW CLAY P.W.B. | Gy. | 3.8 | 8.62 | | | | |
| | 23 | | | | | | | | |

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# NEW ZEALAND WATER WELL DATA FORM 2ND. CARD OF 2 .

| SHEET No. 3 | GRID REF 11 | G.S. WELL No. W 244 15 | AREA |
|---|---|---|---|
| CATCHMENT 16 | WATER AUTHORITY 17 | WATER USE 18 | PERMIT No. 24 |

| | | | |
|---|---|---|---|
| Well depth (m) 28 | Measured / Reported | Well diameter (mm) 29 | Wellhead altitude (m) a.m.s.l. 33 |
| Yield l/min / $m^3$/day 39 | Drawdown (m) 42 | | Specific l/min/metre capacity $m^2$/day |
| Driller | Drilling date 48 | | Well status 49 |
| Owner | Address | | |
| Pump Type 50 | Well Type 51 | | Type of development |
| Screen Type | Slot sizes | Set at 52 | |
| Source of information on well location, log, etc | | | Date |

LOCATION SKETCH

STATIC WATER LEVELS (m below surface)

| HIGHEST | LOWEST | MEAN | RANGE | FREQUENCY OF MEASUREMENT 53 |
|---|---|---|---|---|
| | | 57 | | PERIOD OF MEASUREMENT 61 |

AQUIFER CHARACTERISTICS

Transmissivity( $m^2$/day) 66 Storage coefficient 72 Water

Permeability (m/day) Specific yield Temperature(°c) 73

| TEST PUMPING | | RECOVERY | |
|---|---|---|---|
| Drawdown (metres) | After time (min) | Residual Drawdown (m) | After Time (min) |
| | | | |

REMARKS

OTHER DATA

| | |
|---|---|
| Pump Test | 74 |
| Chemical Analysis | 75 |
| Geophysical Data | 76 |
| Lithological Log | 77 |
| Isotope Data | 78 |
| | 79 |
| | |
| Card Type | 80 |

Compiled by Date Checked by Date

EFA.

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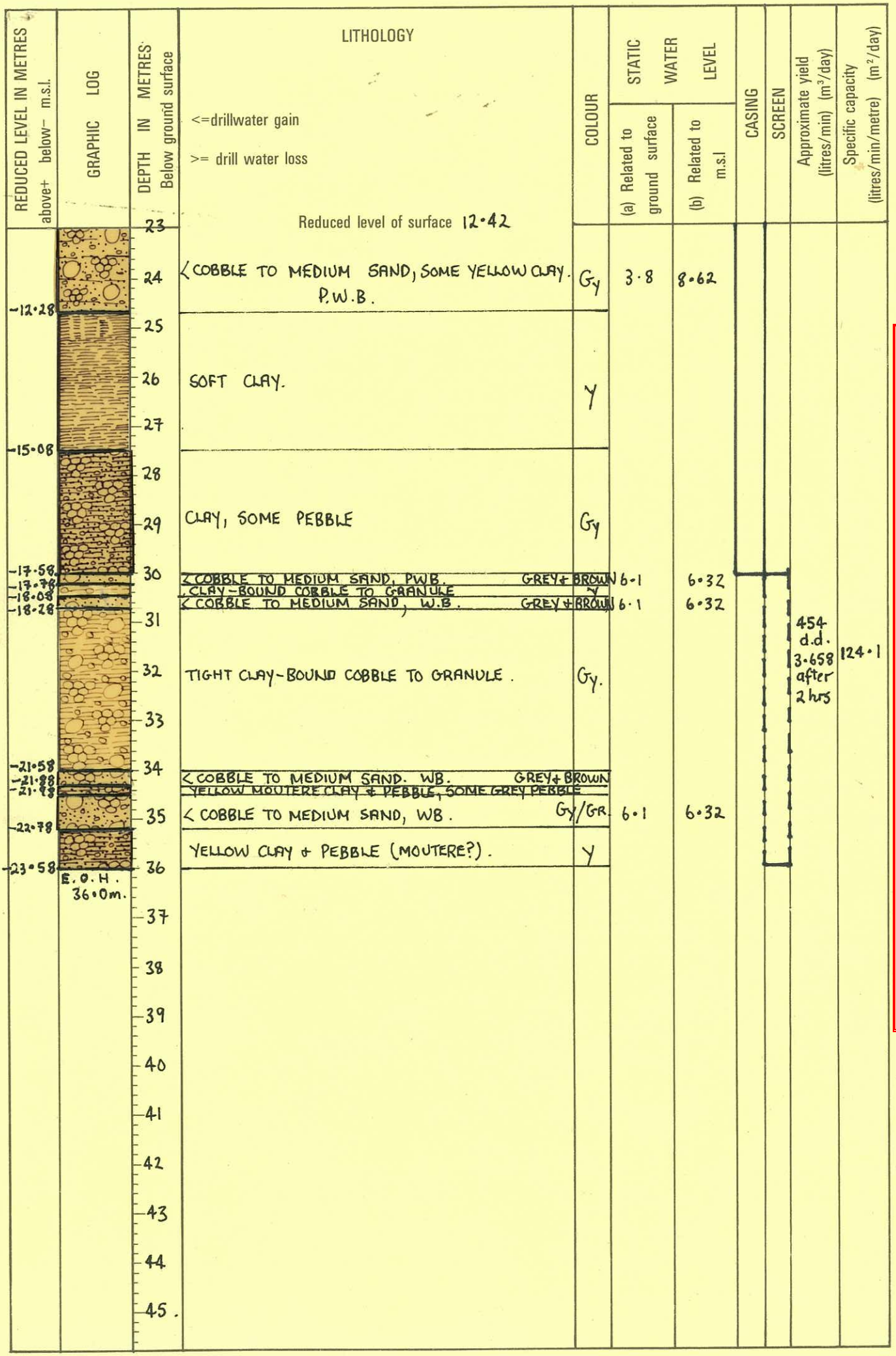

| REDUCED LEVEL IN METRES above+ below− m.s.l. | DEPTH IN METRES Below ground surface | LITHOLOGY | COLOUR | STATIC WATER LEVEL (a) Related to ground surface | STATIC WATER LEVEL (b) Related to m.s.l | CASING | SCREEN | Approximate yield (litres/min) ($m^3$/day) | Specific capacity (litres/min/metre) ($m^2$/day) |
|---|---|---|---|---|---|---|---|---|---|
| | | <=drillwater gain<br>>= drill water loss<br>Reduced level of surface 12·42 | | | | | | | |
| | 23 | | | | | | | | |
| | 24 | COBBLE TO MEDIUM SAND, SOME YELLOW CLAY. P.W.B. | Gy | 3·8 | 8·62 | | | | |
| −12·28 | 25 | | | | | | | | |
| | 26 | SOFT CLAY. | Y | | | | | | |
| | 27 | | | | | | | | |
| −15·08 | 28 | | | | | | | | |
| | 29 | CLAY, SOME PEBBLE | Gy | | | | | | |
| −17·58 | 30 | COBBLE TO MEDIUM SAND, PWB. | GREY+BROWN | 6·1 | 6·32 | | | | |
| −17·78 | | CLAY-BOUND COBBLE TO GRANULE | Y | | | | | | |
| −18·08 | | COBBLE TO MEDIUM SAND, W.B. | GREY+BROWN | 6·1 | 6·32 | | | | |
| −18·28 | 31 | | | | | | | 454 d.d. 3·658 after 2 hrs | 124·1 |
| | 32 | TIGHT CLAY-BOUND COBBLE TO GRANULE. | Gy. | | | | | | |
| | 33 | | | | | | | | |
| −21·58 | 34 | COBBLE TO MEDIUM SAND. WB. | GREY+BROWN | | | | | | |
| −21·88 | | YELLOW MOUTERE CLAY & PEBBLE, SOME GREY PEBBLE | | | | | | | |
| −21·98 | 35 | COBBLE TO MEDIUM SAND, WB. | Gy/GR. | 6·1 | 6·32 | | | | |
| −22·78 | | YELLOW CLAY & PEBBLE (MOUTERE?). | Y | | | | | | |
| −23·58 | 36 | E.O.H. 36·0m. | | | | | | | |
| | 37 | | | | | | | | |
| | 38 | | | | | | | | |
| | 39 | | | | | | | | |
| | 40 | | | | | | | | |
| | 41 | | | | | | | | |
| | 42 | | | | | | | | |
| | 43 | | | | | | | | |
| | 44 | | | | | | | | |
| | 45 | | | | | | | | |

E.T.A.

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# Appendix E

Groundwater level data plots BH04 – BH07

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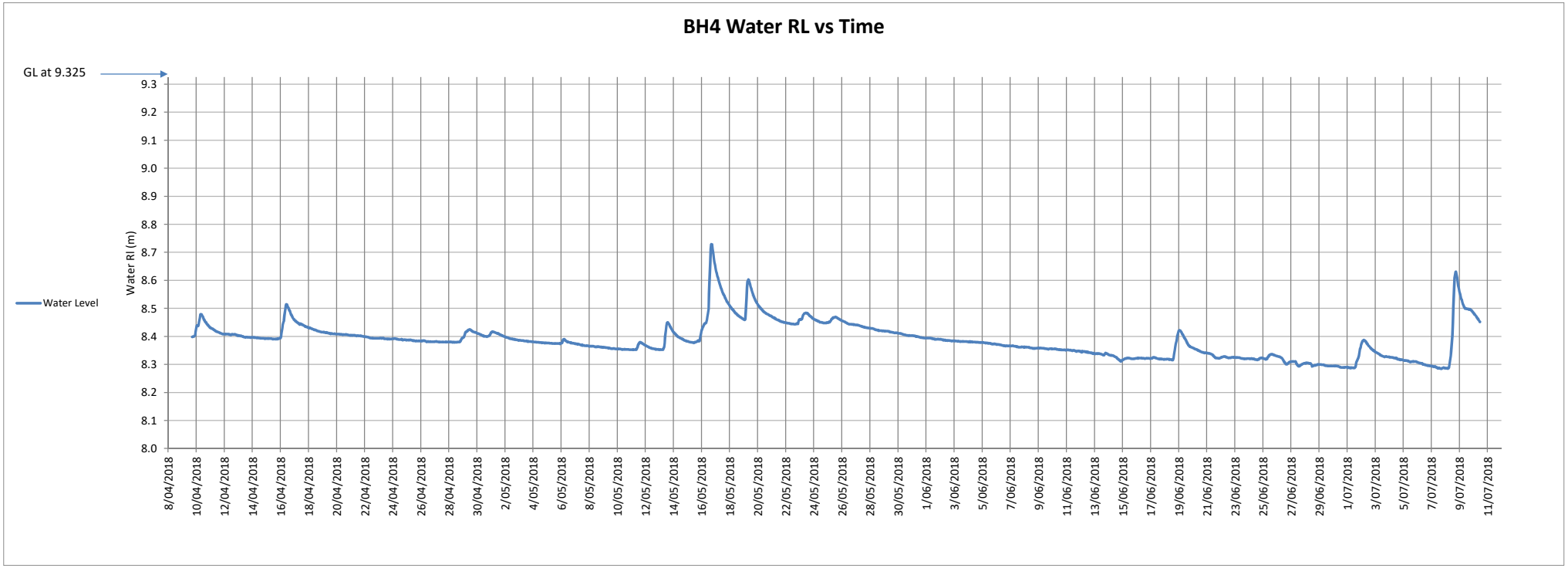
GEOTECHNICS

**99 McShane Road, Richmond**
Stand pipe Piezometer Levelogger Results
Geotechnics Ltd. p. +64 3 546 2606 www.geotechnics.co.nz
**BH4**

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

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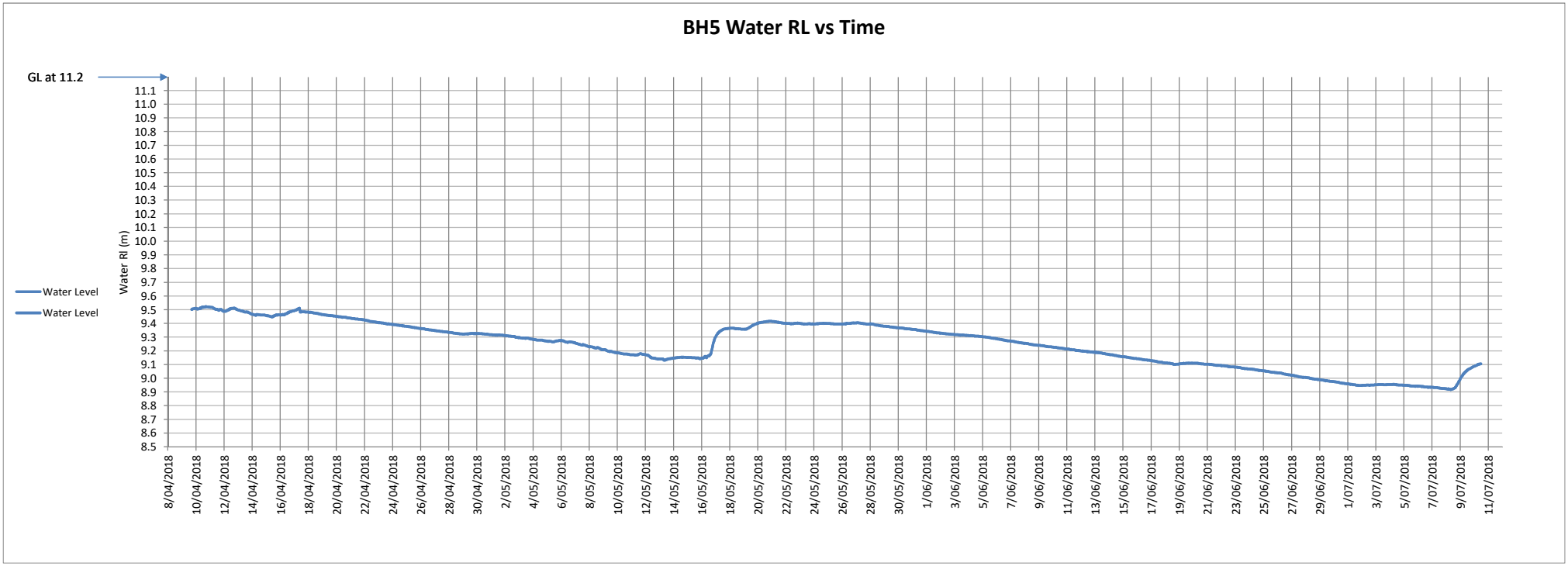
GEOTECHNICS

**99 McShane Road, Richmond**
Stand pipe Piezometer Levelogger Results
Geotechnics Ltd. p. +64 3 546 2606 www.geotechnics.co.nz
**BH5**

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

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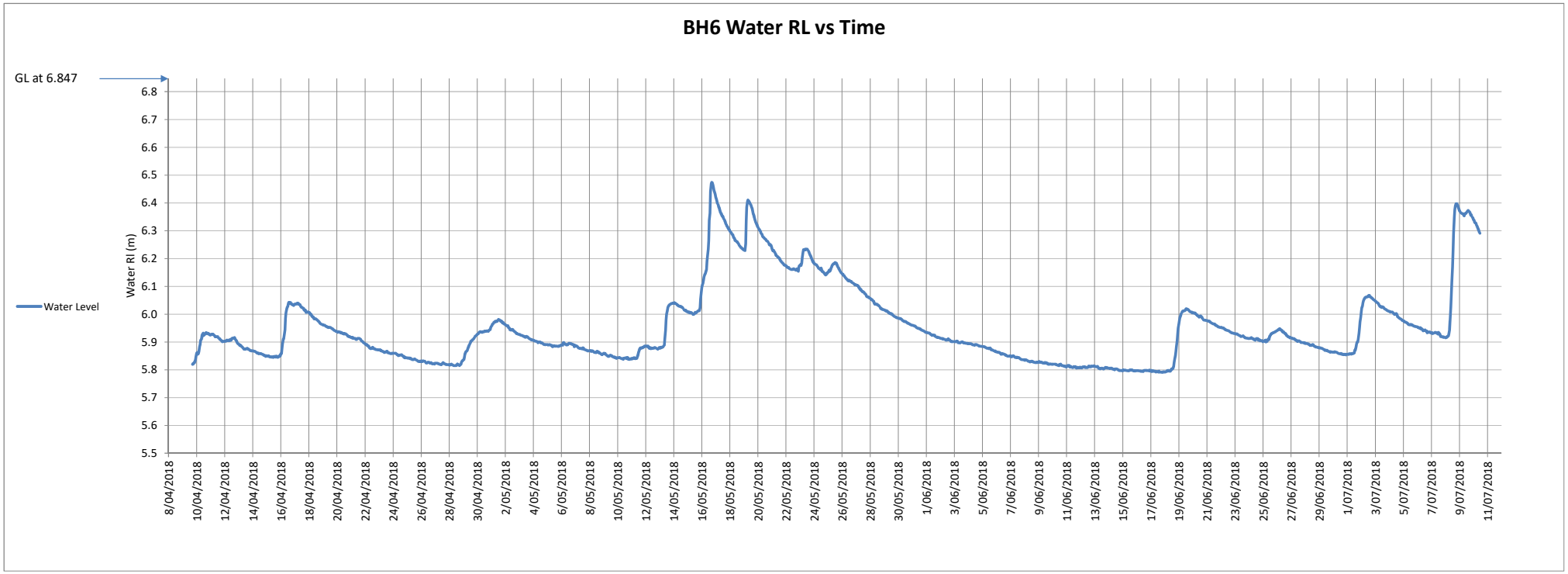
GEOTECHNICS

**99 McShane Road, Richmond**
Stand pipe Piezometer Levelogger Results
Geotechnics Ltd. p. +64 3 546 2606 www.geotechnics.co.nz
**BH6**

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

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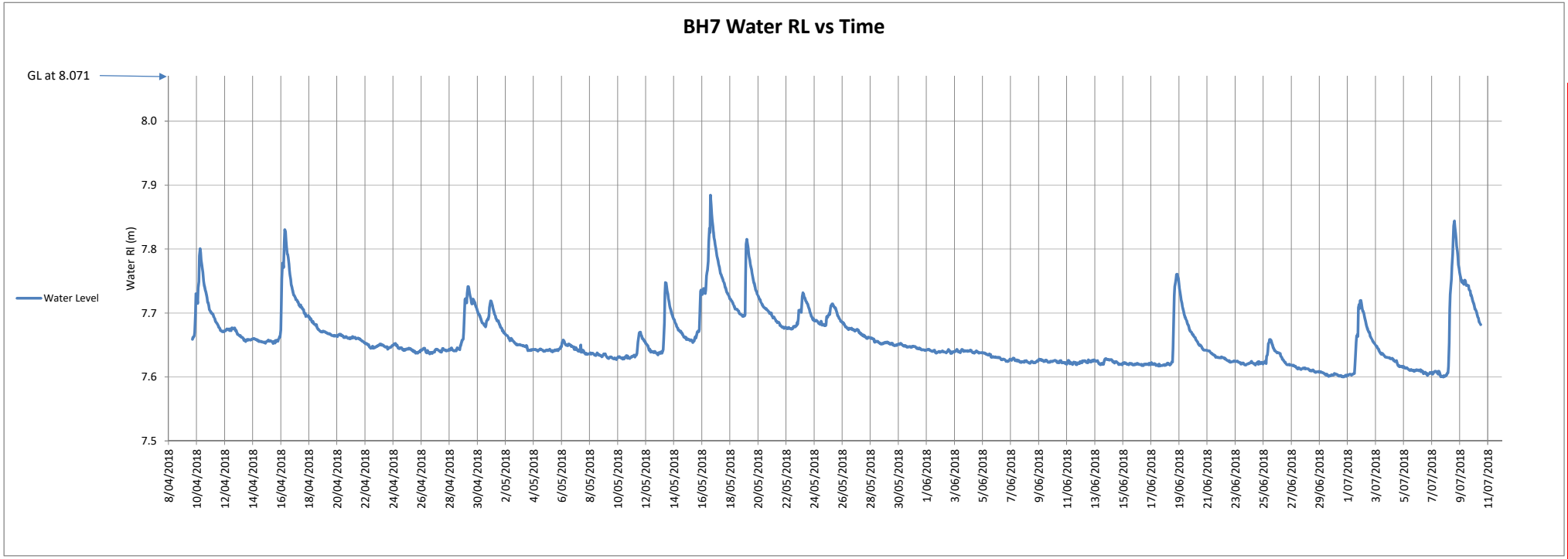
GEOTECHNICS

**99 McShane Road, Richmond**
Stand pipe Piezometer Levelogger Results
Geotechnics Ltd. p. +64 3 546 2606 www.geotechnics.co.nz
**BH7**

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

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G.J. Gardner. HOMES

# Truss

For

## Multiproof Application

At

## Lot 363-367 DP 561194
## Street address 12,14,16,18,20 Kahikatea Way, Richmond.

For

## G.J Gardner Homes Nelson (LSK Builders 2011 Ltd).

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MiTek New Zealand Limited

Correspondence from : **AUCKLAND**
40 Neales Road, East Tamaki 2013
PO Box 58-014, Botany 2163
**Phone: 09 274 7109**
**Fax: 09 274 7100**

**CHRISTCHURCH**
14 Pilkington Way, Wigram 8042
PO Box 8387, Riccarton 8440
**Phone: 03 348 8691**
**Fax: 03 348 0314**

www.miteknz.co.nz



# PRODUCER STATEMENT for MiTek 20/20® TRUSS DESIGN - Version 4.7

ISSUED BY: **MiTek New Zealand Limited**

TO: **PlaceMakers - Frame & Truss**

IN RESPECT OF: **MiTek® Truss Designs**

This producer statement covers the MiTek 20/20® truss design and the structural performance of the GANG-NAIL® connector plate for the job reference **P9456** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MiTek 20/20® truss design program has been developed by MiTek New Zealand Limited for the design of MiTek® timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20 ® are prepared using sound and widely accepted engineering principles, and in accordance with compliance documents of the New Zealand Building Code and Verification Method B1/VM1; and internationally accepted standard ANSI/TPI 1 - 2002 as an alternative solution, to satisfy the requirements of Clause B1 of the New Zealand Building Code.

**On behalf of MiTek New Zealand Limited,** and subject to:

i) All proprietary products meeting their performance specification requirements
ii) The provision of adequate roof bracing and overall building stability
iii) Correct selection and placement of GANG-NAIL connector plates
iv) Correct input of Truss Design Data as shown in the Fabricator Design Statement for this job
v) The design being undertaken by the accredited fabricator under the terms of the software licence
vi) Timber is graded to the requirements of NZS 3603:1993
vii) Minimum timber treatment for these MiTek® trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003

**I believe on reasonable grounds** that the trusses, if constructed in accordance with the MiTek 20/20® truss design and shop drawings, will comply with the relevant provisions of the New Zealand Building Code.

MiTek New Zealand Limited holds a current policy of Professional Indemnity Insurance no less than $500,000.

**On behalf of MiTek New Zealand Limited,** **Date: Thursday, 16 September 2021**

In Ling Ng, BE (Hons), CPEng, IntPE, MIPENZ (ID: 146585)
**TECHNICAL SERVICES MANAGER, MiTek New Zealand Limited**

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022


Job: P9456 Client: G J Gardner Homes Site: Ford
Phone: 12-14-16-18-20 Kahikatea Way
Description: Richmond
Building Consent No.: Phone:
MiTek 20/20 Engineering 4.7.334.0 MiTek New Zealand Limited Printed: 10:25:45 16 Sep 2021

# MITEK FABRICATOR DESIGN STATEMENT

This statement is issued by MiTek accredited fabricator **PlaceMakers - Frame & Truss**, being licensed to use the MiTek 20/20® software, to the client listed above and may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

## MiTek 20/20® TRUSS DESIGN DATA

The MiTek 20/20® computer design for this job is based on the following design parameters entered into the program. The Fabricator shall ensure that these job details are current and relevant to the project for the design of the MiTek ® trusses.

**Job Details**

**Roof Truss**

| | | | | | |
|---|---|---|---|---|---|
| Timber Group: | H1.2 Treated | Pitch: | 7.000 deg | Nominal Overhang: | 600 mm |
| **Roof** | | **Ceiling** | | **Wind** | |
| Material: | Galv Iron .5mm | Material: | Gib Board 13mm | Area: | High (44.0 m/s ) |
| Dead Load: | 0.210 kPa | Dead Load: | 0.200 kPa | Pressure Coeff: | Cpe = varies; Cpi = -0.30, 0.20 |
| Restraints: | 900 mm centres | Restraints: | 600 mm centres | **Snow** | |
| Live Load: | Qur = 0.250 kPa | Live Load: | Qc = 1.400 kN | Location: | Nelson (N3) at 220 m |
| | Qc = 1.100 kN | | | Open Ground Load: | 0.300 kPa |
| | | | | Basic Roof Load: | 0.400 kPa |

Importance Level : 2

Design Working Life : 50 years

The minimum timber treatment for these MiTek® trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003. The timber for these MiTek® trusses shall be graded to the requirements of NZS 3603:1993. Proprietary fixings and timber connectors shall be selected in accordance with NZS3604:2011 Section 4 - Durability.

## MiTek® Truss List

Legend: * = detail only, ? = input only, ~~Txx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral bracing required
GB = gable brace required

| Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) | Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) | Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EN03 | 2 | 6100 | 35.000 | 900 GB | T04 | 1 | 1276 | 13.999 | 900 | *R01 | 1 | 2150 | 14.000 | 900 |
| ET02 | 1 | 8200 | 14.000 | 843 | T05 | 1 | 1719 | 13.999 | 900 | *R02 | 1 | 4250 | 7.000 | 900 |
| T01 | 1 | 4708 | 6.286 | 900 | T06 | 1 | 2100 | 13.999 | 900 | *R03 | 1 | 2350 | 14.000 | 900 |
| T12 | 6 | 8200 | 14.000 | 843 | T07 | 1 | 2100 | 13.999 | 853 | *R04 | 1 | 6350 | 14.000 | 900 |
| EN01 | 1 | 2100 | 14.000 | 853 | T08 | 1 | 1620 | 7.000 | 900 | *R05 | 1 | 4700 | 14.000 | 900 |
| EN02 | 1 | 4000 | 7.000 | 881 | T09 | 1 | 3447 | 7.000 | 900 | *R06 | 4 | 1398 | 0.000 | 568 |
| ET01 | 1 | 2100 | 14.000 | 833 | T10 | 4 | 4000 | 7.000 | 881 | *R07 | 6 | 1398 | 0.000 | 781 |
| ET03 | 1 | 4200 | 14.000 | 771 | T11 | 2 | 2100 | 14.000 | 833 | *R08 | 8 | 1326 | 0.000 | 635 |
| T02 | 1 | 389 | 13.999 | 900 | T13 | 5 | 4200 | 14.000 | 771 | *R09 | 4 | 1388 | 0.000 | 685 |
| T03 | 1 | 833 | 13.999 | 900 | T14 | 7 | 6100 | 35.000 | 894 | *R10 | 2 | 6600 | 35.000 | 900 |

**Total quantity : 69**

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**The computer design input has been carried out by:**

Signed: ..... Date: ...Thursday, 16 September 2021....

Name of Detailer: Coel Parkes Qualifications and Title: Detailer (MITEK C.O.C 2009)

On behalf of: PlaceMakers - Frame & Truss

Job No: 9456
Job Name: Ford

Client: G J Gardner Homes
Building Consent No:

Site: 12-14-16-18-20 Kahikatea Way

**PRODUCER STATEMENT**
**MiTek Beam Program v1.07 April 2012**

**Certification of MiTek Beam Program v1.07 April 2012**

The MiTek Beam Program v1.07 April 2012 has been developed by MiTek New Zealand Ltd for the design of these beams: Timber, Glulam, GANGLAM and GANG-NAIL FLITCH BEAMS. The beam designs calculated by this program are prepared using sound and widely accepted engineering principles, and in accordance with Compliance Documents of the New Zealand Building Code and Verification Method B1/VM1 to satisfy the requirements of Clause B1 of the Building Code. We believe on reasonable grounds that these beams for the proposed building, if constructed in accordance with the drawings, specifications and other documents provided will comply with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements; the provision of adequate bracing and fixings; and the correct input of design data carried out by suitably trained personnel.

**Summary of MiTek Beam Program v1.07 February 2009 Data and Output**

**Roof**
Weight: light + ceiling
Dead Load: 0.45 kPa
Live Load: 0.25 kPa

**Wind**
Area/Speed: high (44.0 m/s)

**Snow**
Area: 0.4 kPa

**Wall**
Type: NA

**Floor**
Live Load: NA

**Beam List**

| Opening Label | Beam Material | Beam Size | Beam Length | Design Status | Opening Label | Beam Material | Beam Size | Beam Length | Design Status |
|---|---|---|---|---|---|---|---|---|---|
| A | GL17 GLULAM | 315x90 | 4800 | OKAY | | | | | |
| B | MSG8/VSG8 | 2/90x45 | 800 | OKAY | | | | | |
| C | MSG8/VSG8 | 2/90x45 | 800 | OKAY | | | | | |
| D | GL8 GLULAM | 140x90 | 2700 | OKAY | | | | | |
| E | GL8 GLULAM | 190x90 | 2700 | OKAY | | | | | |
| F | GL8 GLULAM | 140x90 | 2700 | OKAY | | | | | |
| G | MSG8/VSG8 | 2/90x45 | 1400 | OKAY | | | | | |
| H | MSG8/VSG8 | 2/90x45 | 800 | OKAY | | | | | |
| I | MSG8/VSG8 | 2/90x45 | 600 | OKAY | | | | | |
| J | MSG8/VSG8 | 2/90x45 | 810 | OKAY | | | | | |
| K | MSG8/VSG8 | 2/90x45 | 2000 | OKAY | | | | | |
| L | MSG8/VSG8 | 2/90x45 | 1000 | OKAY | | | | | |
| M | MSG8/VSG8 | 2/90x45 | 800 | OKAY | | | | | |
| N | MSG8/VSG8 | 2/90x45 | 800 | OKAY | | | | | |
| O | MSG8/VSG8 | 2/90x45 | 1600 | OKAY | | | | | |
| P | GL8 GLULAM | 140x90 | 1400 | OKAY | | | | | |
| Q | GL8 GLULAM | 140x90 | 1400 | OKAY | | | | | |

GANGLAM plating details indicated with RD (regular duty plating), HD (heavy duty plating) and SHD (super heavy duty plating)

The design input has been carried out by:

Signed: .....

Date: 16/09/2021

Name of Computer Operator: Cael Parkes

Qualifications and Title: Detailer

Company: Plancmakers Nelson.

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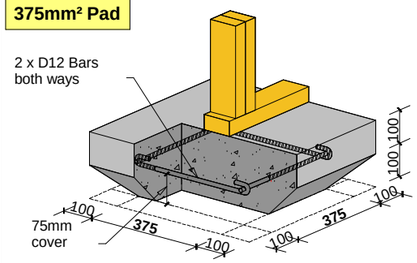
# SLAB THICKENING & STUD REQUIREMENTS

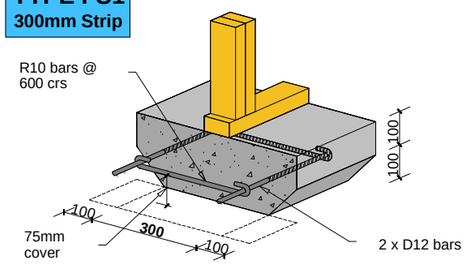
**TYPE FP1**
**375mm² Pad**

2 | 3



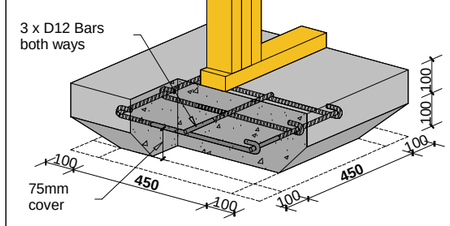

**TYPE FS1**
**300mm Strip**

2 | 3



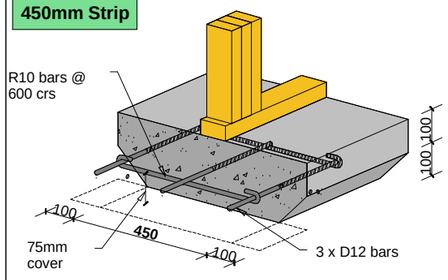

**TYPE FP2**
**450mm² Pad**

3 | 4




**TYPE FS2**
**450mm Strip**

3 | 4

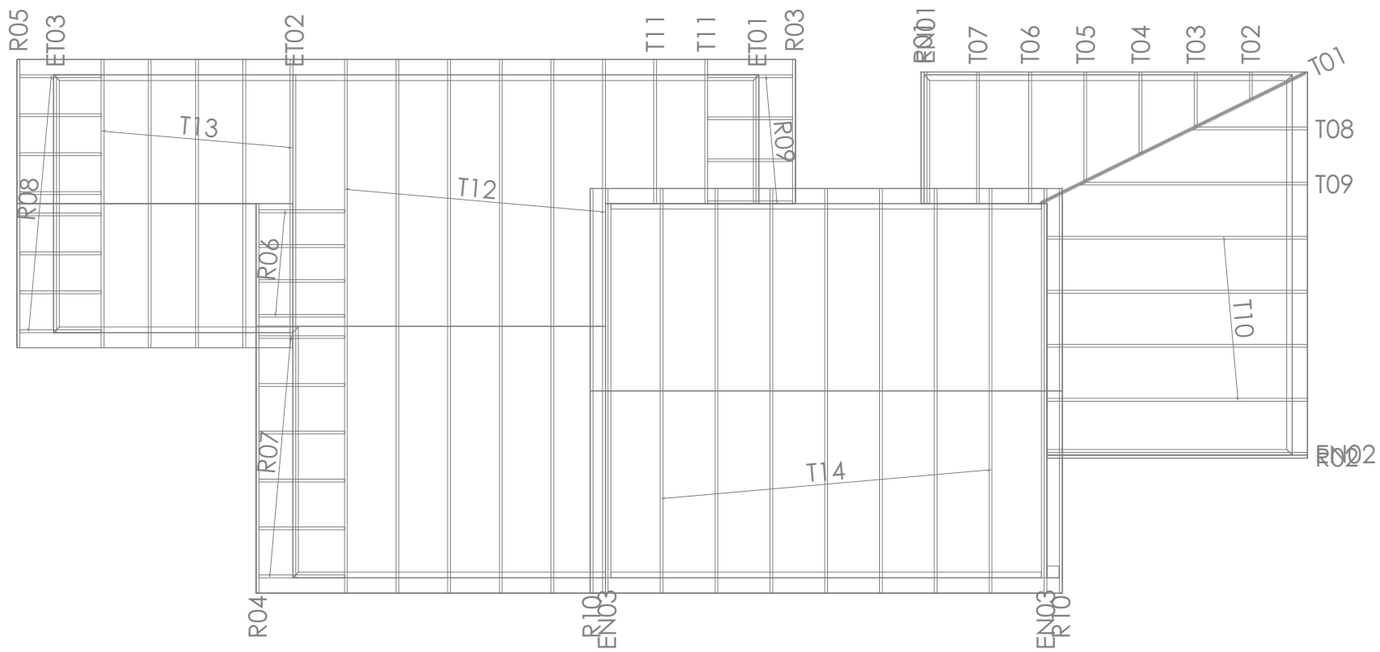



**Notes:**
- The numbers found in the hatched areas are the numbers of studs required below each truss
- Standard 100mm reinforcing concrete slab, as per NZS3604:2011

**Refer to:**
MiTek Internal Load Bearing on Concrete Floor Slabs 10/2011
MiTek Structural Fixings **On-Site Guide** for Building Code Compliance

**Concrete Slab Thickening Guide**

Tasman District Council / AlphaOne Multiproof Approval – 107




## NO SLAB THICKENING REQUIRED

PrimeCad v4.7.334

PlaceMakers Know how. Can do. FRAME & TRUSS

FTMA NEW ZEALAND

Site Address :
Ford
12-14-16-18-20 Kahikatea Way
Richmond

Sheet Title :
For Building Consent
Slab Thickening

Date : 19 Jul,2021 | Drawn : Standard
Scale : 1: 100 | System : MiTek 20/20

Job Details:

| | | | |
|---|---|---|---|
| Roof Pitch | : 7.00deg | Truss Centres | : 900mm |
| Roof Material | : Galv Iron .5mm | Roof Live Load | : 0.250kPa |
| Ceiling Material | : Gib Board 13mm | Floor Live Load | : |
| Wind Zone | : High | Wind Speed | : 44m/s |
| Roof Snow Load | : 0.400kPa | Overhang | : 600mm |

MiTek™

Job Title : P9456
Sheet : 1
Revision Number :

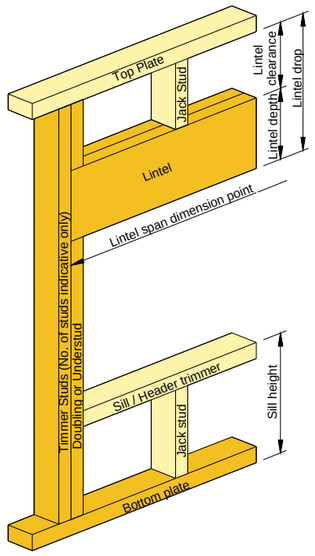
# LUMBERLOK®
# LINTEL FIXING OPTIONS

**TYPE E**
**1.4 kN**

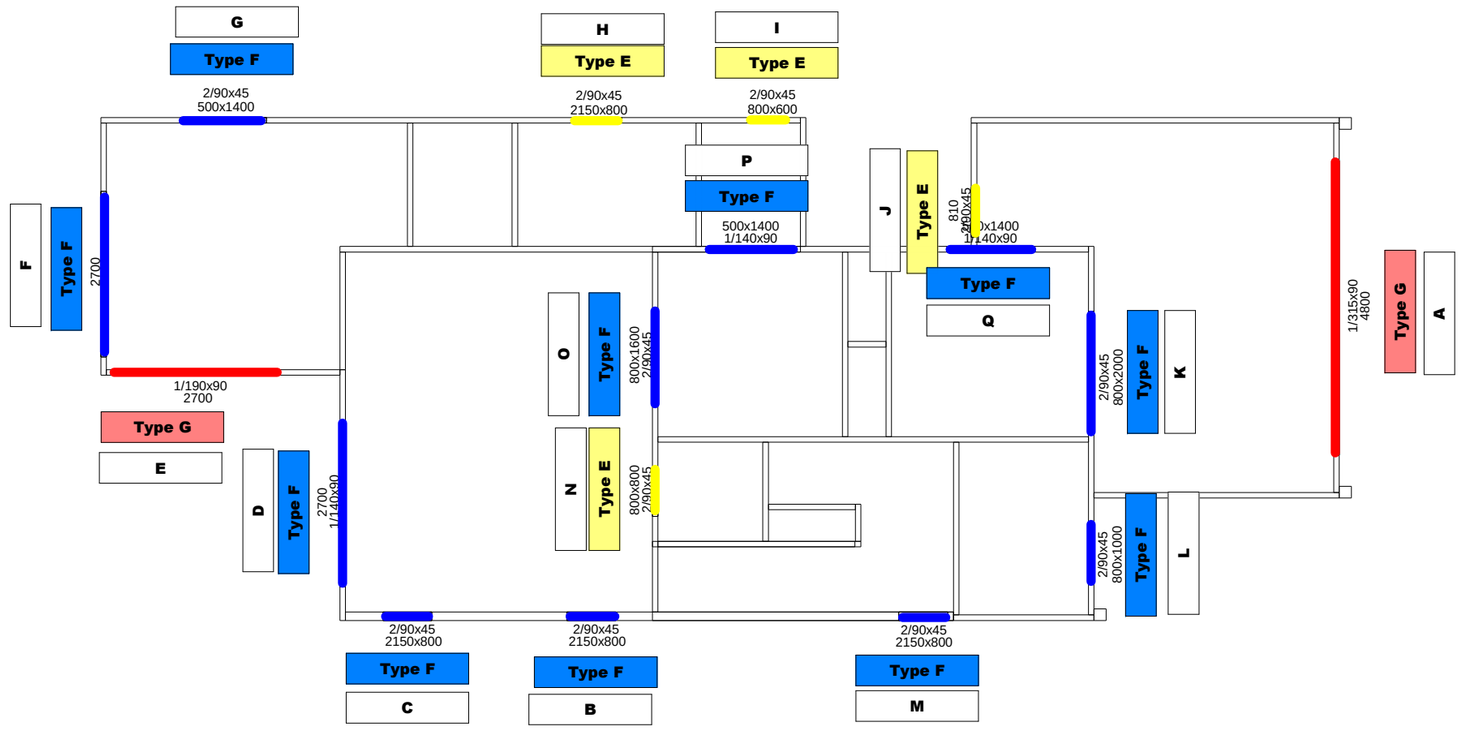
**TYPE F**
**4.0 kN**

**TYPE G**
**7.5 kN**

**TYPE H**
**13.5 kN**




Tasman District Council / AlphaOne Multiproof Approval – 107




**Refer to:**
LUMBERLOK Lintel Fixing Schedule 10/2011
MiTek Structural Fixings **On-Site Guide** for Building Code Compliance
(Alternative to Table 8.14 & Figure 8.12 NZS 3604:2011)

PrimeCad v4.7.334

Site Address :
Ford
12-14-16-18-20 Kahikatea Way
Richmond

Sheet Title :
For Building Consent
Lintel Fixing

Date : 19 Jul,2021 | Drawn : Standard
Scale : 1: 100 | System : MiTek 20/20

Job Details:

| | | | |
|---|---|---|---|
| Roof Pitch | : 7.00deg | Truss Centres | : 900mm |
| Roof Material | : Galv Iron .5mm | Roof Live Load | : 0.250kPa |
| Ceiling Material | : Gib Board 13mm | Floor Live Load | : |
| Wind Zone | : High | Wind Speed | : 44m/s |
| Roof Snow Load | : 0.400kPa | Overhang | : 600mm |

Job Title : P9456
Sheet : 2
Revision Number :

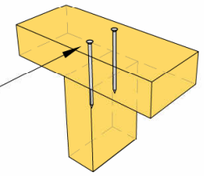
# BOWMAC® STUD-LOK

## STUD TO TOP PLATE FIXING OPTIONS

### TYPE A - 0.7 kN

*Images are indicitive only. Timber sizes may vary.

Non-Load Bearing Walls

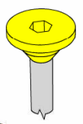


2 x 90mm x 3.15 Ø plain steel wire nails driven vertically through single Top Plate into stud

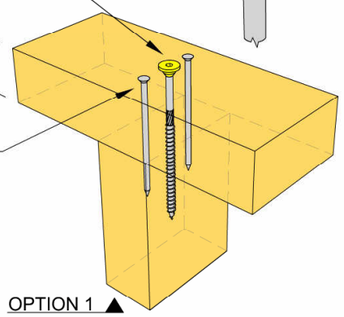
### TYPE B - 4.7 kN

Load Bearing Walls

**STUD-LOK SL125**
- Yellow Head
- 125mm long



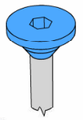
1 x STUD-LOK **SL125** screwed vertically through single Top Plate into stud.



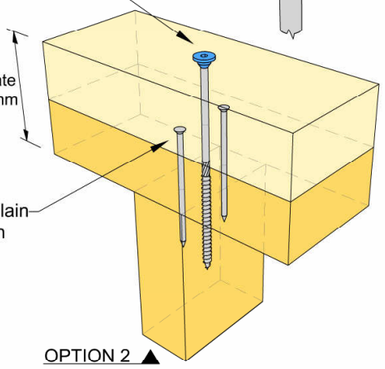

2 x 90mm x 3.15 Ø plain steel wire nails driven vertically into stud.

OPTION 1

**STUD-LOK SL170**
- Blue Head
- 170mm long



1 x STUD-LOK **SL170** screwed vertically through single or double Top Plate into stud.

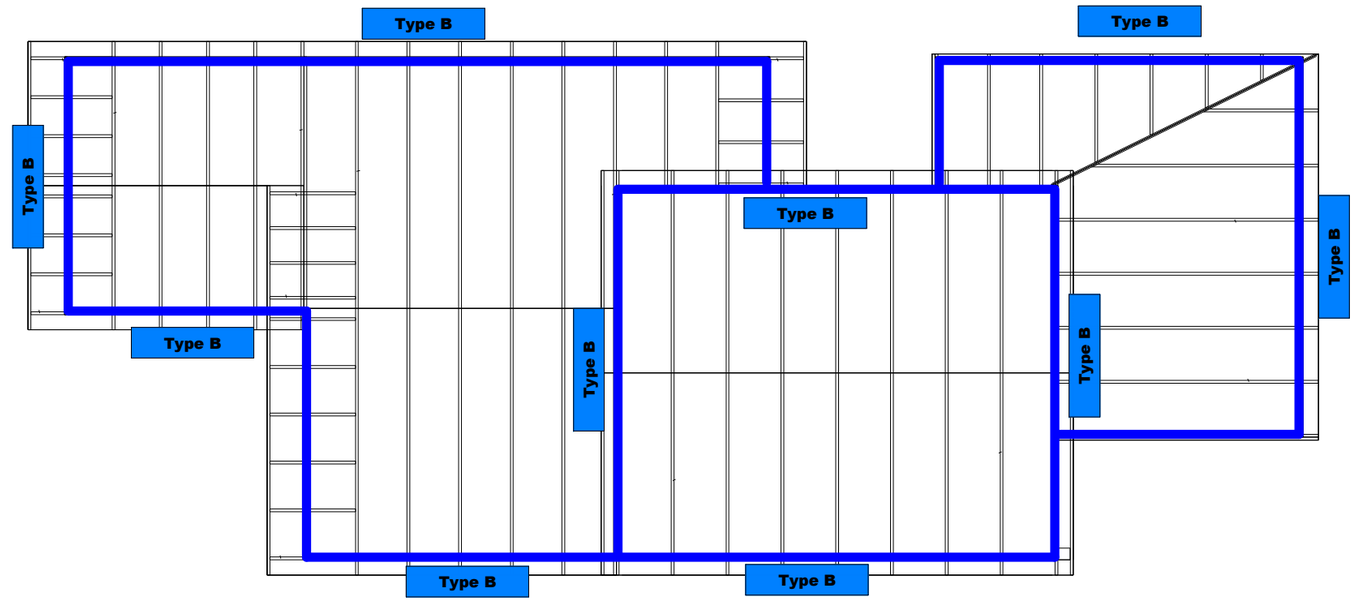



2 x 90mm x 3.15 Ø plain steel wire nails driven vertically into stud.

OPTION 2

(Alternative to NZS 3604:2011 Section 8)

Tasman District Council / AlphaOne Multiproof Approval – 107




PrimeCad v4.7.334

PlaceMakers Know how. Can do. FRAME & TRUSS

FTMA NEW ZEALAND

Site Address :
Ford
12-14-16-18-20 Kahikatea Way
Richmond

Sheet Title :
For Building Consent
Stud To Top Plate Fixing

Date : 19 Jul,2021 | Drawn : Standard
Scale : 1: 100 | System : MiTek 20/20

Job Details:

| | | | |
|---|---|---|---|
| Roof Pitch | : 7.00deg | Truss Centres | : 900mm |
| Roof Material | : Galv Iron .5mm | Roof Live Load | : 0.250kPa |
| Ceiling Material | : Gib Board 13mm | Floor Live Load | : |
| Wind Zone | : High | Wind Speed | : 44m/s |
| Roof Snow Load | : 0.400kPa | Overhang | : 600mm |

MiTek™

Job Title : P9456
Sheet : 3
Revision Number :

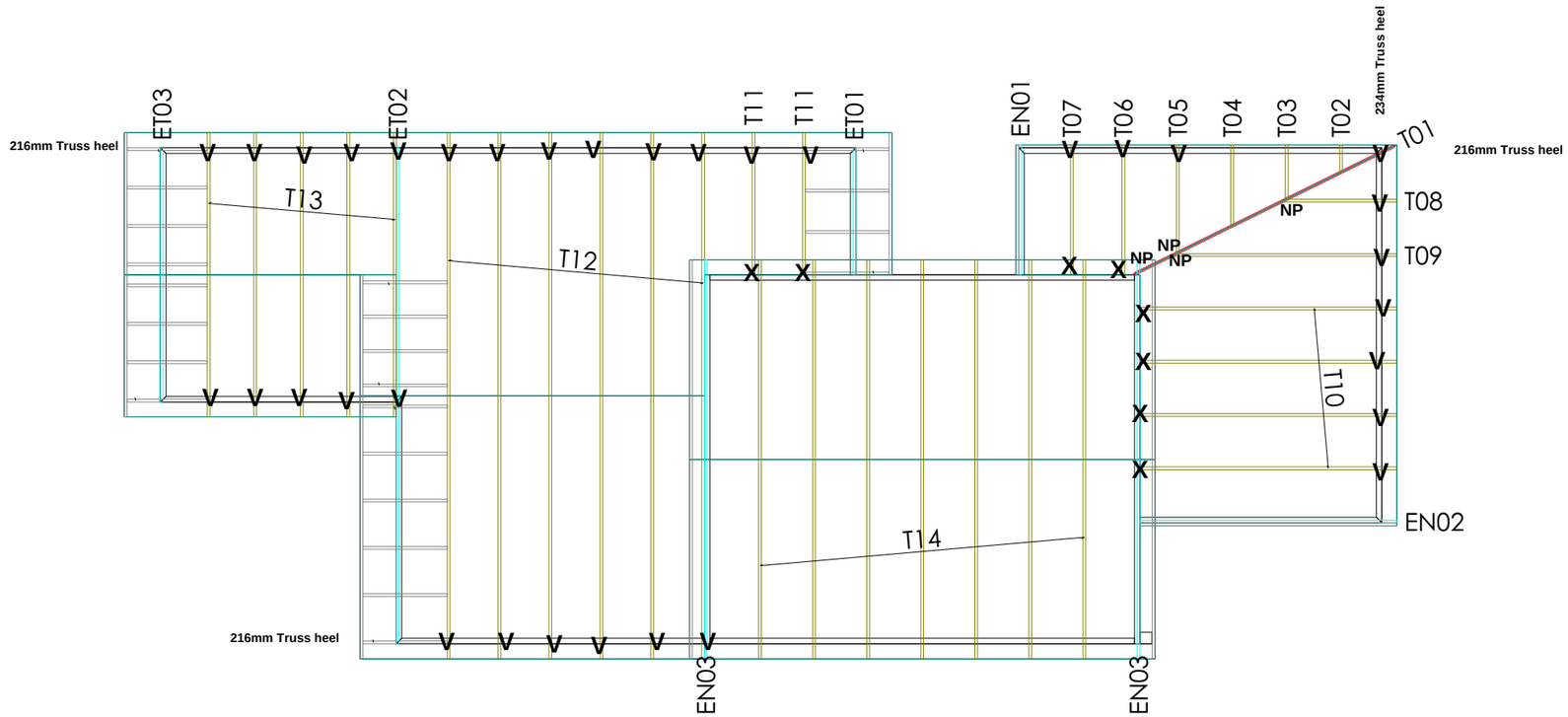
LUMBERLOK®

**ALSO SUPPLY:**

**14 L\H Z NAILS**
**14 R\H Z NAILS**
**3 PKTS NAILS**
**8 90x47mm JOIST HANGERS**
**34 CPC40**
**4 320mm NAILON PLATES**

**BASED ON PLANS: 12/07/2021 pg 1-9**

Tasman District Council / AlphaOne Multiproof Approval – 107




LUMBERLOK®

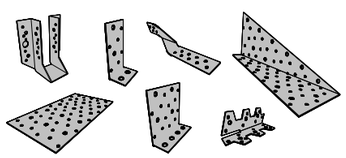
## TRUSS FIXINGS

D - Pair of Wire Dogs and 2 x 90mm 3.15mm skew nails
X - LUMBERLOK JH47x90 Joist Hanger
Z - LUMBERLOK JH47x120 Joist Hanger
P - LUMBERLOK JH47x190 Joist Hanger
E - LUMBERLOK JH95x165 Joist Hanger
T - LUMBERLOK CT200 Ceiling Tie
O - Pair of LUMBERLOK CT200 Ceiling Ties
H - LUMBERLOK CT400 Cyclone Tie
B - LUMBERLOK CT600 Cyclone Tie
4 - LUMBERLOK Multi Grip
M - Pair of LUMBERLOK Multi Grips
NP - LUMBERLOK Nailon Plate
N - LUMBERLOK N21 Diagonal Cleat
V - LUMBERLOK CPC40 Cleat
W - Pair of LUMBERLOK CPC40 Cleats
K - LUMBERLOK TTP 16kN Truss to Top Plate set
G - LUMBERLOK TTP 9kN Truss to Top Plate set

**Joist Hanger** Installation

**CT200 Truss to Top Plate Fixing** Installation

**16kN & 9kN Truss to Top Plate Fixing** Installation



**Notes:**
All other areas must have the minimum 2 x 90mm 3.15mm skew nails and 2 x wire dogs for truss to top plate connections
**Refer to:**
LUMBERLOK Timber Connectors Characteristic Loadings Data Brochure 08/2014

PlaceMakers Know how. Can do. FRAME & TRUSS

FTMA NEW ZEALAND

Site Address :
Ford
12-14-16-18-20 Kahikatea Way
Richmond

Sheet Title :
For Building Consent
Truss Fixings

Date : 19 Jul,2021 | Drawn : Standard
Scale : 1: 100 | System : MiTek 20/20

Job Details:

| | | | |
|---|---|---|---|
| Roof Pitch | : 7.00deg | Truss Centres | : 900mm |
| Roof Material | : Galv Iron .5mm | Roof Live Load | : 0.250kPa |
| Ceiling Material | : Gib Board 13mm | Floor Live Load | : |
| Wind Zone | : High | Wind Speed | : 44m/s |
| Roof Snow Load | : 0.400kPa | Overhang | : 600mm |

PrimeCad v4.7.334

MiTek™

Job Title : P9456
Sheet : 4
Revision Number :

laylTout

CarterHoltHarvey LVL

Date printed: 19 February 2021


# DESIGN CERTIFICATE

Technical basis for structural design methodology contained in laylTout for houses - New Zealand.

Preliminary only - not for construction

LaylTout software was developed by experienced timber engineers and designers to assist specifiers in the structural design, the drawing representation of the corresponding layout of members and estimation of specified material quantities for framing systems for houses and similarly loaded and framed structures.

The design methodology used for the software complies with the loading and general design requirements contained within AS/NZS 1170 and with timber structural design in accordance with NZS 3603:1993 including Amendment 4 (Verification method B1/VM1, 6.1).

laylTout relies on the accurate input of span and loading information by the user. Where accurate inputs are submitted the product and/or stress grade and the size given will comply with the structural requirements of the New Zealand Building Code, provided the installation is in accordance with the installation requirements provided by laylTout and/or in product literature and/or NZS 3604, or specific engineering design as appropriate.

References:
1. NZS 3603:1993 Timber Structures Standard.
2. NZS 3604:2011 Timber-framed buildings.
3. AS/NZS 1170:2002 Structural design actions, Parts 0 and 1.
4. AS/NZS 1170:2011 Structural design actions, Part 2: Wind actions.
5. AS/NZS 1170:2003 Structural design actions, Part 3: Snow and ice actions.
6. AS 1720.1:2010 Timber structures. Part 1: Design methods.
7. AS 1720.3:2016 Timber structures. Part 3: Design criteria for timber-framed residential buildings.

This Design Certificate, and any associated warranty/certification, is void where there has been substitution of alternate products not detailed within the Member Specification.

Version date: 13 November 2020

For further information or advice contact:
Carter Holt Harvey LVL Limited,
173 Captain Springs Road, Onehunga. Auckland
Telephone: 0800 808 131
Email: laylTout@futurebuild.co.nz
Web: https://futurebuild.co.nz/

**Specifier details:**

| | |
|---|---|
| **Specifier:** | Futurebuild Residential Design Service |
| **Business name:** | Carter Holt Harvey LVL |
| **Address:** | 173 Capatain Springs Road, Onehunga |

**Project & site details:**

| | |
|---|---|
| **Project:** | STAGE 6 TOWNHOUSES FOR RICHMOND WEST DEVELOPMENT |
| **Reference:** | FS10586 |
| **Ver:** | 27 |
| **Site address:** | Lots 367 - 358, THE MEADOWS, RICHMOND |
| **Design wind zone** | High |
| **Snow loading** | Design snow zone: N0 |

Tasman District Council / AlphaOne Multiproof Approval – 107

Preliminary only - not for construction

# MEMBER DESIGN DETAILS

## Member 1

| | |
|---|---|
| **1) Member code and description** | FJ1.2,1.1 - Floor joist - Supporting floor loads only - Refer floor joist layout |
| Span/s | 5.9 m - single span |
| Spacing | 400 mm c/c |
| **2) Date prepared** | 15 October 2020 |
| **3) Serviceability criteria** | AS 1720.1: 2010 and AS 1720.3: 2016 |

LayITout

CarterHoltHarvey LVL



**4) Loading and support**

| | | | Load width/area | Dead load | Live load |
|---|---|---|---|---|---|
| **Direct loading** | | | | | |
| UDL | 0 - 6100 | Floor | 0.4 m | 40 kg/m² | 1.5 kPa/1.8 kN |

Preliminary only - not for construction

**5) Member specification**

Size, stress grade/product — Use HJ300 90 hyJOIST

**6) Serviceability**

| Load case | Limit[3] on average deflection[2] | Estimated average deflection[2] | Rigidity ratio[4] |
|---|---|---|---|
| Long term load - G + $\Psi_L$Q | 15.0 mm | 9.7 mm | 1.5 |
| Live load - $\Psi_s$Q* | 9.0 mm | 6.9 mm | 1.3 |
| Live load - $\Psi_s$Q | 9.0 mm | 6.9 mm | 1.3 |
| Floor flexibility - $\Psi_s$Q | 2.0 mm | 1.3 mm | 1.5 |

*Critical serviceability load case
See 'Notes for interpretation of serviceability data' at the end of this report

**7) Reactions**

| Load case | $k_1$[1] | Reaction kN[4] |
|---|---|---|
| **Support A/End** | | |
| 1.35G | 0.60 | -1.7 |
| 1.2G + 1.5Q | 0.80 | -3.4 |
| **Support B/End** | | |
| 1.35G | 0.60 | -1.7 |
| 1.2G + 1.5Q | 0.80 | -3.4 |

**8) Installation requirements**

- For Members supporting load bearing walls at supports refer published literature / use floor Member calculator
- Install in accordance with hyJOIST Guide for Installation
- Provide at least 30 mm bearing at end supports (floor loads only).

Tasman District Council / AlphaOne Multiproof Approval – 107

## Member 2

**1) Member code and description** — FJ1.3 - Floor joist - Supporting floor loads only - Refer floor joist layout
Span/s — 5.8 m - single span
Spacing — 400 mm c/c

**2) Date prepared** — 15 October 2020

**3) Serviceability criteria** — AS 1720.1: 2010 and AS 1720.3: 2016

**4) Loading and support**

| | | | Load width/area | Dead load | Live load |
|---|---|---|---|---|---|
| **Direct loading** | | | | | |
| UDL | 0 - 6009 | Floor | 0.4 m | 40 kg/m² | 1.5 kPa/1.8 kN |

Preliminary only - not for construction

**5) Member specification**

Size, stress grade/product — Use HJ300 90 hyJOIST

**6) Serviceability**

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| Load case | Limit[3] on average deflection[2] | Estimated average deflection[2] | Rigidity ratio[4] |
|---|---|---|---|
| Long term load - G + $\Psi_L Q$ | 15.0 mm | 9.5 mm | 1.6 |
| Live load - $\Psi_s Q^*$ | 9.0 mm | 6.7 mm | 1.3 |
| Live load - $\Psi_s Q$ | 9.0 mm | 6.7 mm | 1.3 |
| Floor flexibility - $\Psi_s Q$ | 2.0 mm | 1.3 mm | 1.5 |

*Critical serviceability load case
See 'Notes for interpretation of serviceability data' at the end of this report

Preliminary only - not for construction

**7) Reactions**

| Load case | $k_1$[1] | Reaction kN[4] |
|---|---|---|
| **Support A/End** | | |
| 1.35G | 0.60 | -1.7 |
| 1.2G + 1.5Q | 0.80 | -3.4 |
| **Support B/End** | | |
| 1.35G | 0.60 | -1.7 |
| 1.2G + 1.5Q | 0.80 | -3.4 |

**8) Installation requirements**

- For Members supporting load bearing walls at supports refer published literature / use floor Member calculator
- Install in accordance with hyJOIST Guide for Installation
- Provide at least 30 mm bearing at end supports (floor loads only).
- Bracket where applicable:Mitek IBHF30090 with 6/40 mm x 3.75 FH nails to supporting member (J5)

Tasman District Council / AlphaOne Multiproof Approval – 107

## Member 3

**1) Member code and description** FJ1.4 - Floor joist - Supporting floor loads only - Refer floor joist layout
Span/s 3.9 m - single span
Spacing 400 mm c/c

**2) Date prepared** 15 October 2020

**3) Serviceability criteria** AS 1720.1: 2010 and AS 1720.3: 2016

**4) Loading and support**

| | | | Load width/area | Dead load | Live load |
|---|---|---|---|---|---|
| **Direct loading** | | | | | |
| UDL | 0 - 3965 | Floor | 0.4 m | 40 kg/m² | 1.5 kPa/1.8 kN |

**5) Member specification**
Size, stress grade/product Use HJ300 90 hyJOIST

Preliminary only - not for construction

**6) Serviceability**

| Load case | Limit[3] on average deflection[2] | Estimated average deflection[2] | Rigidity ratio[4] |
|---|---|---|---|
| Long term load - G + $\Psi_L Q$ | 13.0 mm | 2.3 mm | 5.8 |
| Live load - $\Psi_s Q$ | 9.0 mm | 1.6 mm | 5.6 |
| Live load - $\Psi_s Q$ | 9.0 mm | 1.6 mm | 5.6 |
| Floor flexibility - $\Psi_s Q^*$ | 2.0 mm | 0.7 mm | 2.8 |

*Critical serviceability load case
See 'Notes for interpretation of serviceability data' at the end of this report

**7) Reactions**

LaylTout

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| Load case | $k_1$[1] | Reaction kN[4] |
|---|---|---|
| **Support A/End** | | |
| 1.35G | 0.60 | -1.1 |
| 1.2G + 1.5Q | 0.80 | -2.3 |
| **Support B/End** | | |
| 1.35G | 0.60 | -1.1 |
| 1.2G + 1.5Q | 0.80 | -2.3 |

Preliminary only

**8) Installation requirements**

- For Members supporting load bearing walls at supports refer published literature / use floor Member calculator
- Install in accordance with hyJOIST Guide for Installation
- Provide at least 30 mm bearing at end supports (floor loads only).

not for construction

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## Member 4

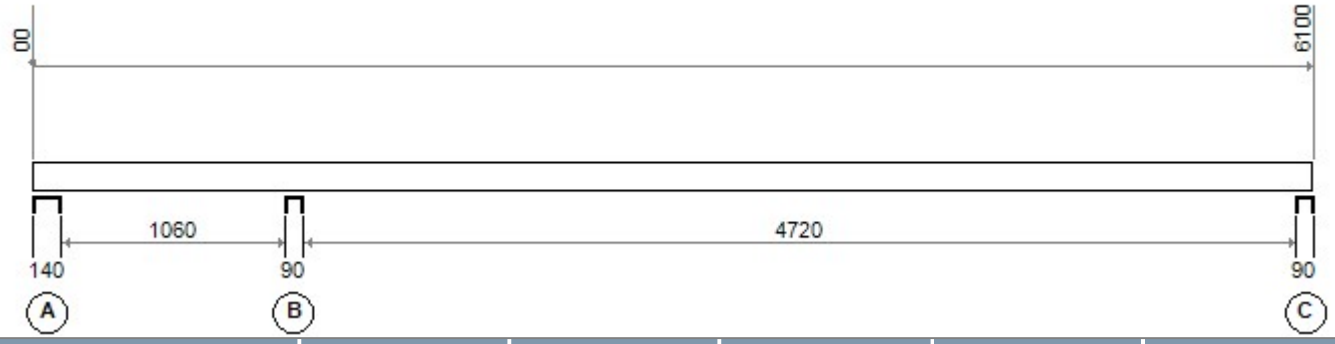
**1) Member code and description** B2 - supporting single or upper storey parallel loads bearing walls.

Span/s See drawing under Loading & support

**2) Date prepared** 15 October 2020

**3) Serviceability criteria** AS 1720.1: 2010 and AS 1720.3: 2016

**4) Loading and support**




| | | | Load width/area | Dead load | Live load |
|---|---|---|---|---|---|
| **Direct loading** | | | | | |
| UDL | 0 - 6100 | Floor | 0.20 m | 40 kg/m² | 1.5 kPa/1.8 kN |
| **From parallel wall** | | | | | |
| UDL | 0 - 6100 | Wall | - | 0.4 kN/m | |
| UDL | 0 - 6100 | Roof | 2.2 m | 40 kg/m² | 0.25 kPa |

**5) Member specification**

Size, stress grade/product Use 400 x 90 hyONE

Material type Structural Laminated Veneer Lumber to AS/NZS 4357

Preliminary only - not for construction

**6) Serviceability**

| Load case | Limit[3] on average deflection[2] | Estimated average deflection[2] | Rigidity ratio[4] |
|---|---|---|---|
| Long term load - G + $\Psi_L$Q | 12.0 mm | 1.5 mm | 7.7 |
| Long term load - G + $\Psi_L$Q* | 12.0 mm | 2.2 mm | 5.5 |
| Live load - $\Psi_s$Q | 15.0 mm | 0.3 mm | 59.1 |

LaylTout

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| | | | |
|---|---|---|---|
| Live load - $\Psi_s Q$ | 9.0 mm | 0.1 mm | 65.0 |
| Live load - $\Psi_s Q$ | 9.0 mm | 0.1 mm | 131.5 |
| Live load - $\Psi_s Q$ | 9.0 mm | 0.1 mm | 64.7 |

*Critical serviceability load case
See 'Notes for interpretation of serviceability data' at the end of this report

Preliminary only - not for construction

**7) Reactions**

| Load case | $k_1$[1] | Reaction kN[4] |
|---|---|---|
| **Support A/End** | | |
| 1.35G | 0.60 | 3.5 |
| 1.2G + 1.5Q | 0.80 | 4.2 |
| 1.2G + 1.5Q | 0.80 | 4.2 |
| 1.2G + $W_u$ + $\Psi_c Q$ | 1.00 | 5.2 |
| 0.9G + $W_u$ | 1.00 | -2.2 |
| **Support B/Internal** | | |
| 1.35G | 0.60 | -12.5 |
| 1.2G + 1.5Q | 0.80 | -13.0 |
| 1.2G + 1.5Q | 0.80 | -15.1 |
| 1.2G + $W_u$ + $\Psi_c Q$ | 1.00 | -18.4 |
| 0.9G + $W_u$ | 1.00 | 7.7 |
| **Support C/End** | | |
| 1.35G | 0.60 | -4.3 |
| 1.2G + 1.5Q | 0.80 | -4.4 |
| 1.2G + 1.5Q | 0.80 | -5.1 |
| 1.2G + $W_u$ + $\Psi_c Q$ | 1.00 | -6.3 |
| 0.9G + $W_u$ | 1.00 | 2.6 |

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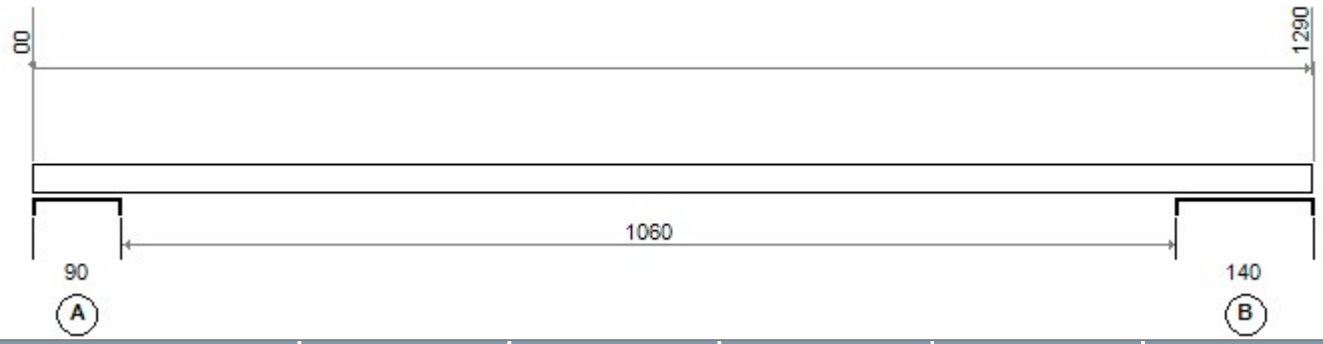
## Member 5

**1) Member code and description** B3 - supporting single or upper storey parallel loads bearing walls.
Span/s See drawing under Loading & support

**2) Date prepared** 15 October 2020

**3) Serviceability criteria** AS 1720.1: 2010 and AS 1720.3: 2016

**4) Loading and support**




| | | | Load width/area | Dead load | Live load |
|---|---|---|---|---|---|
| **Direct loading** | | | | | |

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| | | | | | |
|---|---|---|---|---|---|
| UDL | 0 - 1290 | Floor | 0.20 m | 40 kg/m² | 1.5 kPa/1.8 kN |

**5) Member specification**

Size, stress grade/product — Use 300 x 90 hy90

Material type — Structural Laminated Veneer Lumber to AS/NZS 4357

Preliminary only - not for construction

**6) Serviceability**

| Load case | Limit[3] on average deflection[2] | Estimated average deflection[2] | Rigidity ratio[4] |
|---|---|---|---|
| Long term load - G + $\Psi_{LQ}$* | 3.6 mm | 0.0 mm | 542.8 |
| Live load - $\Psi_{s}Q$ | 3.0 mm | 0.0 mm | 1023.4 |
| Live load - $\Psi_{s}Q$ | 3.0 mm | 0.0 mm | 1023.4 |

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

**7) Reactions**

| Load case | $k_1$[1] | Reaction kN[4] |
|---|---|---|
| **Support A/End** | | |
| 1.35G | 0.60 | -0.2 |
| 1.2G + 1.5Q | 0.80 | -0.4 |
| **Support B/End** | | |
| 1.35G | 0.60 | -0.2 |
| 1.2G + 1.5Q | 0.80 | -0.4 |

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## Member 6

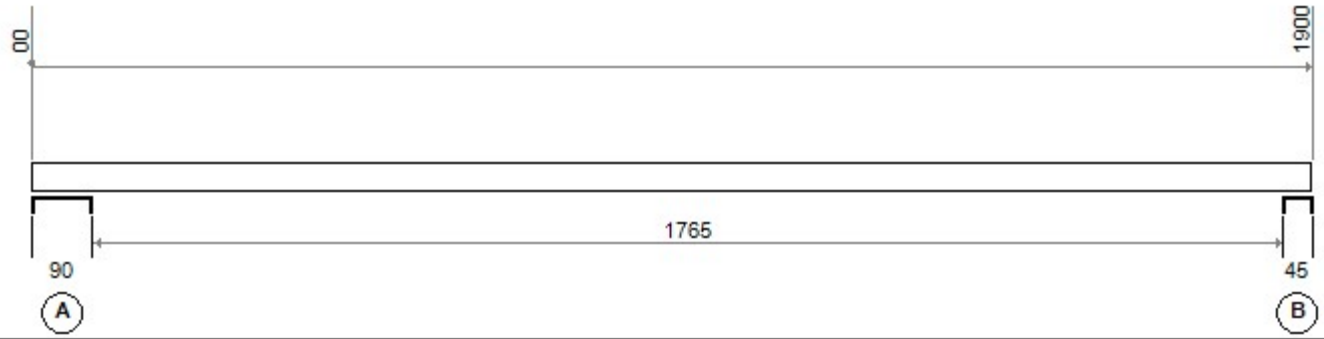
**1) Member code and description** — B4 - supporting single or upper storey parallel loads bearing walls.

Span/s — See drawing under Loading & support

**2) Date prepared** — 15 October 2020

**3) Serviceability criteria** — AS 1720.1: 2010 and AS 1720.3: 2016

**4) Loading and support**




| | | | Load width/area | Dead load | Live load |
|---|---|---|---|---|---|
| **Direct loading** | | | | | |
| UDL | 0 - 1900 | Floor | 3.00 m | 40 kg/m² | 1.5 kPa/1.8 kN |
| **From parallel wall** | | | | | |
| UDL | 0 - 1900 | Wall | - | 0.4 kN/m | |
| UDL | 0 - 1900 | Roof | 3.0 m | 40 kg/m² | 0.25 kPa |

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Date printed: 19 February 2021


**5) Member specification**

| | |
|---|---|
| Size, stress grade/product | Use 300 x 90 hy90 |
| Material type | Structural Laminated Veneer Lumber to AS/NZS 4357 |

Preliminary only - not for construction

**6) Serviceability**

| Load case | Limit[3] on average deflection[2] | Estimated average deflection[2] | Rigidity ratio[4] |
|---|---|---|---|
| Long term load - G + $\Psi_L Q^*$ | 6.0 mm | 0.7 mm | 8.9 |
| Live load - $\Psi_s Q$ | 10.0 mm | 0.1 mm | 185.5 |
| Live load - $\Psi_s Q$ | 5.0 mm | 0.3 mm | 15.5 |
| Live load - $\Psi_s Q$ | 5.0 mm | 0.3 mm | 15.5 |

*Critical serviceability load case
See 'Notes for interpretation of serviceability data' at the end of this report

**7) Reactions**

| Load case | $k_1$[1] | Reaction kN[4] |
|---|---|---|
| **Support A/End** | | |
| 1.35G | 0.60 | -5.7 |
| 1.2G + 1.5Q | 0.80 | -9.5 |
| 1.2G + 1.5Q | 0.80 | -4.4 |
| 1.2G + $W_u$ + $\Psi_c Q$ | 1.00 | -5.2 |
| 0.9G + $W_u$ | 1.00 | 0.9 |
| **Support B/End** | | |
| 1.35G | 0.60 | -5.7 |
| 1.2G + 1.5Q | 0.80 | -9.5 |
| 1.2G + 1.5Q | 0.80 | -4.4 |
| 1.2G + $W_u$ + $\Psi_c Q$ | 1.00 | -5.2 |
| 0.9G + $W_u$ | 1.00 | 0.9 |

**8) Installation requirements**

- Bracket where applicable:Pryda LVSIA-V with 6/ 45 mm x 12g hexagon head Type 17 screws to supporting member (J5)

## Member 7

| | |
|---|---|
| **1) Member code and description** | B5 - supporting single or upper storey parallel loads bearing walls. |
| Span/s | See drawing under Loading & support |
| **2) Date prepared** | 15 October 2020 |
| **3) Serviceability criteria** | AS 1720.1: 2010 and AS 1720.3: 2016 |
| **4) Loading and support** | |

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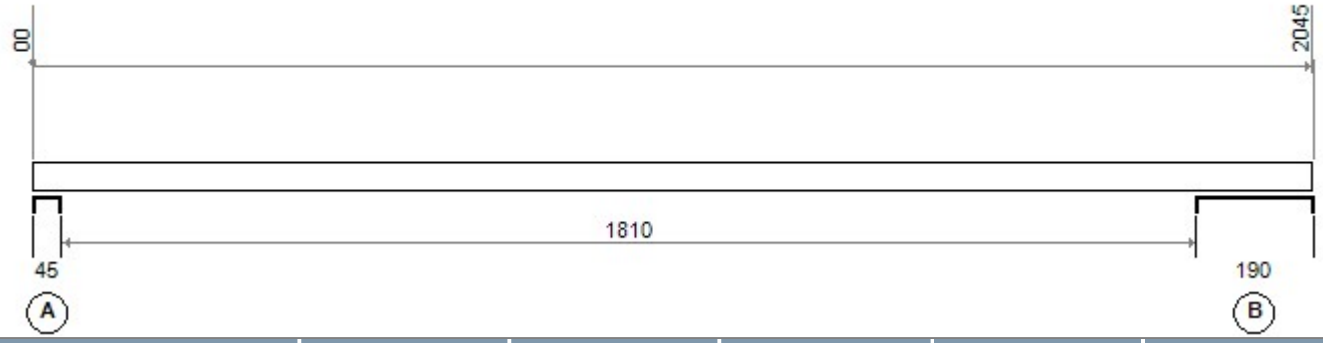


| | | | Load width/area | Dead load | Live load |
|---|---|---|---|---|---|
| **Direct loading** | | | | | |
| UDL | 0 - 2045 | Floor | 0.20 m | 40 kg/m² | 1.5 kPa/1.8 kN |
| **From parallel wall** | | | | | |
| UDL | 0 - 2045 | Wall | - | 0.4 kN/m | |
| UDL | 0 - 2045 | Roof | 1.2 m | 40 kg/m² | 0.25 kPa |

**5) Member specification**

| | |
|---|---|
| Size, stress grade/product | Use 300 x 90 hy90 |
| Material type | Structural Laminated Veneer Lumber to AS/NZS 4357 |

**6) Serviceability**

| Load case | Limit[3] on average deflection[2] | Estimated average deflection[2] | Rigidity ratio[4] |
|---|---|---|---|
| Long term load - G + $\Psi_L Q^*$ | 6.1 mm | 0.2 mm | 31.5 |
| Live load - $\Psi_s Q$ | 10.2 mm | 0.0 mm | 428.5 |
| Live load - $\Psi_s Q$ | 5.1 mm | 0.0 mm | 214.3 |
| Live load - $\Psi_s Q$ | 5.1 mm | 0.0 mm | 214.3 |

*Critical serviceability load case
See 'Notes for interpretation of serviceability data' at the end of this report

**7) Reactions**

| Load case | $k_1$[1] | Reaction kN[4] |
|---|---|---|
| **Support A/End** | | |
| 1.35G | 0.60 | -1.5 |
| 1.2G + 1.5Q | 0.80 | -1.6 |
| 1.2G + 1.5Q | 0.80 | -1.6 |
| 1.2G + $W_u$ + $\Psi_c Q$ | 1.00 | -2.0 |
| 0.9G + $W_u$ | 1.00 | 0.5 |
| **Support B/End** | | |
| 1.35G | 0.60 | -1.5 |
| 1.2G + 1.5Q | 0.80 | -1.6 |
| 1.2G + 1.5Q | 0.80 | -1.6 |
| 1.2G + $W_u$ + $\Psi_c Q$ | 1.00 | -2.0 |
| 0.9G + $W_u$ | 1.00 | 0.5 |

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**Notes for interpretation of serviceability data**

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1. 'average deflection' is an engineering concept based upon a notional estimated load, notional member rigidity and, in some cases, an approximate model of material response to environmental conditions. These parameters are, 'standardised' in AS 1170 and AS 1720.

2. Deflection is the flexural response to load 'out-of-level' measurements of installations are not necessarily deflections and can incorporate 'initial out-of-straightness', whether intended or not. Furthermore, loads can be higher/lower than the notional estimate and in any comparison with measured levels, material variability needs to also be considered. AS 1720 gives the following basis for estimation of upper bound deflections for various materials.

| | |
|---|---|
| No 1 Framing – visually graded to NZS 3631 | Average + 100% |
| SG grades - mechanically graded to AS/NZS 1748 | Average + 43% |
| GL grades for glulam to AS 1328 | Average + 33% |
| LVL to AS/NZS 4357 (includes hySPAN and hyJOIST) | Average +18% |

As can be seen, comparison of the 'average deflection' for different materials, even if calculated on the same basis, does not give the whole picture!

3. The limits referred are those specified in AS 1720.3 for the stated load case.

4. 'Rigidity ratio' expresses the rigidity of the specified beam relative to the rigidity of a notional beam just meeting the serviceability requirements detailed.

**Notes for interpretation of reaction data**

1. Duration of load factor '$k_1$' for strength as per NZS 3603:1993
2. Negative (-) reactions relate to the 'gravity' or 'downwards' force on the support
3. Positive reactions relate to the 'upwards' forces or 'tie-down' requirement on the support
4. End reaction includes allowance for overhang/cantilever where one has been designed

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Preliminary only - not for construction

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Date printed: 15/10/2020
Page 1 of 1
Ref. no.: FS10586

# Project assumptions and limitations report

CARTERS YourBuildingPartner

Tasman District Council
BUILDING CONSENT AUTHORITY

**Specifier preparing this design and layout:** Futurebuild Residential Design Service

**Project details:**

**Site address:** Lots 367 - 358, THE MEADOWS, RICHMOND

**Constructed for:**

**Constructed by:**

SUPERSEDED

Please find attached Futurebuild Residential Design Service proposal FS10586 including Joist and Beam Layouts and associated costing for the engineered wood products specified for the mid-floor framing components of the proposed dwelling at Lots 367 - 358, THE MEADOWS, RICHMOND.
Please note the following assumptions apply:

- Floor layout follows Architectural Drawing sheet C05.
- We have applied HJ300 90 hyJOIST floor joists at 400 centres in lieu of the specified HJ300 45 hyJOIST floor joists as the specified floor joists did not perform under the applied loads with accordance to Futurebuild LVL deflection limits. Please confirm this with the project designer and advise if any changes are required for a re-quote.
- We have followed the architects joist layout and proposed 300x90 hy90 beams where double 240x45 SG8 was specified. This removes the need for nail lamination of single members and suit the depth of floor system.
- Mid-span blocking is typically not required for hyJOIST floors as per our design and installation guide. No allowance has been made for the inclusion of mid-span blocking. Please advise for re-quote if you would like us to include this blocking.
- No allowance has been made for steel beams or timber required to pack out the steel to facilitate connection.
- Bracketry has been allowed for connection of hyJOIST's to steel supporting members within the floors.
  - These brackets can be removed from specification using alternate connections such as notching the beams and housing them into the side for a re-quote if required – Please advise.
- Futurebuild hyJOIST products have been supplied untreated in accordance with NZS 3602, solid LVL including boundary members have been treated to H1.2 level.
- The mid floor costing is subject to confirmation of the floor framing layout and acceptance of the estimated average deflection by the project designer.
- We can remove the 'preliminary only' watermark once the designer of the project has confirmed they are comfortable with the above, please let us know if there are any issues or other changes that are required.

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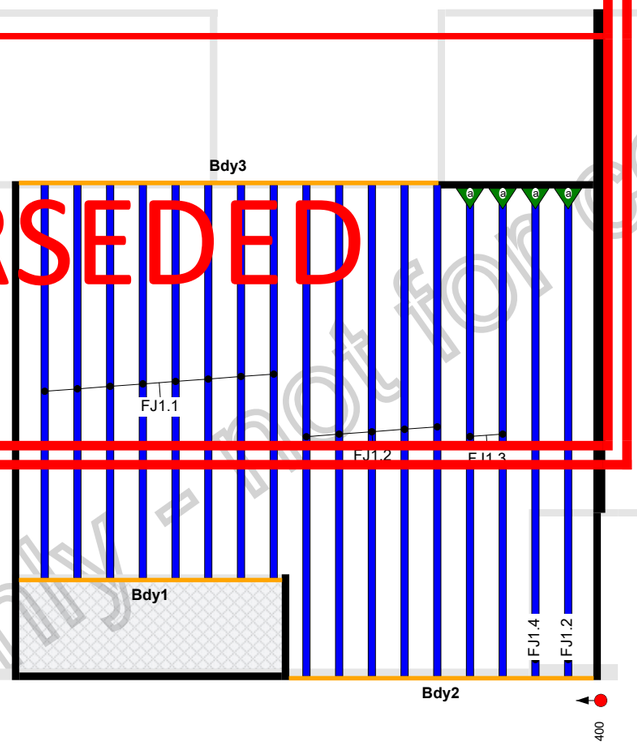
0 Metres 5

Tasman District Council
BUILDING CONSENT AUTHORITY

SUPERSEDED




| Label | Member | | No/Length (m) |
|---|---|---|---|
| | Type | Size | |
| Quantities determined by laylTout | | | |
| FJ1.1 | hyJOIST | HJ300 90 | 8/5.4 |
| FJ1.2 | hyJOIST | HJ300 90 | 6/6.6 |
| FJ1.3 | hyJOIST | HJ300 90 | 2/6.6 |
| FJ1.4 | hyJOIST | HJ300 90 | 1/6.6 |
| Bdy3 | truFRAME H1.2 | 300 x 45 | 1/5.2 |
| Bdy2* | truFRAME H1.2 | 300 x 45 | 1/3.8 |
| Bdy1* | truFRAME H1.2 | 300 x 45 | 1/3.3 |

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Preliminary only - Not for construction

## Floor Joist Layout

| Bracket codes | | |
|---|---|---|
| a | IBHF30090 | 4 |

***NOTES.***

1. *Spacings given are nominal maximum spacings.*
2. *Length rounded to next available increment.*
3. *Bearing and/or support in excess of the basic requirements may need to be specified separately. Refer designIT for Houses or Futurebuild LVL literature.*
4. *Persons relying on information provided should verify the proposed lengths, spacings and layout and check that assumptions for loading and support, as specified in the Design certificate, correspond to requirements.*

05408

CARTERS YourBuildingPartner

Ver: 27 Sheet: 1

Drawing No.:FS10586 - FL

Date: Friday, 19 February 2021 Time: 9:47 am

Specified by: Futurebuild Residential Design Service

Project: STAGE 6 TOWNHOUSES FOR RICHMOND

Site address: Lots 367 - 358, THE MEADOWS, RICHMOND

For:

Symbols:

- yyy Denotes start point for laying members at yyy mm centres
- ▶ Hangers required
- B Indicates blocking
- • Rationalised member (refer to cutting list)
- Load bearing wall
- — Indicates rimboard

**FLOOR JOIST LAYOUT**

**laylTout**

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022

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0 Metres 5

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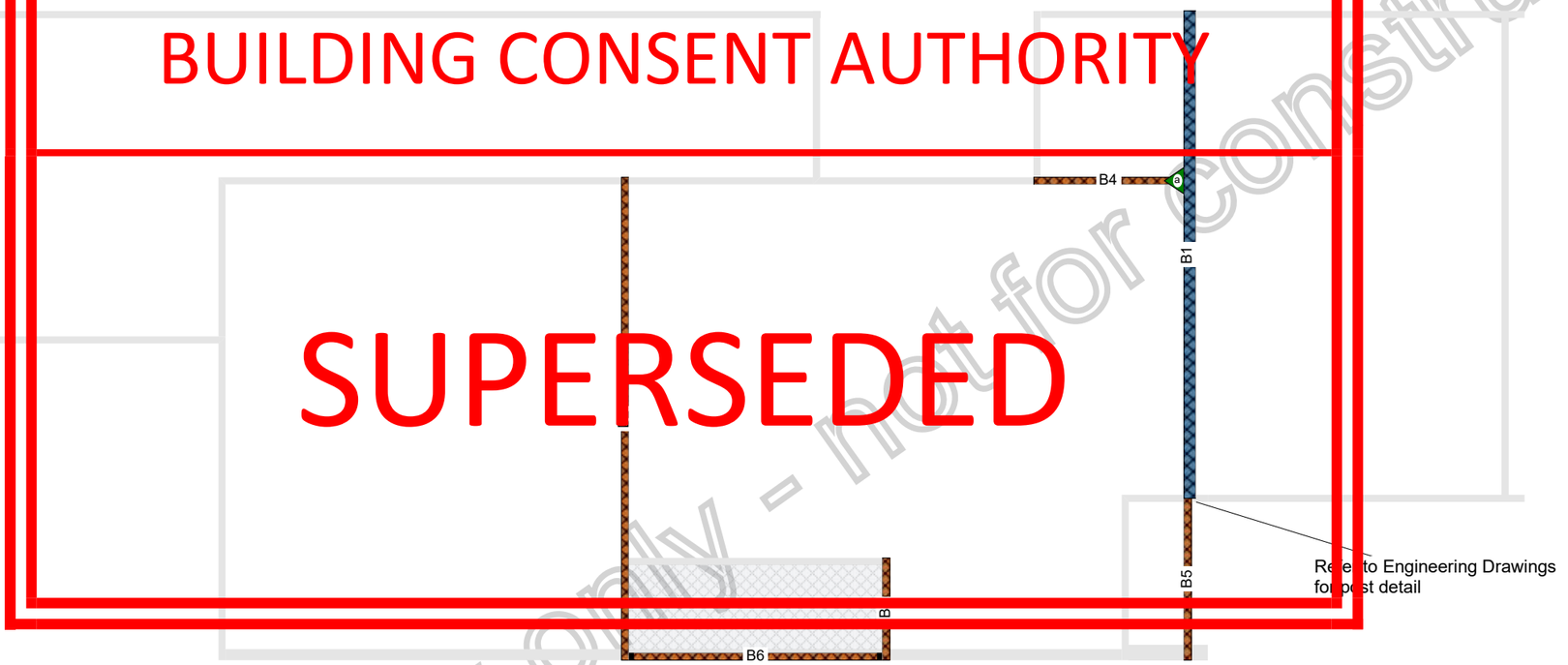
BUILDING CONSENT AUTHORITY
SUPERSEDED




| Label | Member Type | Member Size | No/Length (m) |
|---|---|---|---|
| Beam schedule - user specified | | | |
| B1 | 250UB31.4 | | |
| B2 | hyONE H1.2 | 400 x 90 | 1/7.2 |
| B3* | hy90 H1.2 | 300 x 90 | 1/1.3 |
| B4* | hy90 H1.2 | 300 x 90 | 1/1.9 |
| B5* | hy90 H1.2 | 300 x 90 | 1/2.1 |
| B6* | hy90 H1.2 | 300 x 90 | 1/3.3 |

Preliminary only - not for construction

## Floor beam layout

| Bracket codes | | |
|---|---|---|
| a | LVSIA-V | 1 |

***NOTES.***

*1. Length obtained is then rounded to next available increment.*

*2. Futurebuild LVL solid section beams to be installed in accordance with Futurebuild LVL literature and NZS 3604.*

*3. Persons relying on information provided should verify the proposed lengths, spacings and layout and check that assumptions for loading and support, as specified in the Design certificate, correspond to requirements*

05408

CARTERS YourBuildingPartner

Ver: 27 Sheet: 1

Drawing No.:FS10586 - FLB

Date: Friday, 19 February 2021 Time: 9:47 am

Specified by: Futurebuild Residential Design Service

Project: STAGE 6 TOWNHOUSES FOR RICHMOND

Site address: Lots 367 - 358, THE MEADOWS, RICHMOND

For:

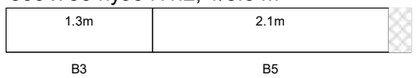
Symbols:

- Post support
- Beam below floor joists
- Floor level beam
- Rationalised member

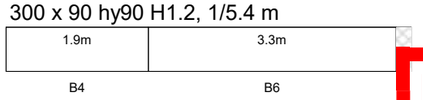
**FLOOR BEAM LAYOUT**

**layITout**

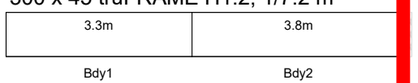
rat1 (Rationalised member)
300 x 90 hy90 H1.2, 1/3.6 m




rat2 (Rationalised member)
300 x 90 hy90 H1.2, 1/5.4 m




rat3 (Rationalised member)
300 x 45 truFRAME H1.2, 1/7.2 m

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Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

*Make sure that each Rat member is checked to correctly match its label code on the applicable layout*

CARTERS
YourBuildingPartner

| | |
|---|---|
| Ver: 27 | Sheet: 2 |
| Drawing No.:FS10586 - FLB | |
| Date: Friday, 19 February 2021 | Time: 9:47 am |
| Specified by: Futurebuild Residential Design Service | |
| Project: STAGE 6 TOWNHOUSES FOR RICHMOND | |
| Site address: Lots 367 - 358, THE MEADOWS, RICHMOND | |
| For: | |

**FLOOR BEAM LAYOUT**
**Cutting list**

**layITout**

Tasman District Council
BUILDING CONSENT AUTHORITY

Building Code Clause(s) B1

# PRODUCER STATEMENT – PS1 – DESIGN

SUPERSEDED

**ISSUED BY:** Wilton Joubert Ltd.
(Design Firm)

**TO:** G.J Gardner Homes Nelson (LSK Builders 2011 Ltd)
(Owner/Developer)

**TO BE SUPPLIED TO** Tasman District Council
(Building Consent Authority)

**IN RESPECT OF:** structural design services
(Description of Building Work)

**AT:** 12, 14, 16, 18, 20 Kahikatea Way
(Address)

Town/City: Richmond **LOT** 303-307 **DP** 561194 **SO**
(Address)

We have been engaged by the owner/developer referred to above to provide:

structural beams, wing wall frame, wall bracing

(Extent of Engagement)

services in respect of the requirements of Clause(s) B1 of the Building Code for:

☐ All or ■ Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

☑ Compliance Documents issued by the Ministry of Business, Innovation & Employment B1/VM1,VM4 or
(verification method/acceptable solution)

☐ Alternative solution as per the attached schedule

The proposed building work covered by this producer statement is described on the drawings titled:

12, 14, 16, 18, 20 Kahikatea Way, Richmond and numbered SD0, SD1, sheet A04, A05, A06, A07, A19 together with the specification, and other documents set out in the schedule attached to this statement.

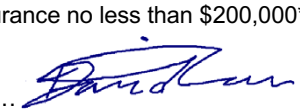
**On behalf of the Design Firm,** and subject to:
(i) Site verification of the following design assumptions
(ii) All proprietary products meeting their performance specification requirements;

**I believe on reasonable grounds** that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation:

☐ CM1 ■ CM2 ☐ CM3 ☐ CM4 ☐ CM5 (Engineering Categories) or ☐ as per agreement with owner/developer (Architectural)

I, David Lau (Name of Design Professional) am: ■ CPEng 221906 # ☐ Reg Arch # 

I am a member of: ☐ Engineering New Zealand ☐ NZIA and hold the following qualifications: BE(Hons),PhD,CMEngNZ,CPEng,IntPE
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Design Firm is a member of ACENZ: ☐

**SIGNED BY** David Lau (Name of Design Professional) (Signature) 

**ON BEHALF OF** Wilton Joubert Ltd. (Design Firm) Date 22/09/2021

*Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000*.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

**THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, ENGINEERING NEW ZEALAND AND NZIA**

Tasman District Council / AlphaOne Multiproof Approval – 107

# Tasman District Council
# BUILDING CONSENT AUTHORITY

WILTON JOUBERT
Consulting Engineers

Recommended Site Inspections / Construction Review

WJ Job #: 110906

Site Address: 12, 14, 16, 18, 20 Kahikatea Way

SUPERSEDED

Important Notes:

- Check building consent conditions for any inspections that are required by the Building Consent Authority.

Ultimately, it is up to the building consent authority to determine which step of the construction process requires an engineer's review. Please check your eventual building consent conditions thoroughly for these. In support of your application for building consent, the following inspections / construction reviews are suggested:

- Beams and wing wall frame connections
- 
- 
- 
- 
- 
- 
- 
- 
- 

Tasman District Council / AlphaOne Multiproof Approval – 107

# Tasman District Council
# BUILDING CONSENT AUTHORITY

WILTON JOUBERT
Consulting Engineers

Site address: 12, 14, 16, 18, 20 Kahikatea Way

**Re: B2 (Durability) Compliance**

SUPERSEDED

To whom it may concern,

We have provided a Producer Statement for Design (PS1) for clause B1 of the Building Act - Structure. Our PS1 does not cover clause B2 of the Building Act – Durability because there is no effective means of compliance for structural durability in the Building Code. However we can confirm that the structural elements shown in our documentation have been treated as noted below.

Tasman District Council / AlphaOne Multiproof Approval – 107

**Timber**

The timber has been specified in accordance with NZS3640:2003. The quality of timber treatment is dependent on the QA systems of manufacturers, suppliers and the onsite contractors and sub-contractors. Refer to the contractor's PS3 and QA records where available.

**Concrete**

Compliance with cover and concrete quality requirements for B2/AS1 are in accordance with NZS3101:2006 Section 3.

**Reinforced Concrete Masonry**

Compliance with cover and concrete quality requirements for B2/AS1 are in accordance with NZS4230:2004 Section 4.

**Mild Steel**

Protective coatings as specified in building consent documentation (may be by others) in accordance with AS/NZS 2312:2014 and SNZ TS 3404:2018 on a life to first major maintenance basis.

The quality of mild steel protective coatings is dependent on:

- Steel preparation
- Quality and production consistency of the coating products
- QA of the application and curing
- QA of the handling, protection and repair

Refer to:

- Contractor's and sub-contractor's PS3s and QA records where available
- Third-party inspection and test results

On-going maintenance plan (attached)

Yours faithfully

David Lau, Wilton Joubert Ltd.

Dated: 22/09/2021

Tasman District Council
BUILDING CONSENT AUTHORITY

WILTON JOUBERT
Consulting Engineers

## STRUCTURAL MAINTENANCE SCHEDULE

This schedule of ongoing inspection and maintenance of structural elements shall be included with the O&M manuals and provided to the Owner/Body Corporate and building managers.

SUPERSEDED

| **Inspection/Maintenance timeframe and item** | |
|---|---|
| (a) Half-yearly | Wash down all exposed steelwork that is not in a fully interior environment including:<br>• Veranda steelwork<br>• Steel carpark structure (beams, columns, braces etc)<br>• Deck and balcony steelwork<br>• Exposed façade steelwork, both primary and secondary structure<br>• Sub-ground floor mild-steel structures such as beams. |
| (b) 5-yearly | Inspect and repair sealant that encloses structural mild-steel components and/or timber with mild-steel fixings. |
| (c) 10-yearly | Check exposed timber fixings for corrosion, repair as required. |
| | Inspect/replace sealant that encloses structural mild-steel components and/or timber with mild-steel fixings. This will typically include sealants around the perimeter of precast panels. **Note that 10 years is the expected useful life for many sealants.** |
| | Check all exposed steelwork that is not in a fully interior environment for signs of corrosion. Repair protective coatings as required. |
| (d) 25-yearly | Inspect samples of structural steel that is hidden from view but not enclosed within a vapour barrier, and repair protective coatings as necessary. A typical example is a veranda with built-in steelwork (Such steelwork should typically have duplex protective coatings). Inspection may typically require removal of claddings and/or the drilling of holes for borescope access. Repair as required. |
| | Inspect all exposed, external timber. Repair as required. |
| | Inspect all exposed, external reinforced concrete for signs of spalling. Repair as required. |
| Following seismic shaking > SLS1 event | Inspections and repair as per b), c) and d) above. |

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022
Page 607 of 1401

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Tasman District Council
BUILDING CONSENT AUTHORITY

# PRODUCER STATEMENTS – Advisory Note

SUPERSEDED

Producer Statements shall be submitted to territorial authorities or building consent authority in order for Code of Compliance Certificates to be issued. The requirement for consultants to issue the related Producer Statements may appear as a condition under the building consent documents or as a separate letter from the territorial authority or building certifier. **It is the owner's (or consent applicant) responsibility to check the building consent documentation and notify Wilton Joubert Ltd. in relation to the requirement for construction inspections required (and the subsequent PS4: Producer Statement for Construction Review) as stated on the consent documents. Please note, we cannot issue PS4 if we did not carry out the inspection.**

In order to secure our inspection services, it is strongly recommended that Wilton Joubert Ltd. be given at least 48 hours notice prior to time of inspection. Our inspections are limited to items that have been designed and detailed by us. We are also unable to inspect non-consented or unauthorised work. Building consented, stamped plans with consent numbers (or legible copy of the same) including amendments where applicable shall be made available on site during inspections.

In some cases due to the distance of the job from our offices, it may be more practical and cost effective to contact a local professional engineer to carry out the inspection, who may contact us with any questions that may arise. The engineer who carried out the inspection would subsequently be responsible for the issue of the producer statement for construction review.

The costs associated with site inspections and issuing of Producer Statements are separate from any previous work that we have been engaged for, such as engineering design of works. The costs for carrying out the inspections and related work are based on time spent travelling to site, time on site and other associated costs. Please contact us for an estimate of costs. Our assumptions are that the person(s) who arranged the inspection is responsible for payment of the fees, unless otherwise stated at time of engagement.

Tasman District Council / AlphaOne Multiproof Approval – 107

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Tasman District Council
BUILDING CONSENT AUTHORITY

engineering new zealand

# CERTIFICATE OF DESIGN WORK
## MEMORANDUM FROM LICENSED BUILDING PRACTITIONER

SUPERSEDED

**Section 30C and Section 45, Building Act 2004**

### The Building

| | |
|---|---|
| **Street address** | 12, 14, 16, 18, 20 Kahikatea Way |
| **Suburb** | **Town/city** Richmond |
| **Postcode** | **Building consent no.** |

### The Owner

| | |
|---|---|
| **Name(s)** | G.J Gardner Homes Nelson (LSK Builders 2011 Ltd) |
| **Email** | nelson@gjgardner.co.nz **Phone** 03 543 9502 |
| **Address** | 195 Queen Street, RICHMOND 7020 |

## Basis for providing this memorandum

I am providing this memorandum in my role as the **specialist** designer who carried out or supervised specific Primary structure elements of restricted building work (RBW) design work as described in this memorandum. Other designers will provide memoranda covering the remaining RBW design work. Refer also to the attached PS1.

## Identification of restricted building work (RBW) design work

I, David Lau carried out or supervised the following RBW design work:

### Primary structure: B1

| Design work that is RBW | | Description (as required) and reference to plans and specifications | Carried out or supervised |
|---|---|---|---|
| Foundations and subfloor framing | ✗ | | |
| Retaining walls | ✗ | | |
| Beams | ✓ | SED Beams and Wing Wall Frame as per SD0, SD1, sheet A04, A05, A06, A19 | Supervised |
| Portal | ✗ | | |
| Bracing | ✓ | SED Wall bracing as per sheet A07 | Supervised |
| Other (primary) | ✗ | | |

Note: SED = Elements subject to Specific Engineering Design outside of the scope of NZS3604:2011, unless otherwise noted.

**Initial** _____ **Date** 22/09/2021

Tasman District Council / AlphaOne Multiproof Approval – 107

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Tasman District Council
BUILDING CONSENT AUTHORITY

## Waivers and modifications

**Are waivers or modifications of the Building Code required?** No

If yes, please provide details of the waivers or modifications:

| Building Code clause | Waiver/modification required |
|---|---|
| N/A | N/A |

## Issued by

SUPERSEDED

| | | | |
|---|---|---|---|
| **Name** | David Lau | **Design entity/company** | Wilton Joubert Ltd. |
| **Chartered status** | CPEng | **Chartered no** | 221906 |
| **Email** | david@wjl.co.nz | **Website** | www.wiltonjoubert.co.nz |
| **Phone (daytime)** | 09 527 0196 | **Phone (after hours)** | |
| **Mobile** | | | |
| **Postal address** | PO Box 11381 Ellerslie, Auckland 1542 | | |
| **Physical address** | 108 Lunn Avenue, Mt. Wellington, Auckland 1072 | | |

## Declaration

I, David Lau, LBP state that I have applied the skills and care reasonably required of a competent design professional in carrying out or supervising the RBW described in this memorandum and that based on this, I certify that the RBW described in this memorandum:

- complies with the Building Code; or
- ~~complies with the Building Code subject to any waiver or modification of the Building Code described in this memorandum.~~

**Signature** _____ **Date** 22/09/2021

Tasman District Council / AlphaOne Multiproof Approval – 107

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# STRUCTURAL STEELWORK

1. Unless otherwise stated on drawings, workmanship and materials shall be to the current edition of the following standards:

| | |
|---|---|
| AS/NZS 1252 | High-strength steel fastener assemblies for structural engineering - Bolts, nuts and washers |
| AS/NZS 1554 | Structural steel welding - Welding of steel structures |
| AS/NZS 2980 | Qualification of welders for fusion welding of steels |
| NZS 3404 | Steel structures standard |
| SNZTS 3404 | Durability requirements for steel structures and components |
| AS/NZS 5131 | Structural steelwork - Fabrication and erection |

2. Steel shall be mild steel of approved origin and conforming to NZS 3404.

3. Unless otherwise stated on drawings, steel grades shall be no less than the following:

| | |
|---|---|
| Hot rolled sections (UB, UC, PFC, EA) | G300+ |
| Hollow sections (SHS, RHS, CHS) | G350LO |
| Flats and plates | G300 |

4. Welds to be continuous single bevel, butt, or 6mm continuous fillet welds as appropriate, unless noted otherwise.

5. All welding shall conform to the requirements of AS/NZ 5131 and AS/NZS 1554 (different parts as applicable). Fabricator's Factory Production Control (FPC) shall comply with AS/NZ ISO 3834.3.

6. Welding of all main structural members and connections (i.e. Primary Structure) shall be Weld Category SP. Any minor components, including cleats (i.e. Secondary Structure) shall be permitted to be Weld Category GP.

7. Site welded elements shall be considered Fabrication Category 2 (FC2), and completed under responsibility of competent welding coordinator. All paint coating affected by site-welding shall be remedied, with weld spatter removed and cleaned, then primed and top coating reinstated as per AS/NZ5131.

8. Bolts shall be G4.6/S, unless noted otherwise. At least one washer shall be provided under the head and nut of each bolt assembly.

9. Holes for bolts shall be either machine cut, drilled /punched full size or subpunched 3.0mm undersize and reamed to size. Hand Flame cutting of bolt holes shall not be permitted.

10. Edge distances shall be 1.75D from the centre of the bolt to the cut edge of the steel unless shown otherwise on drawings, where D is the nominal bolt diameter. The minimum distance between adjacent bolts shall be as indicated on the drawings, 2.5D if not shown.

11. Fabrication and erection of structural steelwork shall be based on Construction Category 2 (CC2) as per AS/NZ5131. Where required, shop drawings and any supporting documentation shall comply with AS/NZ 5131 and may be reviewed by the Design Engineer for design concept and general arrangement only. Allow two(2) weeks for review.

12. Structural hold downs under seismic loading have been designed to comply with NZS3101:2006 Cl. 17.5.5 (i.e. Seismic Categories C1 or C2 as per EOTA TR 049 and EN 1992-4, which supersedes EOTA TR045 and ETAG 001 Annex E). Where amendment or substitution of specified hold downs are required, Wilton Joubert Ltd. shall be contacted for approval. Any substitutions shall have the same Seismic Categories certification.

13. All structural steel & connections' coating / durability requirements shall be as per NZS3604:2011 or proprietary coatings (solutions) to comply with SNZ TS 3404:2018. Please contact Wilton Joubert Ltd. for assistance in specifying suitable coating on steel members if required.

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

NOTES:
1. Do not scale from drawings. These drawings are to be read in conjunction with the architectural drawings and all other related documents. Refer to architectural drawings for dimensions. Contact the architect/ engineer if any discrepancies are found.
2. These drawings are NOT to be used as shop drawings, Wilton Joubert takes no responsibility for set-out and dimensions when shop drawings have not been provided. Check all structural beams, components and dimensions prior to fabrication and installation. Ensure truss and frame manufacturers understand what connections are shown. If a connection does not work practically, contact Wilton Joubert prior to fabrication.
3. Unless otherwise stated, all steel beams supporting trusses and floor members shall be packed with SG8 timber and bolted with M12 bolts at min. 600crs.
4. All structural steel & connections' coating / durability requirements shall be as per NZS3604:2011 or proprietary coatings (solutions) to comply with SNZ TS 3404:2018.
5. Bolts bearing on timber may be substituted with coach bolts of the same size and grade, as preferred on site.
6. All built-up timber member shall be well spiked as per NZS3604.

| No. | DESCRIPTION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

REVISION

WILTON JOUBERT
Northland: 09 945 4188 Christchurch: 021 824 063
Auckland: 09 527 0196 Wanaka: 03 443 6209
www.wiltonjoubert.co.nz

SITE ADDRESS:

**Proposed Residence:**
**12, 14, 16, 18, 20**
**Kahikatea Way,**
**Richmond**

SHEET TITLE:

**Notes**

| | |
|---|---|
| DESIGNED BY: JZ | DRAWN BY: JZ |
| CHECKED BY: DL | APPROVED BY: Wilton Joubert Ltd |
| DATE: 22-09-2021 | OFFICE: Lunn Avenue |
| DRAWING SCALE: 1:100 | ORIGINAL DRAWING SIZE: A3 |
| Original Job #: **Job # 110906** | Sheet #: **SD0** |
| Revision Job #: | |

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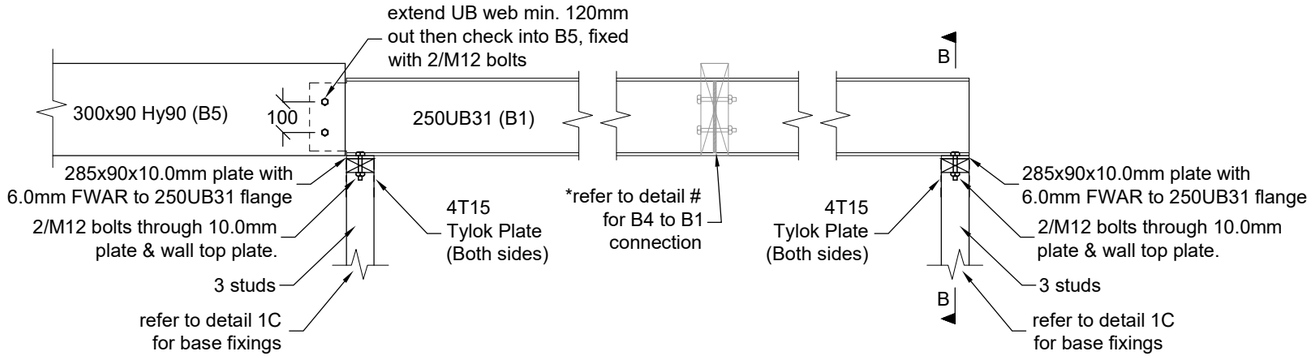
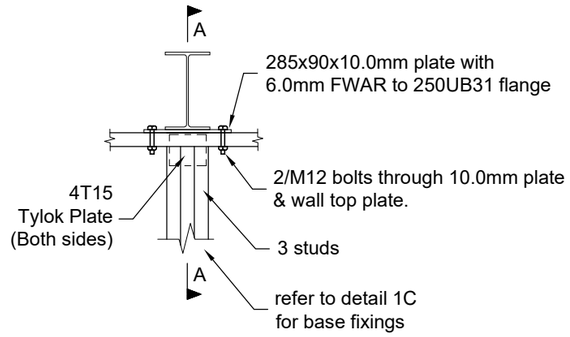


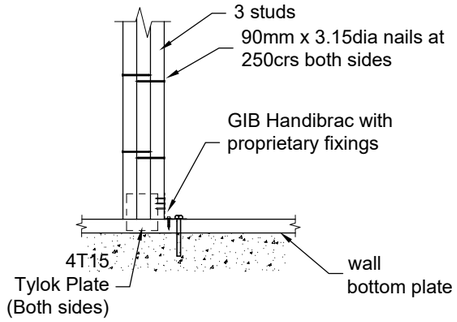

1A — Detail ( A - A )

250UB31 (B1) on 3 studs



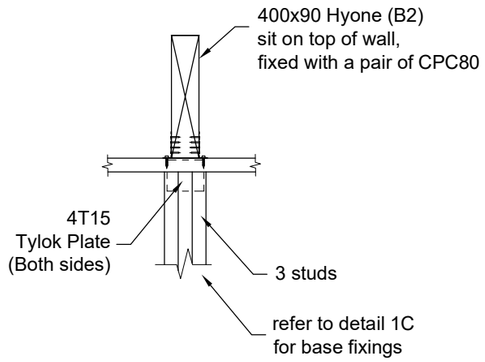

1B — Detail ( B - B )

250UB31 (B1) on 3 studs



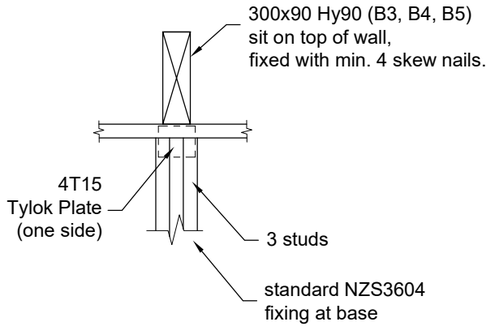

1C — Detail

Base fixing for 3 studs



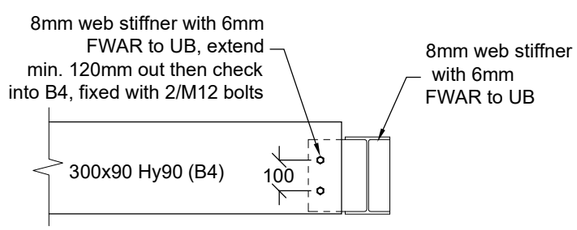

2 — Detail

400x90 Hyone (B2) on 3 studs



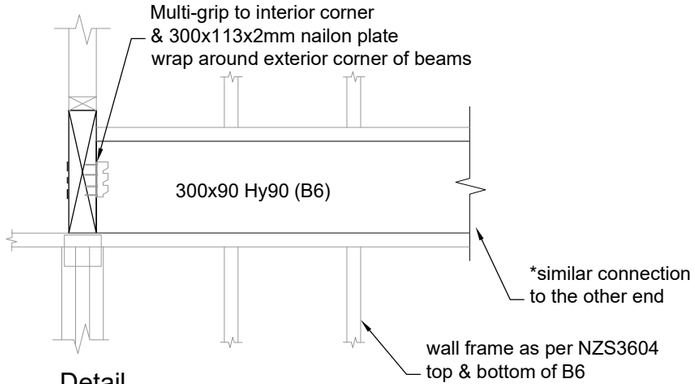

3 — Detail (to both end of beam)

300x90 Hy90 (B3, B4, B5) on 3 studs




4 — Detail

300x90 Hy90 (B4) to 250UB31 (B1)




5 — Detail

300x90 Hy90 (B6) to 400x90 Hyone (B2)

NOTES:

1. Do not scale from drawings. These drawings are to be read in conjunction with the architectural drawings and all other related documents. Refer to architectural drawings for dimensions. Contact the architect/ engineer if any discrepancies are found.
2. These drawings are NOT to be used as shop drawings, Wilton Joubert takes no responsibility for set-out and dimensions when shop drawings have not been provided. Check all structural beams, components and dimensions prior to fabrication and installation. Ensure truss and frame manufacturers understand what connections are shown. If a connection does not work practically, contact Wilton Joubert prior to fabrication.
3. Unless otherwise stated, all steel beams supporting trusses and floor members shall be packed with SG8 timber and bolted with M12 bolts at min. 600crs.
4. All structural steel & connections' coating / durability requirements shall be as per NZS3604:2011 or proprietary coatings (solutions) to comply with SNZ TS 3404:2018.
5. Bolts bearing on timber may be substituted with coach bolts of the same size and grade, as preferred on site.
6. All built-up timber member shall be well spiked as per NZS3604.

| No. | DESCRIPTION | DATE |
|---|---|---|
| | REVISION | |

WILTON JOUBERT
Northland: 09 945 4188 Christchurch: 021 824 063
Auckland: 09 527 0196 Wanaka: 03 443 6209
www.wiltonjoubert.co.nz

SITE ADDRESS:

**Proposed Residence:
12, 14, 16, 18, 20
Kahikatea Way,
Richmond**

SHEET TITLE:

**Connections Detail**

| | |
|---|---|
| DESIGNED BY: JZ | DRAWN BY: JZ |
| CHECKED BY: DL | APPROVED BY: Wilton Joubert Ltd |
| DATE: 22-09-2021 | OFFICE: Lunn Avenue |
| DRAWING SCALE: 1:20 | ORIGINAL DRAWING SIZE: A3 |
| Original Job #: **Job # 110906** | Sheet #: **SD1** |
| Revision Job #: | |

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Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022

# Tasman District Council
# BUILDING CONSENT AUTHORITY

# SUPERSEDED

**Structural Design Calculations for:**

**12, 14, 16, 18, 20,**

**20 Kahikatea Way,**
**Richmond**

Job #: 110906

22 Sept. 2021

WILTON JOUBERT
Consulting Engineers

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Southern Lakes: 021 494586
www.wiltonjoubert.co.nz
email: jobs@wjl.co.nz

**Beams Analysis**

| | | | |
|---|---|---|---|
| Job Number: | 110906 | Date: | 22/09/2021 |
| Job Title: | 12, 14, 16, 18, 20 Kahikatea Way | Designer | JZ |
| Beam Description: | B1 | | |

**Beam Loadings: Primary Beam** — Beam Span = 6.15

| | | | | | |
|---|---|---|---|---|---|
| roof span: | 2 | m | floor A span: | | m |
| roof weight: | 0.46 | kPa | floor A weight: | | kPa |
| roof live load (Q): | 0.25 | kPa | floor A live load: | | kPa |
| roof live load (Su or Wu): | -1.16 | kPa | floor B span: | | m |
| wall A height: | 2.4 | m | floor B weight: | | kPa |
| wall A mass: | 38 | kg/m$^2$ | floor B live load: | | kPa |
| wall B height: | | m | self weight: | 0.314 | kN/m |
| wall B mass: | | kg/m$^2$ | | | |

**Beam Loadings: Secondary Beam** — Beam Span = 1.85 — B4

| | | | | | |
|---|---|---|---|---|---|
| roof span: | 4.5 | m | floor A span: | 2 | m |
| roof weight: | 0.46 | kPa | floor A weight: | 0.4 | kPa |
| roof live load (Q): | 0.25 | kPa | floor A live load: | 1.5 | kPa |
| roof live load (Su or Wu): | -1.16 | kPa | floor B span: | | m |
| wall A height: | 2.4 | m | floor B weight: | | kPa |
| wall A mass: | 38 | kg/m$^2$ | floor B live load: | | kPa |
| wall B height: | | m | self weight: | 0.13 | kN/m |
| wall B mass: | | kg/m$^2$ | | | |

**Beam Loadings: Additional Point Load b (PL b)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Beam Loadings: Additional Point Load c (PL c)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Loadings Summary**

| | | | | | |
|---|---|---|---|---|---|
| UDL G: | 2.128672 | kN/m | Point Load, G: | 3.6025716 | kN |
| Q: | 0.5 | kN/m | Q: | 3.815625 | kN |
| Wu or Su: | -2.32 | kN/m | Wu or Su: | -4.8285 | kN |

Consider Load Combination: 1.2 G and 1.5 Q Su or Wu

| | | | | |
|---|---|---|---|---|
| UDL: | 3.3044064 | kN/m | | |
| Point Load: | 10.0465234 | kN | at 2.1 | m from support 1 |
| Additional Point Load (PL b): | 0 | kN | at | m from support 1 |
| Additional Point Load (PL c): | 0 | kN | at | m from support 1 |

Beam end support condition: simply supported

Try: **250UB31**

Beam Type: steel

| | | | | | |
|---|---|---|---|---|---|
| *for timber &* | b = | mm | | | |
| *flitched beams* | d = | mm | **max. long term deflection:** | **8.0** | **mm** |
| | I = | mm$^4$ | **max. short term deflection:** | **9.0** | **mm** |
| *for other beams* | I = 4.45E+07 | mm$^4$ | allowable defn (functionality), L/400 = | 15.4 | mm |
| | E = 200000 | MPa | | **OK** | |

| | | |
|---|---|---|
| **M* =** | **27.7** | **kNm** |
| **V* =** | **16.8** | **kN** |
| support 1 reaction: | 16.8 | kN |
| support 2 reaction: | 13.6 | kN |

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

MemDes Calculations @ 14:01:11 22-09-2021 by JZ

Project : 12, 14, 16, 18, 20 Kahikatea Way
Description : B1

SUPERSEDED

Section : 250UB31 Grade 300+
d = 252 mm b = 146 mm $t_f$ = 8.6 mm $t_w$ = 6.1 mm
Area = 4010 $mm^2$ $f_{yf}$ = 320 MPa $f_{yw}$ = 320 MPa $f_u$ = 440 MPa

Check of Section Category Requirements
NOTE : Designer to ensure that Clause 12.3.3.3 is complied with * *
**** MAJOR axis bending ****
Section Geometry Check [Major] : Passed ---- OK ----

Member Effective Length Calcs
Eff. Len $L_e$ = 6.15 * 1.03 * 1.00 * 1.00 = 6.33m

Major Axis Bending
Design Action $M^*_x$ = 28.0 kNm
Section Bending Capacity $M_{sx}$ = $f_{yf}$ $Z_{ex}$ = 126.40 kNm
$a_m$ = 1.7 * 28.0 / [( 22.0)$^2$ + ( 26.0)$^2$ + ( 17.0)$^2$ ]$^{0.5}$ = 1.250
Reference Buckling Moment Calculation : $M_o$
$M_o$ = 48.7 kNm ( Eqtn 5.6.1.1(4) )
$a_s$ = 0.31
$a_m$ $a_s$ < 1.0, => Segment NOT Fully Restrained
$M_{bx}$ = 1.25 * 0.31 * 126.4 = 49.7
Major axis capacity Ratio = $M^*_x$ / f $M_{bx}$
= 0.63, ---- OK ----

Shear Calculations (Unstiffened Web)
Design Action $V^*_x$ = 17.0 kN
Nominal Shear Yield capacity $V_w$ = 295.1 kN
$a_v$ = 3.55 >= 1.0 => full web shear capacity
$V_u$ = $V_w$ = 295.1 kN
Shear capacity ratio = $V^*_x$ / f $V_u$
= 0.06, ---- OK ----

========== SUMMARY ==========
**** U.L.S. Capacity Check Passed, Load Cap. Ratio = 0.63 ---- OK ----

==========

MemDes v 3.3 : Calculations for New Zealand Steel
Project : 12, 14, 16, 18, 20 Kahikatea Way at 2:01:11 pm on 22/09/2021
Description : B1 by JZ **Powered By Steltech ( http://www.steltech.co.nz )**

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022
Page 615 / 1401

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

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Consulting Engineers
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Auckland: 09 5791114
Canterbury: 021 801984
Southern Lakes: 021 494586
www.wiltonjoubert.co.nz
email: jobs@wjl.co.nz

**Beams Analysis**

| | | | |
|---|---|---|---|
| Job Number: | 110906 | Date: | 22/09/2021 |
| Job Title: | 12, 14, 16, 18, 20 Kahikatea Way | Designer | JZ |
| Beam Description: | B2 | | |

**Beam Loadings: Primary Beam**

| | | | | | |
|---|---|---|---|---|---|
| roof span: | 1 | m | Beam Span = | 6 | |
| roof weight: | 0.46 | kPa | floor A span: | 0.2 | m |
| roof live load (Q): | 0.25 | kPa | floor A weight: | 0.4 | kPa |
| roof live load (Su or Wu): | -1.16 | kPa | floor A live load: | 1.5 | kPa |
| wall A height: | 2.4 | m | floor B span: | | m |
| wall A mass: | 38 | kg/m$^2$ | floor B weight: | | kPa |
| wall B height: | | m | floor B live load: | | kPa |
| wall B mass: | | kg/m$^2$ | self weight: | 0.234 | kN/m |

**Beam Loadings: Secondary Beam**

| | | | | | |
|---|---|---|---|---|---|
| roof span: | | m | Beam Span = | | |
| roof weight: | | kPa | floor A span: | | m |
| roof live load (Q): | | kPa | floor A weight: | | kPa |
| roof live load (Su or Wu): | | kPa | floor A live load: | | kPa |
| wall A height: | | m | floor B span: | | m |
| wall A mass: | | kg/m$^2$ | floor B weight: | | kPa |
| wall B height: | | m | floor B live load: | | kPa |
| wall B mass: | | kg/m$^2$ | self weight: | | kN/m |

**Beam Loadings: Additional Point Load b (PL b)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Beam Loadings: Additional Point Load c (PL c)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Loadings Summary**

| | | | | | |
|---|---|---|---|---|---|
| UDL G: | 1.668672 | kN/m | Point Load, G: | 0 | kN |
| Q: | 0.55 | kN/m | Q: | 0 | kN |
| Wu or Su: | -1.16 | kN/m | Wu or Su: | 0 | kN |

Consider Load Combination: 1.2 G and 1.5 Q Su or Wu

| | | | | |
|---|---|---|---|---|
| UDL: | 2.8274064 | kN/m | | |
| Point Load: | 0 | kN | at | m from support 1 |
| Additional Point Load (PL b): | 0 | kN | at | m from support 1 |
| Additional Point Load (PL c): | 0 | kN | at | m from support 1 |

Beam end support condition: simply supported

Try: **400x90 Hyone**

Beam Type: timber

| | | | | | |
|---|---|---|---|---|---|
| *for timber &* | b = | 90 | mm | k2 = | 2 |
| *flitched beams* | d = | 400 | mm | **max. long term deflection:** | **7.3** mm |
| | I = | 480000000 | mm$^4$ | **max. short term deflection:** | **4.5** mm |
| *for other beams* | I = | | mm$^4$ | allowable defn (functionality), L/400 = | 15.0 mm |
| | E = | 16000 | MPa | | **OK** |

**M* = 12.7 kNm**
**V* = 8.5 kN**
support 1 reaction: 8.5 kN
support 2 reaction: 8.5 kN

**Beam Design**

| | | | | | |
|---|---|---|---|---|---|
| | ϕ = | 0.8 | | shear stress = | 5.3 MPa |
| | k1 = | 0.8 | | bending stress = | 48 MPa |
| | lay/b = | 10 | | Z = | 2400000 mm3 |
| | k8 = | 1 | | | |
| **ϕ M =** | **73.7** | **kNm** | **OK** | | |
| **ϕ V =** | **81.4** | **kN** | **OK** | | |

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www.wiltonjoubert.co.nz
email: jobs@wjl.co.nz

**Beams Analysis**

| | | | |
|---|---|---|---|
| Job Number: | 110906 | Date: | 22/09/2021 |
| Job Title: | 12, 14, 16, 18, 20 Kahikatea Way | Designer | JZ |
| Beam Description: | B3 | | |

**Beam Loadings: Primary Beam**

| | | | | | |
|---|---|---|---|---|---|
| | | | Beam Span = | 1.25 | |
| roof span: | | m | floor A span: | 0.2 | m |
| roof weight: | | kPa | floor A weight: | 0.4 | kPa |
| roof live load (Q): | | kPa | floor A live load: | 1.5 | kPa |
| roof live load (Su or Wu): | | kPa | floor B span: | | m |
| wall A height: | | m | floor B weight: | | kPa |
| wall A mass: | | kg/m$^2$ | floor B live load: | | kPa |
| wall B height: | | m | self weight: | 0.162 | kN/m |
| wall B mass: | | kg/m$^2$ | | | |

**Beam Loadings: Secondary Beam**

| | | | | | |
|---|---|---|---|---|---|
| | | | Beam Span = | | |
| roof span: | | m | floor A span: | | m |
| roof weight: | | kPa | floor A weight: | | kPa |
| roof live load (Q): | | kPa | floor A live load: | | kPa |
| roof live load (Su or Wu): | | kPa | floor B span: | | m |
| wall A height: | | m | floor B weight: | | kPa |
| wall A mass: | | kg/m$^2$ | floor B live load: | | kPa |
| wall B height: | | m | self weight: | | kN/m |
| wall B mass: | | kg/m$^2$ | | | |

**Beam Loadings: Additional Point Load b (PL b)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Beam Loadings: Additional Point Load c (PL c)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Loadings Summary**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| UDL G: | 0.242 | kN/m | | Point Load, G: | 0 | kN | |
| Q: | 0.3 | kN/m | | Q: | 0 | kN | |
| Wu or Su: | 0 | kN/m | | Wu or Su: | 0 | kN | |
| Consider Load Combination: | | | 1.2 G | and | 1.5 Q | | Su or Wu |
| UDL: | 0.7404 | kN/m | | | | | |
| Point Load: | 0 | kN | | at | | | m from support 1 |
| Additional Point Load (PL b): | 0 | kN | | at | | | m from support 1 |
| Additional Point Load (PL c): | 0 | kN | | at | | | m from support 1 |

Beam end support condition: simply supported

Try: **300x90 Hy90**

Beam Type: timber

| | | | | | |
|---|---|---|---|---|---|
| *for timber &* | b = | 90 | mm | | |
| *flitched beams* | d = | 300 | mm | | |
| | I = | 202500000 | mm$^4$ | | |
| *for other beams* | I = | | mm$^4$ | | |
| | E = | 9500 | MPa | | |

| | | |
|---|---|---|
| **M* =** | **0.1** | **kNm** |
| **V* =** | **0.5** | **kN** |
| support 1 reaction: | 0.5 | kN |
| support 2 reaction: | 0.5 | kN |
| k2 = | 2 | |
| **max. long term deflection:** | **0.0** | **mm** |
| **max. short term deflection:** | **0.0** | **mm** |
| allowable defn (functionality), L/400 = | 3.1 | mm |
| | **OK** | |

**Beam Design**

| | | | | | |
|---|---|---|---|---|---|
| | ϕ = | 0.8 | shear stress = | 5.3 | MPa |
| | k1 = | 0.8 | bending stress = | 35 | MPa |
| | lay/b = | 10 | Z = | 1350000 | mm3 |
| | k8 = | 1 | | | |
| **ϕ M =** | **30.2** | **kNm** | **OK** | | |
| **ϕ V =** | **61.1** | **kN** | **OK** | | |

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**Beams Analysis**

| | | | |
|---|---|---|---|
| Job Number: | 110906 | Date: | 22/09/2021 |
| Job Title: | 12, 14, 16, 18, 20 Kahikatea Way | Designer | JZ |
| Beam Description: | B4 | | |

**Beam Loadings: Primary Beam**

| | | | | | |
|---|---|---|---|---|---|
| roof span: | 4.5 | m | Beam Span = | 1.85 | |
| roof weight: | 0.46 | kPa | floor A span: | 2 | m |
| roof live load (Q): | 0.25 | kPa | floor A weight: | 0.4 | kPa |
| roof live load (Su or Wu): | -1.16 | kPa | floor A live load: | 1.5 | kPa |
| wall A height: | 2.4 | m | floor B span: | | m |
| wall A mass: | 38 | kg/m$^2$ | floor B weight: | | kPa |
| wall B height: | | m | floor B live load: | | kPa |
| wall B mass: | | kg/m$^2$ | self weight: | 0.162 | kN/m |

**Beam Loadings: Secondary Beam**

| | | | | | |
|---|---|---|---|---|---|
| roof span: | | m | Beam Span = | | |
| roof weight: | | kPa | floor A span: | | m |
| roof live load (Q): | | kPa | floor A weight: | | kPa |
| roof live load (Su or Wu): | | kPa | floor A live load: | | kPa |
| wall A height: | | m | floor B span: | | m |
| wall A mass: | | kg/m$^2$ | floor B weight: | | kPa |
| wall B height: | | m | floor B live load: | | kPa |
| wall B mass: | | kg/m$^2$ | self weight: | | kN/m |

**Beam Loadings: Additional Point Load b (PL b)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Beam Loadings: Additional Point Load c (PL c)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Loadings Summary**

| | | | | | | |
|---|---|---|---|---|---|---|
| UDL G: | 3.926672 | kN/m | Point Load, G: | 0 | kN | |
| Q: | 4.125 | kN/m | Q: | 0 | kN | |
| Wu or Su: | -5.22 | kN/m | Wu or Su: | 0 | kN | |
| Consider Load Combination: | 1.2 | G and | 1.5 | Q | | Su or Wu |
| UDL: | 10.8995064 | kN/m | | | | |
| Point Load: | 0 | kN | at | | m from support 1 | |
| Additional Point Load (PL b): | 0 | kN | at | | m from support 1 | |
| Additional Point Load (PL c): | 0 | kN | at | | m from support 1 | |

Beam end support condition: simply supported

Try: **300x90 Hy90**

Beam Type: timber

| | | | | | |
|---|---|---|---|---|---|
| *for timber &* | b = | 90 | mm | | |
| *flitched beams* | d = | 300 | mm | | |
| | I = | 202500000 | mm$^4$ | | |
| *for other beams* | I = | | mm$^4$ | | |
| | E = | 9500 | MPa | | |

| | | |
|---|---|---|
| **M* =** | **4.7** | **kNm** |
| **V* =** | **10.1** | **kN** |
| support 1 reaction: | 10.1 | kN |
| support 2 reaction: | 10.1 | kN |
| k2 = | 2 | |
| **max. long term deflection:** | **0.9** | **mm** |
| **max. short term deflection:** | **0.5** | **mm** |
| allowable defn (functionality), L/400 = | 4.6 | mm |
| | **OK** | |

**Beam Design**

| | | | | | |
|---|---|---|---|---|---|
| | ϕ = | 0.8 | shear stress = | 5.3 | MPa |
| | k1 = | 0.8 | bending stress = | 35 | MPa |
| | lay/b = | 10 | Z = | 1350000 | mm3 |
| | k8 = | 1 | | | |
| **ϕ M =** | **30.2** | **kNm** | **OK** | | |
| **ϕ V =** | **61.1** | **kN** | **OK** | | |

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email: jobs@wjl.co.nz

**Beams Analysis**

| | | | |
|---|---|---|---|
| Job Number: | 110906 | Date: | 22/09/2021 |
| Job Title: | 12, 14, 16, 18, 20 Kahikatea Way | Designer | JZ |
| Beam Description: | B5 | | |

**Beam Loadings: Primary Beam**

| | | | Beam Span = | 2 | |
|---|---|---|---|---|---|
| roof span: | 1 | m | floor A span: | 0.2 | m |
| roof weight: | 0.46 | kPa | floor A weight: | 0.4 | kPa |
| roof live load (Q): | 0.25 | kPa | floor A live load: | 1.5 | kPa |
| roof live load (Su or Wu): | -1.16 | kPa | floor B span: | | m |
| wall A height: | 2.4 | m | floor B weight: | | kPa |
| wall A mass: | 38 | kg/m$^2$ | floor B live load: | | kPa |
| wall B height: | | m | self weight: | 0.162 | kN/m |
| wall B mass: | | kg/m$^2$ | | | |

**Beam Loadings: Secondary Beam**

| | | | Beam Span = | | |
|---|---|---|---|---|---|
| roof span: | | m | floor A span: | | m |
| roof weight: | | kPa | floor A weight: | | kPa |
| roof live load (Q): | | kPa | floor A live load: | | kPa |
| roof live load (Su or Wu): | | kPa | floor B span: | | m |
| wall A height: | | m | floor B weight: | | kPa |
| wall A mass: | | kg/m$^2$ | floor B live load: | | kPa |
| wall B height: | | m | self weight: | | kN/m |
| wall B mass: | | kg/m$^2$ | | | |

**Beam Loadings: Additional Point Load b (PL b)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Beam Loadings: Additional Point Load c (PL c)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Loadings Summary**

| | | | | | | |
|---|---|---|---|---|---|---|
| UDL G: | 1.596672 | kN/m | Point Load, G: | 0 | kN | |
| Q: | 0.55 | kN/m | Q: | 0 | kN | |
| Wu or Su: | -1.16 | kN/m | Wu or Su: | 0 | kN | |
| Consider Load Combination: | 1.2 | G and | 1.5 | Q | | Su or Wu |
| UDL: | 2.7410064 | kN/m | | | | |
| Point Load: | 0 | kN | at | | | m from support 1 |
| Additional Point Load (PL b): | 0 | kN | at | | | m from support 1 |
| Additional Point Load (PL c): | 0 | kN | at | | | m from support 1 |

Beam end support condition: simply supported

Try: **300x90 Hy90**

Beam Type: timber

| | | | | | |
|---|---|---|---|---|---|
| *for timber &* | b = | 90 | mm | k2 = | 2 |
| *flitched beams* | d = | 300 | mm | **max. long term deflection:** | **0.4** mm |
| | I = | 202500000 | mm$^4$ | **max. short term deflection:** | **0.2** mm |
| *for other beams* | I = | | mm$^4$ | allowable defn (functionality), L/400 = | 5.0 mm |
| | E = | 9500 | MPa | | **OK** |

| | | |
|---|---|---|
| **M* =** | **1.4** | **kNm** |
| **V* =** | **2.7** | **kN** |
| support 1 reaction: | 2.7 | kN |
| support 2 reaction: | 2.7 | kN |

**Beam Design**

| | | | | | |
|---|---|---|---|---|---|
| | ϕ = | 0.8 | shear stress = | 5.3 | MPa |
| | k1 = | 0.8 | bending stress = | 35 | MPa |
| | lay/b = | 10 | Z = | 1350000 | mm3 |
| | k8 = | 1 | | | |
| **ϕ M =** | **30.2** | **kNm** | **OK** | | |
| **ϕ V =** | **61.1** | **kN** | **OK** | | |

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email: jobs@wjl.co.nz

**Beams Analysis**

| | | | |
|---|---|---|---|
| Job Number: | 110906 | Date: | 22/09/2021 |
| Job Title: | 12, 14, 16, 18, 20 Kahikatea Way | Designer | JZ |
| Beam Description: | B6 - stairwell wind beam (wind face load) | | |

**Beam Loadings: Primary Beam**

| | | | | | |
|---|---|---|---|---|---|
| load dimension: | 2.4 | m | Beam Span = | 3.2 | |
| | | kPa | floor A span: | | m |
| | | kPa | floor A weight: | | kPa |
| wind face load (Wu): | 1.16 | kPa | floor A live load: | | kPa |
| wall A height: | | m | floor B span: | | m |
| wall A mass: | | kg/m$^2$ | floor B weight: | | kPa |
| wall B height: | | m | floor B live load: | | kPa |
| wall B mass: | | kg/m$^2$ | self weight: | 0.1755 | kN/m |

**Beam Loadings: Secondary Beam**

| | | | | | |
|---|---|---|---|---|---|
| | | | Beam Span = | | |
| roof span: | | m | floor A span: | | m |
| roof weight: | | kPa | floor A weight: | | kPa |
| roof live load (Q): | | kPa | floor A live load: | | kPa |
| roof live load (Su or Wu): | | kPa | floor B span: | | m |
| wall A height: | | m | floor B weight: | | kPa |
| wall A mass: | | kg/m$^2$ | floor B live load: | | kPa |
| wall B height: | | m | self weight: | | kN/m |
| wall B mass: | | kg/m$^2$ | | | |

**Beam Loadings: Additional Point Load b (PL b)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Beam Loadings: Additional Point Load c (PL c)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Loadings Summary**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| UDL G: | 0.1755 | kN/m | | Point Load, G: | 0 | kN | |
| Q: | 0 | kN/m | | Q: | 0 | kN | |
| Wu or Su: | 2.784 | kN/m | | Wu or Su: | 0 | kN | |
| Consider Load Combination: | | | G and | | Q | 1 | Wu |
| UDL: | 2.784 | kN/m | | | | | |
| Point Load: | 0 | kN | at | | | m from support 1 | |
| Additional Point Load (PL b): | 0 | kN | at | | | m from support 1 | |
| Additional Point Load (PL c): | 0 | kN | at | | | m from support 1 | |

Beam end support condition: simply supported

Try: **300x90 Hy90 bending about minor axis**

Beam Type: timber

| | | | | | |
|---|---|---|---|---|---|
| | | | **M* =** | **3.6** | **kNm** |
| | | | **V* =** | **4.5** | **kN** |
| | | | support 1 reaction: | 4.5 | kN |
| | | | support 2 reaction: | 4.5 | kN |
| *for timber &* | b = | 300 mm | | | |
| *flitched beams* | d = | 90 mm | k2 = | 2 | |
| | I = | 18225000 mm$^4$ | **max. long term deflection:** | **0.0** | **mm** |
| *for other beams* | I = | mm$^4$ | **max. short term deflection:** | **14.8** | **mm** |
| | E = | 9500 MPa | allowable defn (functionality), L/180 = | 17.8 | mm |
| | | | | **OK** | |

**Beam Design**

| | | | | | |
|---|---|---|---|---|---|
| | $\phi$ = | 0.8 | shear stress = | 5.3 | MPa |
| | k1 = | 1 | bending stress = | 35 | MPa |
| | lay/b = | 10 | Z = | 405000 | mm3 |
| | k8 = | 1 | | | |
| **$\phi$ M =** | **11.3** | **kNm** | **OK** | | |
| **$\phi$ V =** | **76.3** | **kN** | **OK** | | |

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**Beams Analysis**

| | | | |
|---|---|---|---|
| Job Number: | 110906 | Date: | 22/09/2021 |
| Job Title: | 12, 14, 16, 18, 20 Kahikatea Way | Designer | JZ |
| Beam Description: | wing wall frame | | |

**Beam Loadings: Primary Beam**

| | | | | | |
|---|---|---|---|---|---|
| stud spacing: | 0.3 | m | Beam Span = | 5.4 | |
| | | kPa | floor A span: | | m |
| | | kPa | floor A weight: | | kPa |
| wind face load (Wu): | 1.16 | kPa | floor A live load: | | kPa |
| wall A height: | | m | floor B span: | | m |
| wall A mass: | | kg/m$^2$ | floor B weight: | | kPa |
| wall B height: | | m | floor B live load: | | kPa |
| wall B mass: | | kg/m$^2$ | self weight: | 0.0513 | kN/m |

**Beam Loadings: Secondary Beam**

| | | | | | |
|---|---|---|---|---|---|
| | | | Beam Span = | | |
| roof span: | | m | floor A span: | | m |
| roof weight: | | kPa | floor A weight: | | kPa |
| roof live load (Q): | | kPa | floor A live load: | | kPa |
| roof live load (Su or Wu): | | kPa | floor B span: | | m |
| wall A height: | | m | floor B weight: | | kPa |
| wall A mass: | | kg/m$^2$ | floor B live load: | | kPa |
| wall B height: | | m | self weight: | | kN/m |
| wall B mass: | | kg/m$^2$ | | | |

**Beam Loadings: Additional Point Load b (PL b)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Beam Loadings: Additional Point Load c (PL c)**

| | | |
|---|---|---|
| G: | | kN |
| Q: | | kN |
| Su or Wu: | | kN |

**Loadings Summary**

| | | | | | |
|---|---|---|---|---|---|
| UDL G: | 0.0513 | kN/m | Point Load, G: | 0 | kN |
| Q: | 0 | kN/m | Q: | 0 | kN |
| Wu or Su: | 0.348 | kN/m | Wu or Su: | 0 | kN |

Consider Load Combination: G and Q 1 Wu

| | | | | |
|---|---|---|---|---|
| UDL: | 0.348 | kN/m | | |
| Point Load: | 0 | kN | at | m from support 1 |
| Additional Point Load (PL b): | 0 | kN | at | m from support 1 |
| Additional Point Load (PL c): | 0 | kN | at | m from support 1 |

Beam end support condition: simply supported

Try: **190x45 SG8 @ 300c/c max.**

Beam Type: timber

| | | | | | |
|---|---|---|---|---|---|
| *for timber &* | b = | 45 | mm | k2 = | 2 |
| *flitched beams* | d = | 190 | mm | **max. long term deflection:** | **0.0 mm** |
| | I = | 25721250 | mm$^4$ | **max. short term deflection:** | **12.7 mm** |
| *for other beams* | I = | | mm$^4$ | allowable defn (functionality), L/180 = | 30.0 mm |
| | E = | 8000 | MPa | | **OK** |

| | | |
|---|---|---|
| **M* =** | **1.3** | **kNm** |
| **V* =** | **0.9** | **kN** |
| support 1 reaction: | 0.9 | kN |
| support 2 reaction: | 0.9 | kN |

**Beam Design**

| | | | | | |
|---|---|---|---|---|---|
| | $\phi$ = | 0.8 | shear stress = | 3.8 | MPa |
| | k1 = | 1 | bending stress = | 14 | MPa |
| | lay/b = | 10 | Z = | 270750 | mm3 |
| | k8 = | 1 | | | |
| **$\phi$ M =** | **3.0** | **kNm** | **OK** | | |
| **$\phi$ V =** | **17.3** | **kN** | **OK** | | |

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email: job@wjl.co.nz

**Project Name:** 12, 14, 16, 18, 20 Kahikatea Way

**Job Number:** 110906

SUPERSEDED

Wind zone: High
Earthquake zone: 2
Soil class: D & E

***Section 1 Dwelling - two storeys on concrete slab:***

| | | | |
|---|---|---|---|
| Building height to apex: | 7.5 m | Roof weight: | light |
| Roof height above eaves: | 2.4 m | Cladding weights: | |
| Stud height: | m | upper | light |
| upper | 2.4 m | lower | light |
| lower | 2.4 m | | |

| | | | |
|---|---|---|---|
| Upper building length: | 7.2 m | Lower building length: | 7.2 m |
| Upper building width: | 6.1 m | Lower building width: | 7.2 m |
| Upper building area: | 44.0 $m^2$ | Lower building area: | 44.0 $m^2$ |
| Roof pitch: | 35.0 degrees | | |

| | | | |
|---|---|---|---|
| BUs required for Wind (From NZS3604:2011) | | BUs required for EQ (From NZS3604:2011) | |
| upper storey across | 50 BUs/m | upper storey E = | 7.2 $BUs/m^2$ |
| upper storey along | 52 BUs/m | lower storey E = | 12.8 $BUs/m^2$ |
| lower storey across | 107.5 BUs/m | | |
| lower storey along | 106 BUs/m | | |

***Section 2 dwelling - single storey on concrete slab:***

| | | | |
|---|---|---|---|
| Building height to apex: | 3.8 m | Roof weight: | light |
| Roof height above eaves: | 0.0 m | Cladding weights: | light |
| Stud height: | 2.4 m | | |

| | | | |
|---|---|---|---|
| Building length: | 13.2 m | | |
| Building width: | 2.0 m | | |
| Building area: | 91.0 $m^2$ | | |
| Roof pitch: | 8.0 degrees | | |

| | | | |
|---|---|---|---|
| BUs required for Wind (From NZS3604:2011) | | BUs required for EQ (From NZS3604:2011) | |
| single storey across | 43.0 BUs/m | single storey E = | 4.8 $BUs/m^2$ |
| single storey along | 43.0 BUs/m | | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

***Upper Floor***
**Direction:** Across

SUPERSEDED

| Bracing Line | Bracing Required | | | | | | | | Bracing Provided | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Earthquake | | | | Wind | | BU's req. (Wind) | BU's req. (EQ) | Length | Height | Block? (y/n) | Wind BU's/m | EQ BU's/m | Wind BU's prov. | EQ BU's prov. | |
| | Length | Width | Area | BU's /m2 | Width | BU's /m | | | | | | | | | | |
| A | 6.1 | 2.2 | 13.42 | 7.2 | 2.2 | 50 | 110 | 97 | 0.9 | 2.4 | n | 90 | 100 | 81 | 90 | BL1-H |
| | | | | | | | | | 0.4 | 2.4 | n | 90 | 100 | 36 | 40 | BL1-H |
| | | | | | | Subtotal | **110** | **97** | | | | | | **117** | **130** | **OK** |
| B | 6.1 | 3.6 | 21.96 | 7.2 | 3.6 | 50 | 180 | 158 | 1.5 | 2.4 | n | 70 | 60 | 112 | 96 | GS1-N |
| | | | | | | | | | 1 | 2.4 | n | 50 | 55 | 50 | 55 | GS1-N |
| | | | | | | | | | 0.7 | 2.4 | n | 50 | 55 | 35 | 39 | GS1-N |
| | | | | | | Subtotal | **180** | **158** | | | | | | **197** | **190** | **OK** |
| C | 6.1 | 1.4 | 8.54 | 7.2 | 1.4 | 50 | 70 | 61 | 0.9 | 2.4 | n | 90 | 100 | 81 | 90 | BL1-H |
| | | | | | | Subtotal | **70** | **61** | | | | | | **81** | **90** | **OK** |
| | 0 | | | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | 0 | | | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | 0 | | | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |

7.2 43.92

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

*Upper Floor*
**Direction:** Along

SUPERSEDED

| Bracing Line | Bracing Required | | | | | | | | Bracing Provided | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Earthquake | | | | Wind | | BU's req. (Wind) | BU's req. (EQ) | Length | Height | Block? (y/n) | Wind BU's/m | EQ BU's/m | Wind BU's prov. | EQ BU's prov. | |
| | Length | Width | Area | BU's /m2 | Width | BU's /m | | | | | | | | | | |
| D | 7.2 | 1.5 | 10.8 | 7.2 | 1.5 | 52 | 78 | 78 | 0.3 | 2.4 | n | 50 | 55 | 40 | 44 | GS1-N |
| | | | | | | | | | 0.3 | 2.4 | n | 50 | 55 | 40 | 44 | GS1-N |
| | | | | | | | | | 0.3 | 2.4 | n | 50 | 55 | 40 | 44 | GS1-N |
| | | | | | | Subtotal | **78** | **78** | | | | | | **120** | **132** | **OK** |
| E | 7.2 | 3.1 | 22.32 | 7.2 | 3.1 | 52 | 161 | 161 | 2 | 2.4 | n | 70 | 60 | 140 | 120 | GS1-N |
| | | | | | | | | | 1.2 | 2.4 | n | 70 | 60 | 84 | 72 | GS1-N |
| | | | | | | Subtotal | **161** | **161** | | | | | | **224** | **192** | **OK** |
| F | 7.2 | 1.5 | 10.8 | 7.2 | 1.5 | 52 | 78 | 78 | 1 | 2.4 | n | 90 | 100 | 90 | 100 | BL1-H |
| | | | | | | Subtotal | **78** | **78** | | | | | | **90** | **100** | **OK** |
| | 0 | | | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | 0 | | | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | 0 | | | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |

6.1 43.92

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

***Lower Floor***
**Direction:** Across

SUPERSEDED

| Bracing Line | Bracing Required | | | | | | | | Bracing Provided | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Earthquake | | | | Wind | | BU's req. (Wind) | BU's req. (EQ) | Length | Height | Block? (y/n) | Wind BU's/m | EQ BU's/m | Wind BU's prov. | EQ BU's prov. | |
| | Length | Width | Area | BU's /m2 | Width | BU's /m | | | | | | | | | | |
| P | 4.2 | 2.3 | 9.24 | 4.8 | 2.3 | 43 | 95 | 44 | 1 | 2.4 | n | 135 | 135 | 135 | 135 | BLP-H |
| | | | | | | Subtotal | **95** | **44** | | | | | | **135** | **135** | **OK** |
| Q | 6 | 4.2 | 25.2 | 4.8 | 4.2 | 43 | 181 | 121 | 2.7 | 2.4 | n | 70 | 60 | 189 | 162 | GS1-N |
| | | | | | | Subtotal | **181** | **121** | | | | | | **189** | **162** | **OK** |
| R | 8.2 | 2.4 | 19.68 | 4.8 | 2.4 | 43 | 103 | 94 | 1 | 2.4 | n | 50 | 55 | 50 | 55 | GS1-N |
| | | | | | | | | | 1 | 2.4 | n | 90 | 100 | 90 | 100 | BL1-H |
| | | | | | | Subtotal | **103** | **94** | | | | | | **140** | **155** | **OK** |
| S | 7.7 | 2 | 15.4 | 12.8 | 2 | 107.5 | 215 | 197 | 1.9 | 2.4 | n | 125 | 105 | 238 | 200 | BL1-H |
| | | | | | | Subtotal | **215** | **197** | | | | | | **238** | **200** | **OK** |
| T | 7.7 | 3.4 | 26.18 | 12.8 | 3.4 | 107.5 | 366 | 335 | 1.9 | 2.4 | n | 125 | 105 | 238 | 200 | BL1-H |
| | | | | | | | | | 3.4 | 2.4 | n | 70 | 60 | 238 | 204 | GS1-N |
| | | | | | | Subtotal | **366** | **335** | | | | | | **476** | **404** | **OK** |
| U | 6.8 | 3.7 | 25.16 | 12.8 | 3.7 | 107.5 | 398 | 322 | 0.4 | 2.4 | n | 90 | 100 | 36 | 40 | BL1-H |
| | | | | | | | | | 0.4 | 2.4 | n | 90 | 100 | 36 | 40 | BL1-H |
| | | | | | | | | | 1.7 | 2.4 | n | 125 | 105 | 213 | 179 | BL1-H |
| | | | | | | | | | 1 | 2.4 | n | 135 | 135 | 135 | 135 | BLP-H |
| | | | | | | Subtotal | **398** | **322** | | | | | | **420** | **394** | **OK** |
| V | 5.7 | 2.5 | 14.1375 | 4.8 | 2.5 | 43 | 108 | 68 | 0.6 | 2.4 | n | 90 | 100 | 54 | 60 | BL1-H |
| | | | | | | | | | 0.6 | 2.4 | n | 90 | 100 | 54 | 60 | BL1-H |
| | | | | | | Subtotal | **108** | **68** | | | | | | **108** | **120** | **OK** |

20.4 135

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY

***Lower Floor***
**Direction:** Along

SUPERSEDED

| Bracing Line | Bracing Required | | | | | | | | Bracing Provided | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Earthquake | | | | Wind | | BU's req. (Wind) | BU's req. (EQ) | Length | Height | Block? (y/n) | Wind BU's/m | EQ BU's/m | Wind BU's prov. | EQ BU's prov. | |
| | Length | Width | Area | BU's /m2 | Width | BU's /m | | | | | | | | | | |
| W | 18.5 | 2 | 37 | 4.8 | 2 | 43 | 86 | 178 | 1 | 2.4 | n | 50 | 55 | 50 | 55 | GS1-N |
| | | | | | | | | | 2.2 | 2.4 | n | 70 | 60 | 154 | 132 | GS1-N |
| | | | | | | | | | 2.4 | 2.4 | n | 70 | 60 | 168 | 144 | GS1-N |
| | | | | | | Subtotal | **86** | **178** | | | | | | **372** | **331** | **OK** |
| X | 7.2 | 1.9 | 13.68 | 12.8 | 1.9 | 106 | 201 | 175 | 4.3 | 2.4 | n | 70 | 60 | 336 | 288 | GS1-N |
| | 0.0 | 1.9 | 18.62 | 4.8 | | | 0 | 89 | | | | | | | | |
| | | | | | | Subtotal | **201** | **264** | | | | | | **336** | **288** | **OK** |
| Y | 7.2 | 2.8 | 20.16 | 12.8 | 2.8 | 106 | 297 | 258 | 1 | 2.4 | n | 50 | 55 | 50 | 55 | GS1-N |
| | 9.8 | 2.8 | 27.44 | 4.8 | | | 0 | 132 | 3 | 2.4 | n | 70 | 60 | 210 | 180 | GS1-N |
| | | | | | | | | | 3.6 | 2.4 | n | 70 | 60 | 252 | 216 | GS1-N |
| | | | | | | Subtotal | **297** | **390** | | | | | | **512** | **451** | **OK** |
| Z | 7.2 | 1.5 | 10.8 | 12.8 | 1.5 | 106 | 159 | 138 | 2.1 | 2.4 | n | 70 | 60 | 147 | 126 | GS1-N |
| | 4.9 | 1.5 | 7.2975 | 4.8 | | | 0 | 35 | 1.4 | 2.4 | n | 70 | 60 | 98 | 84 | GS1-N |
| | | | | | | Subtotal | **159** | **173** | | | | | | **245** | **210** | **OK** |
| | | | | | 0 | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | | | | | 0 | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131

Tasman District Council - APPROVED DOCUMENTS

23/02/2022

Page 626 / 1401

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE C.A. RATED.

CEILING INSULATION CLEARANCE

R3.6 BATTS TO ENTIRE CEILING OF INSULATED ENVELOPE, TRIM BATTS WHERE NECESSARY TO ACHIEVE 25mm AIR GAP AT EAVE/TOP PLATE JUNCTION. REFER TO PINK BATTS ROOF UNDERLAY AND INSULATION CLEARANCE MANUAL FOR FURTHER DETAILS.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICE 12078412.9

PUMP CHAMBER CONTROL PANEL

POWER SUPPLY AND CONTROL PANEL FOR SEWER PRESSURIZED PUMP TO BE LOCATED ON EXTERIOR WALL ON DWELLING ADJACENT TO GARAGE.

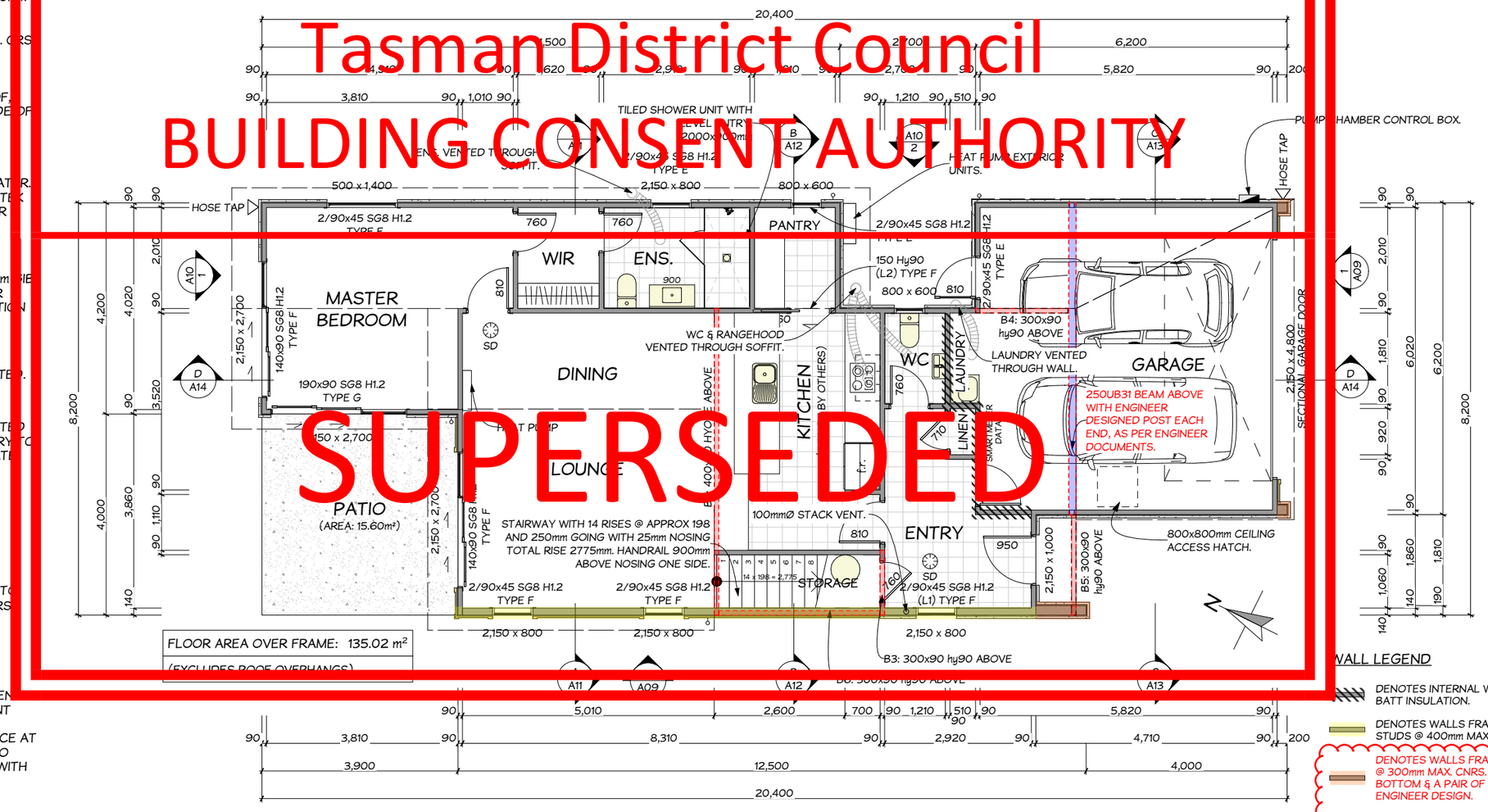
## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE C = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2125x1800 = OPENING SIZE (H x W)

TOWNHOUSE AS CONSENTED BY SH180022V2
APPROVED PLANS (APPENDIX A)

Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED




WALL LEGEND

DENOTES INTERNAL WALLS TO BE INSULATED WITH R2.6 BATT INSULATION.

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

Checked OK
...JZ, WJL (22.09.21)

Note: For specific items as defined in Producer Statement - Design

signed by: David B.N. Lau
B.E. (Hons), Ph.D., MIPENZ, CPEng

WILTON JOUBERT Consulting Engineers

All work is to be carried out in full accordance with the NZBC and Territorial Authority requirements as they apply. Any queries and discrepancies must be confirmed with the Designer before beginning any work

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| SHEET : original A3 | A04 |
| REVISION : | BUILDING CONSENT |
| DATE : | 26/08/2021 |
| SCALE : | 1:100 |
| DRAWN : | #Contact Full Name |
| Job No. | 21106-21110 |

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

CLIENT : LSK BUILDERS 2011 LTD.

PROJECT : KAHIKATEA TOWNHOUSE

LOCATION : 12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND

DRAWING : GROUND FLOOR PLAN

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

PREMIER SERVICES
Architectural Design Plus

BC220131

Tasman District Council - APPROVED DOCUMENTS

23/02/2022

Page 627 / 1401

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

STRANDBOARD FLOORING

20mm STRANDBOARD FLOORING TO BE FIXED WITH 10G x 45mm STAINLESS STEEL SCREWS. PROTECT FRAMING FROM EXCESSIVE MOISTURE AND GROUND CONTACT WITH MOISTURE LEVELS BETWEEN 12% TO 16% MAXIMUM. FIXINGS AT STANDARD FIXING PATTERN 150mm CRS AT SHEET EDGES AND WITHIN THE PANEL AT NO MORE THAN 300mm CRS.

BLOCKING TO JOISTS

PROVIDE PARTIAL BLOCKING TO JOISTS AS NECESSARY.

FIXTURE DRAINAGE

REFER TO GROUND FLOOR DRAINAGE PLAN & PLUMBING ISOMETRIC FOR FURTHER DETAILS.

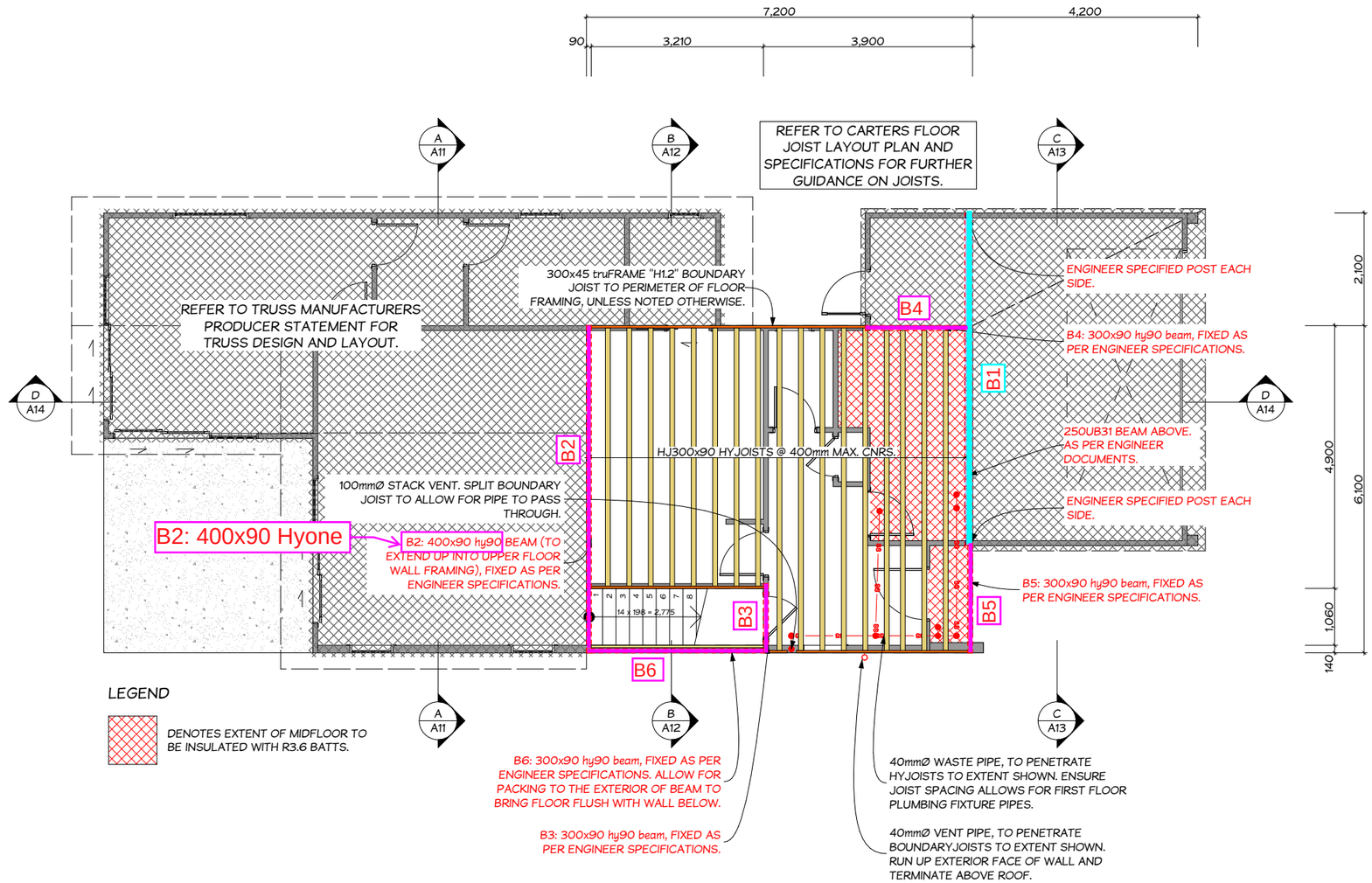
STRUCTURAL ENGINEER

Johnson Zhang

SAM YONG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

INSPECTIONS
RON O'HARA
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.




## Engineered Beams Schedule:

B1: 250UB31 (detail 1 / SD1)

B2: 400x90 Hyone (detail 2 / SD1)

B3: 300x90 Hy90 (detail 3 / SD1)

B4: 300x90 Hy90 (detail 3 & 4 / SD1)

B5: 300x90 Hy90 (detail 1 & 3 / SD1)

B6: 300x90 Hy90 (detail 5 / SD1)

Note: For specific items as defined in Producer Statement - Design

signed by: David B.N. Lau
*B.E. (Hons), Ph.D., MIPENZ, CPEng*

WILTON JOUBERT Consulting Engineers

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Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| A05 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 26/08/2021 | DATE : |
| 1:100 | SCALE : |
| #Contact Full Name | DRAWN : |

Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

MID-FLOOR PLAN — DRAWING :

PREMIER SERVICES
Architectural Design Plus

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Tasman District Council - APPROVED DOCUMENTS

23/02/2022



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VENTILATION

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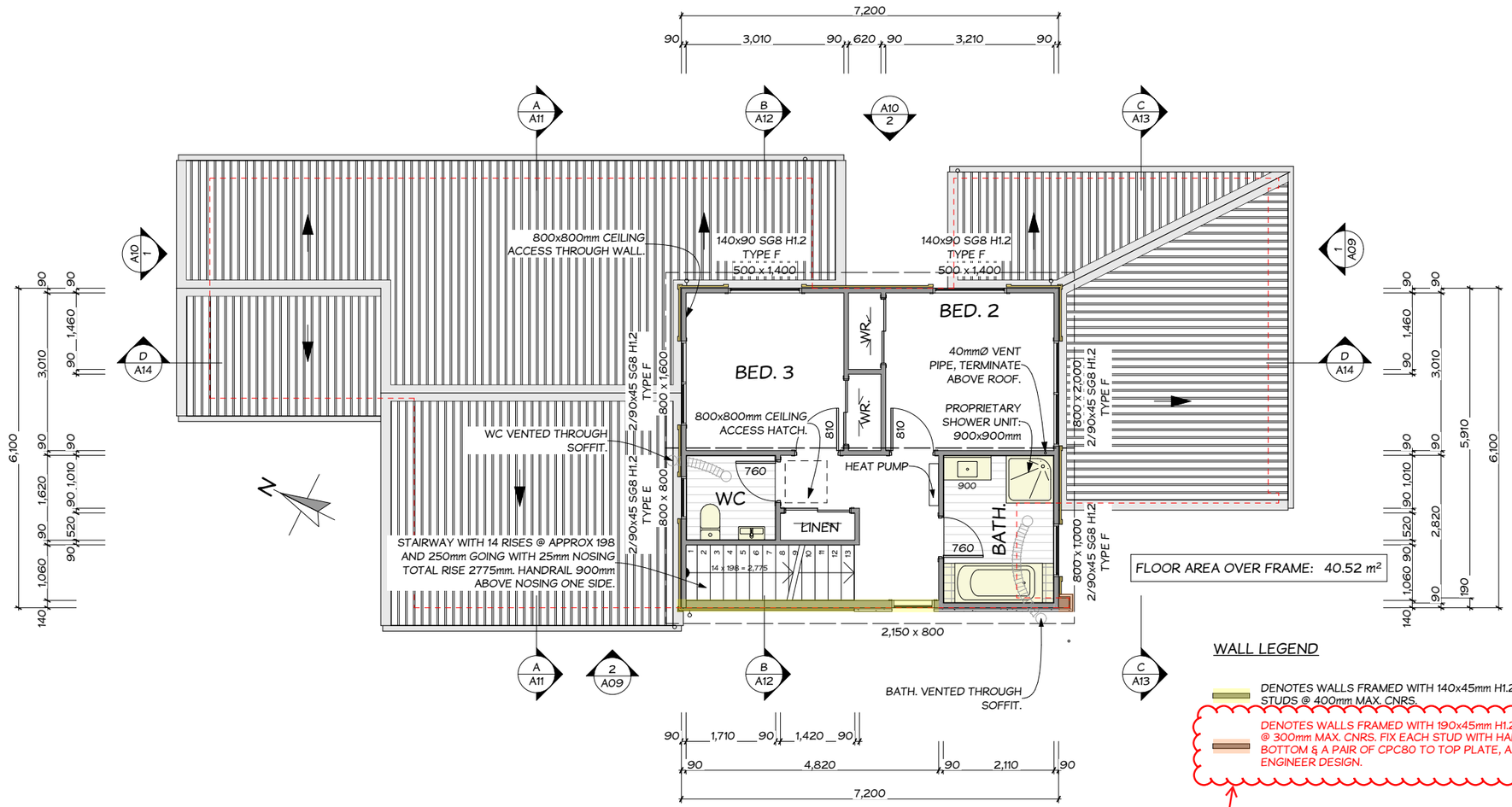
TOWNHOUSE AS CONSENTED BY SH180022V2
APPROVED PLANS (APPENDIX A)




WALL LEGEND

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

Checked OK
...JZ, WJL (22.09.21)

## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE C = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2125x1800 = OPENING SIZE (H x W)

Note: For specific items as defined in Producer Statement - Design

signed by: David B.N. Lau
*B.E. (Hons), Ph.D., MIPENZ, CPEng*

WILTON JOUBERT Consulting Engineers

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| SHEET : original A3 | A06 |
| REVISION : | BUILDING CONSENT |
| DATE : | 26/08/2021 |
| SCALE : | 1:100 |
| DRAWN : | #Contact Full Name |
| Job No. | 21106-21110 |

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

| | |
|---|---|
| CLIENT : | LSK BUILDERS 2011 LTD. |
| PROJECT : | KAHIKATEA TOWNHOUSE |
| LOCATION : | 12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND |
| DRAWING : | FIRST FLOOR PLAN |

PREMIER SERVICES
Architectural Design Plus

All work is to be carried out in full accordance with the NZBC and Territorial Authority requirements as they apply. Any queries and discrepancies must be confirmed with the Designer before beginning any work

BC220131

Tasman District Council - APPROVED DOCUMENTS

23/02/2022



All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

BRACING NOTES

BRACED PANELS SHALL BE CONSTRUCTED TO COMPLY WITH RELEVANT "BRANZ" APPRAISAL CERTIFICATES. GIB EZYBRACE SYSTEMS 2016 HAVE BEEN APPRAISED BY THE BUILDING RESEARCH ASSOCIATION OF NEW ZEALAND (BRANZ), APPRAISAL NO. 928 (2016) GIB EZYBRACE®SYSTEMS, 2016. IT IS OF PRIME IMPORTANCE TO COMPLY WITH THE DETAILS OF DESIGN, CONSTRUCTION AND WORKMANSHIP IN THE EZYBRACE SYSTEMS SPECIFICATION AND INSTALLATION MANUAL.

STRUCTURAL ENGINEER

SAM YONG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

INSPECTIONS
RON O'HARA
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

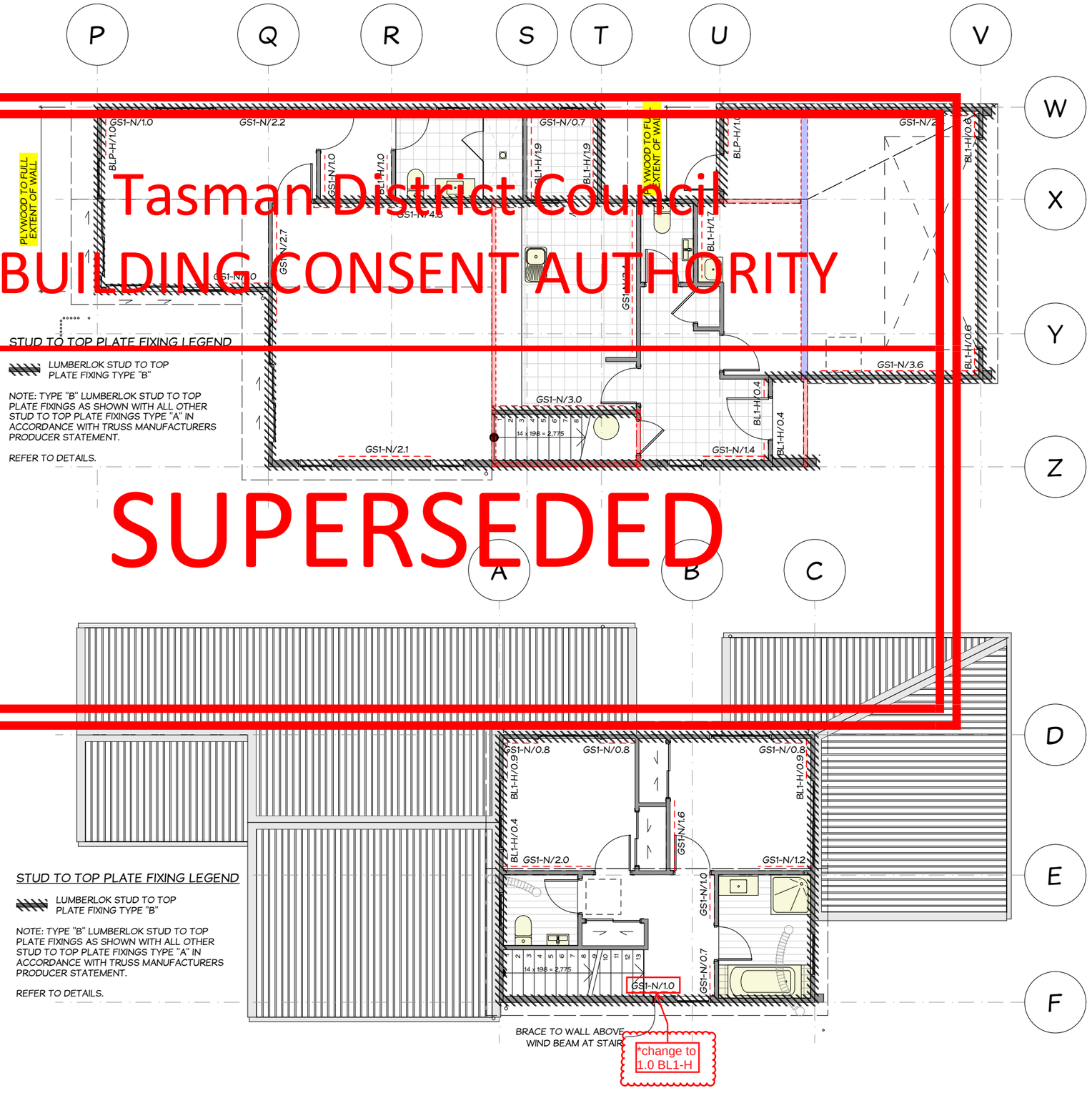
PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.

**ENGINEER DESIGN**
BRACING COVERED BY ENGINEER PS1. REFER TO ENGINEER DOCUMENTS FOR FURTHER GUIDANCE ON BRACING SPECIFICATIONS

Note: For specific items as defined in Producer Statement - Design

signed by: David B.N. Lau
*B.E. (Hons), Ph.D., MIPENZ, CPEng*

WILTON JOUBERT Consulting Engineers




Tasman District Council
BUILDING CONSENT AUTHORITY
SUPERSEDED

STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS AS SHOWN WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

REFER TO DETAILS.

Tasman District Council / AlphaOne Multiproof Approval – 107

| | |
|---|---|
| A07 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 26/08/2021 | DATE : |
| 1:100 | SCALE : |
| #Contact Full Name | DRAWN : |

Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

BRACING PLANS — DRAWING :

PREMIER SERVICES
Architectural Design Plus

All work is to be carried out in full accordance with the NZBC and Territorial Authority requirements as they apply. Any queries and discrepancies must be confirmed with the Designer before beginning any work

BC220131

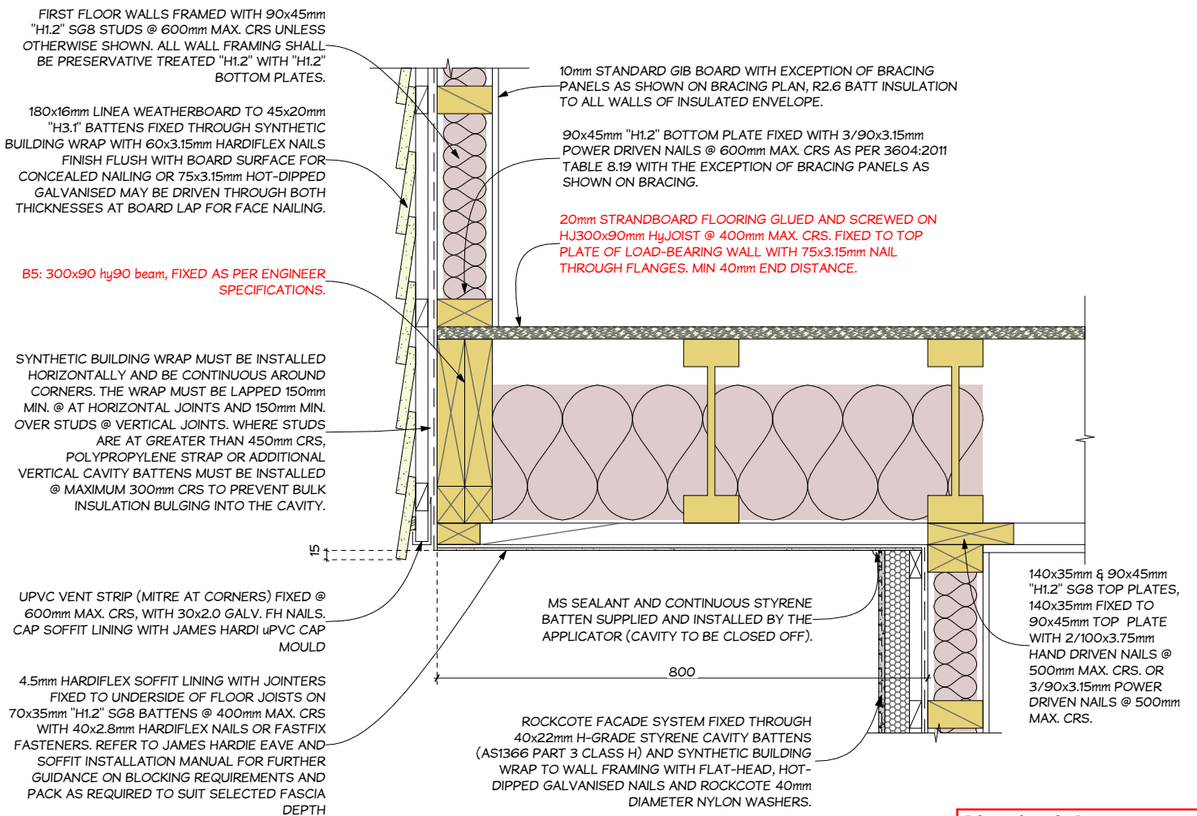
Tasman District Council - APPROVED DOCUMENTS

23/02/2022

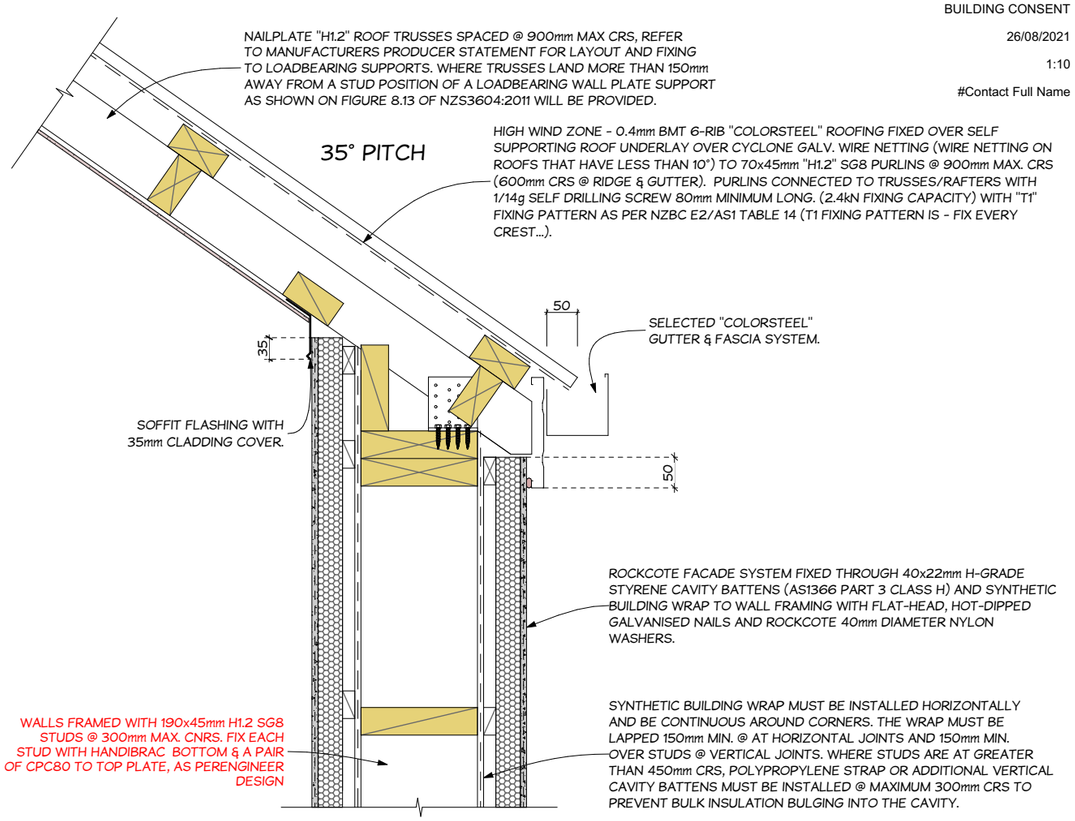
Page 636 / 1401

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

Tasman District Council / AlphaOne Multiproof Approval – 107

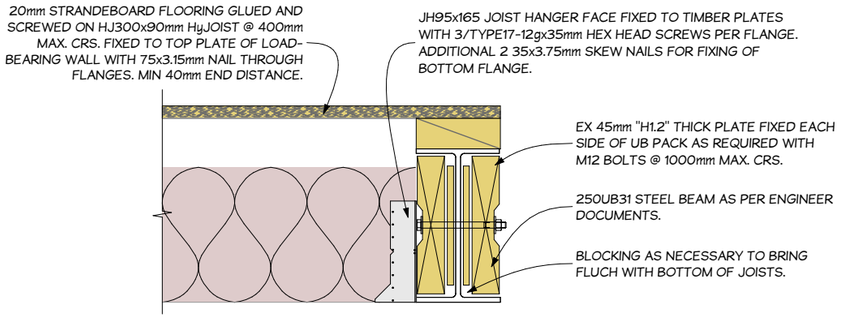



16 . ENTRY EAVE DETAIL
1:10

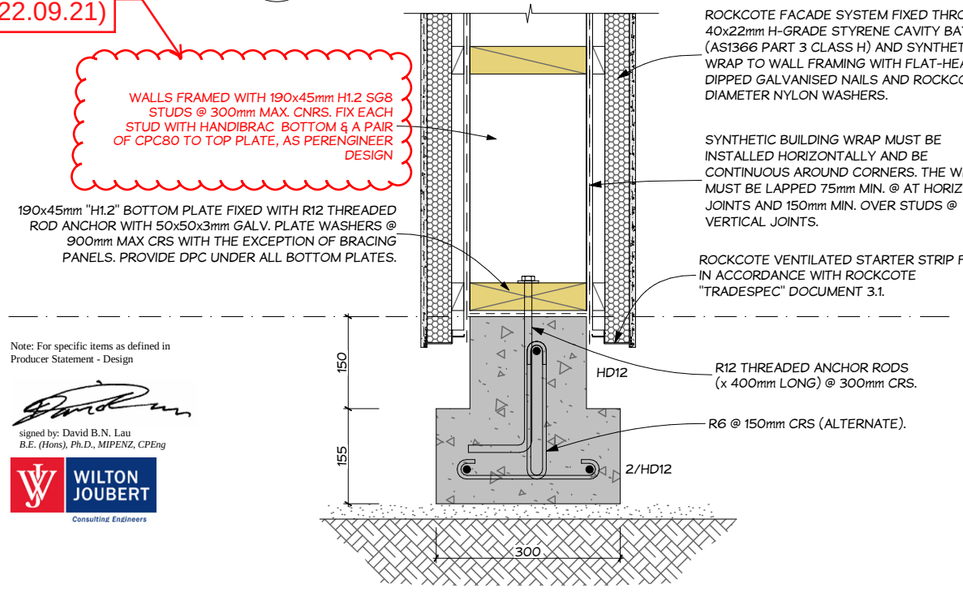



18 . ROCKCOTE WING WALL - EAVE DETAIL
1:10

Checked OK
...JZ, WJL (22.09.21)




46 . HyJOISTS TO GARAGE BEAM DETAIL
not to scale




17 . ROCKCOTE - WING WALL FOOTING DETAIL
1:10

Note: For specific items as defined in Producer Statement - Design

signed by: David B.N. Lau
*B.E. (Hons), Ph.D., MIPENZ, CPEng*

WILTON JOUBERT Consulting Engineers

| | |
|---|---|
| A19 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 26/08/2021 | DATE : |
| 1:10 | SCALE : |
| #Contact Full Name | DRAWN : |

Job No. 21106-21110

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

LSK BUILDERS 2011 LTD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

12,14,16,18 & 20 KAHIKATEA WAY, RICHMOND — LOCATION :

DETAILS — DRAWING :

PREMIER SERVICES
Architectural Design Plus

All work is to be carried out in full accordance with the NZBC and Territorial Authority requirements as they apply. Any queries and discrepancies must be confirmed with the Designer before beginning any work

Building Code Clause(s) ..... B1 .....

# PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on page 2)

**ISSUED BY:** ..... Tasman Consulting Engineers Limited ..... [ File Reference: 21395 ]
(Design Firm)

**TO:** ..... LSK Builders 2011 Ltd .....
(Owner/Developer)

**TO BE SUPPLIED TO:** ..... Tasman District Council .....
(Building Consent Authority)

Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

**IN RESPECT OF:** ..... Proposed new townhouse .....
(Description of Building Work)

**AT:** ..... 12, 14, 16, 18, 20 Kahikatea Way, Richmond (MultiProof Application) .....
(Address)
**LOT** ... 363 - 367 ..... **DP** ..... 561194 ..... **SO** ..... .....

We have been engaged by the owner/developer referred to above to provide .....
..... construction monitoring ..... services in respect of the requirements of
(Extent of Engagement)
Clause(s) ..... B1 ..... of the Building Code for

All ☐ or Part only ☒ (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

☒ Compliance Documents issued by the Ministry of Business, Innovation & Employment ..... B1/VM1 ..... or
(verification method / acceptable solution)

☐ Alternative solution as per the attached schedule ..... N/A .....

The proposed building work covered by this producer statement is described on the drawings titled …*as referenced in the attachment to this statement…* and numbered…*as referenced in the attachment to this statement*… together with the specification, and other documents set out in the schedule attached to this statement.

**On behalf of the Design Firm,** and subject to:

(i) Site verification of the following design assumptions as specified in the attachment to this statement
(ii) All proprietary products meeting their performance specification requirements;

I **believe on reasonable grounds** that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation: [*as described in the attached inspection schedule*]

☐CM1 ☒CM2 ☐CM3 ☐CM4 ☐CM5 (Engineering Categories) or ☐ as per agreement with owner/developer (Architectural)

I, ..... David King ..... am:
(Name of Design Professional)

☒CPEng ..... 145511 ..... #

☐Reg Arch ..... #

I am a member of : ☒Engineering New Zealand ☐NZIA and hold the following qualifications: ME(Civil) .....
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Design Firm is a member of ACENZ: ☐

SIGNED BY ..... David King ..... ON BEHALF OF .. Tasman Consulting Engineers Limited .....
(Design Firm)

Date ..... 15 November 2021 ..... (signature) .....

*Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000*.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

Tasman District Council / AlphaOne Multiproof Approval – 107

PO Box 3631
Richmond 7050
NELSON
t: +64 3 544 6404
w: www.tcel.co.nz

TASMAN CONSULTING ENGINEERS
CIVIL & STRUCTURAL

# PRODUCER STATEMENT – PS1 – ATTACHMENTS

(To be read in conjunction with Pages 1 and 3)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [ File Reference: 21395 ]

TO:..... LSK Builders 2011 Ltd ..... [Issue Date: 15/11/2021 ]

TO BE SUPPLIED TO: ..... Tasman District Council.....

IN RESPECT OF: ..... Proposed new townhouse .....

AT: ..... 12, 14, 16, 18, 20 Kahikatea Way, Richmond (MultiProof Application).....

Items covered by this Producer Statement:

| | |
|---|---|
| 1 | 250UB31 beam over garage and supporting studs |
| 2 | 300x90 Hy90 beam (B4) over garage and supporting studs |
| 3 | 300x90 Hy90 beam (B5) to entry and supporting studs |
| 4 | 300x90 Hy90 beam (B3) and 300x90 Hy90 beam (B6) to stairs and supporting studs |
| 5 | 400x90 HyOne beam (B2) over dining/ lounge and supporting studs |
| 6 | 190x45mm SG8 studs and fixings – wingwalls at garage & entry |
| 7 | Wall bracing |
| 8 | NOTE: Items 1-7 are for construction monitoring only |

Drawings describing the work covered by this Producer Statement:

| Drawing/Sketch Title | Reference | No of Sheets | Date |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

Design assumptions to be verified during construction:

| | |
|---|---|
| 1 | |
| 2 | |
| 3 | |

Limitations:

- *This Producer Statement remains current for 12 months from the date of issue*
- *This Producer Statement does not cover stability of the site*
- *This Producer Statement does not cover waterproofing of retaining walls or slabs*

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

PO Box 3631
Richmond 7050
NELSON
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w: www.tcel.co.nz

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

TASMAN CONSULTING ENGINEERS
CIVIL & STRUCTURAL

# PRODUCER STATEMENT – PS1 – INSPECTION SCHEDULE

(To be read in conjunction with Pages 1 and 2)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [ File Reference: 21395 ]

TO:..... LSK Builders 2011 Ltd ..... [Issue Date: 15/11/2021 ]

TO BE SUPPLIED TO: ..... Tasman District Council.....

IN RESPECT OF: ..... Proposed new townhouse .....

AT: ..... 12, 14, 16, 18, 20 Kahikatea Way, Richmond (MultiProof Application).....

The following structural elements of this project require inspection by a representative of Tasman Consulting Engineers during construction in order to ensure compliance with the New Zealand Standard Code of Practice under which they were designed. Such inspection is considered an integral part of the structural design process, and is carried out to ensure that the structure will perform adequately.

Failure to carry out the required inspections listed below will restrict Tasman Consulting Engineers ability to issue a Producer Statement – Construction Review (PS4) for use in attaining a code compliance certificate for the completed work. It may also in some circumstances limit the designer's liability for subsequent problems. This applies particularly to foundation inspection / soil tests, and to inspection of steel placement in reinforced concrete/masonry components where verification of compliance with the structural design may not be possible after construction is complete.

Please book at least 24 hours before inspections are required. Ph (03) 544 6404

| Element | Item(s) requiring inspection | Time of inspection |
|---|---|---|
| 250UB31 beam (B1) over garage and supporting studs | Member sizes & connections | After construction, prior to closing in |
| | | |
| 300x90 Hy90 beam (B4) over garage and supporting studs | Member sizes & connections | After construction, prior to closing in |
| | | |
| 300x90 Hy90 beam (B5) to entry and supporting studs | Member sizes and connections | After construction, prior to closing in |
| | | |
| 300x90 Hy90 beam (B3) and 300x90 Hy90 beam (B6) to stairs and supporting studs | Member sizes and connections | After construction, prior to closing in |
| | | |
| 400x90 HyOne beam (B2) over dining/ lounge and supporting studs | Member sizes and connections | After construction, prior to closing in |
| | | |
| 190x45mm SG8 studs and fixings – wingwalls at garage & entry | Member sizes and connections | After construction, prior to closing in |
| | | |
| Wall bracing | Wall framing and hold down fixings | Prior to lining |
| | Wall brace fixing | After installation, prior to stopping/ plastering |
| | | |
| Refer to Wilton Joubert detail sheet SD0-SD1 (dated: 22-09-2021, ref: 110906) and Premier Services plans sheets A04-A07 & A19 (Job No. 21106-21110) | | |

Tasman District Council / AlphaOne Multiproof Approval – 107

Simx

the difference is excellence

1 Haliday Place, East Tamaki, 2013
P O Box 14347 Panmure, Auckland 1741
p: +64 9 259 1660 f: +64 9 259 1661
sales@simx.co.nz www.simx.co.nz

29/10/2021

To Whom it May Concern
Tasman District Council

Acceptable Solution for Household Units. (Preliminary Drawings for Council Approvals).

Prepared By: Aiyappa Puliyanda

Certificate of Compliance.

| | |
|---|---|
| Installation Address: | (Lots 363 - 367) 12,14,16,18, & 20, Kahikatea Way, Richmond |
| Owners Name | N/A |
| Date of Design | 29/10/2021 |
| Scope of Installation | Continuous Positive Pressure Mechanical Ventilation System |
| Scope of Installation | Achieve 2 ACH to all the habitable spaces |
| Scope of Installation | With sound levels less than 30 dB(A) in all the habitable spaces |
| Scope of Installation | Comply with NZBC G4 Standards |
| | |
| | |

Please see attached documentation, Air Flow Report and Acoustic Report for validation of Certificate of Compliance.

Yours Sincerely

D. G. Latimer

David Latimer
Technical Manager Simx Limited www.simx.co.nz
email: davidl@simx.co.nz Tel: +64 9 259-1660 Mob: +64 220935498

Disclaimer: The attached Airflow and Acoustic reports are applicable only to Simx Ltd specified products. This design does not cover any other products supplied by alternative suppliers.
Please note, the information contained herein remains the property of Simx Ltd
Reproduction, copying or re-distribution is expressly prohibited.

MANROSE

SmartVent

Tasman District Council / AlphaOne Multiproof Approval – 107

# Air Flow Report

Simx

Project Data 29/10/2021

Project Name: Our Reference: 202107-51877
Owners Name: N/A
Address: (Lots 363 - 367) 12,14,16,18, & 20, Kahikatea Way, Richmond

System Design Proposed System: SV04 - #N/A
Required Airflow: 60 l/s @ 125 Pa
Actual Airflow: 94 l/s @ 303 Pa

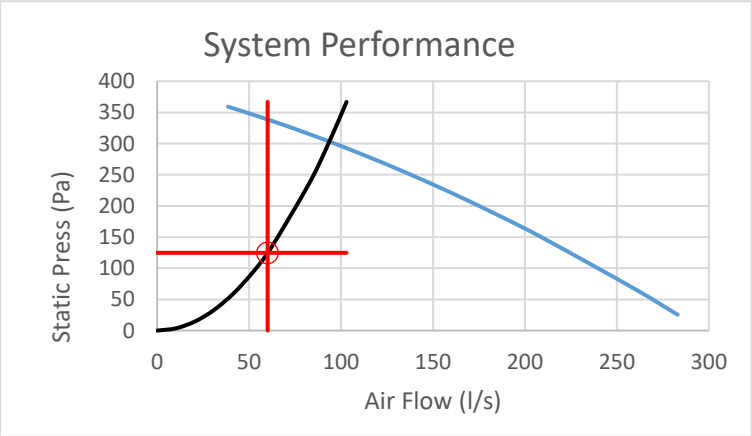
| Room | Ref | ACH | l/s | Room | Ref | ACH | l/s |
|---|---|---|---|---|---|---|---|
| Master Bedroom | 0 | 2 | 15 | | | | |
| Bedroom | 2 | 2 | 7.5 | | | | |
| Bedroom | 3 | 2 | 7.5 | | | | |
| Living Room | 0 | 2 | 15 | | | | |
| Dining Room | 0 | 2 | 15 | | | | |

Static Pressure Calculation Results (Index Run)

| | | | | |
|---|---|---|---|---|
| Flexible Duct | 150 mmØ | 8 m | = | 1.68 Pa |
| Rigid Duct | 150 mmØ | 3 m | = | 0.3 Pa |
| Flexible Duct | 200 mmØ | 5 m | = | 10.4 Pa |

| | | | |
|---|---|---|---|
| Ceiling Diffuser | 150 mmØ | = | 1.08 Pa |
| DBTO | 200 mmØ | = | 3.95 Pa |
| F7 Filter | 200 mmØ | = | 86.8 Pa |
| Louver | 200 mmØ | = | 20.5 Pa |

Total Static Pressure = 125 Pa




MANROSE

SmartVent

Tasman District Council / AlphaOne Multiproof Approval – 107

# Acoustic Report

Simx

Project Data 29/10/2021

Project Name: Our Reference: 202107-51877
Owners Name: N/A
Address: (Lots 363 - 367) 12,14,16,18, & 20, Kahikatea Way, Richmond

System Information

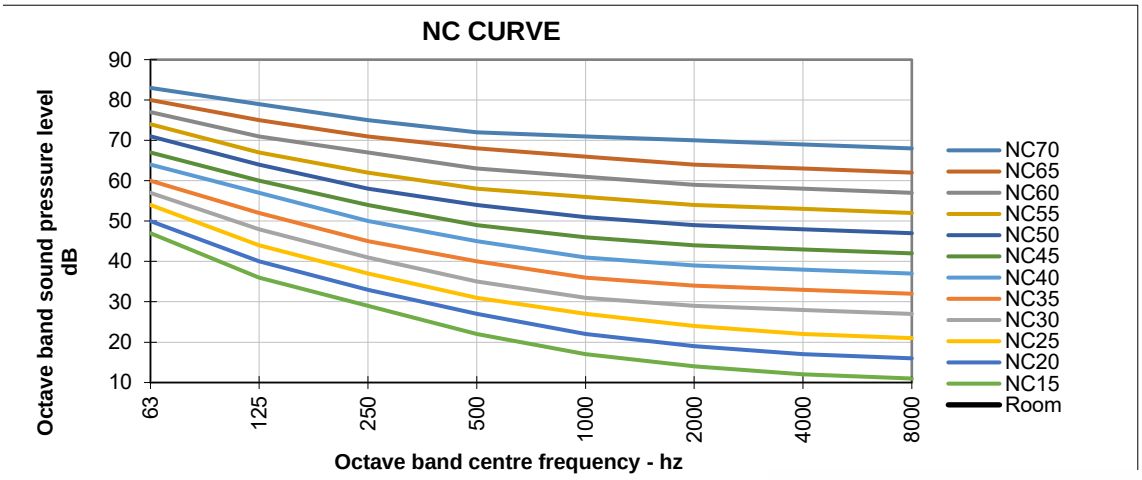
Proposed System: SV04 - #N/A
Required Airflow: 60 l/s @ 125 Pa

| System SPL Data (Hz): | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K |
|---|---|---|---|---|---|---|---|---|
| | 64 | 62 | 59 | 58 | 60 | 57 | 52 | 57 |

Acoustic Data

| Room Reference | Req dB(A) | Resultant SPL 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | Actual dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|
| Bedroom 3 | 0 | 38 | 15 | 2 | 5 | 16 | 14 | 10 | 28 | 28 |

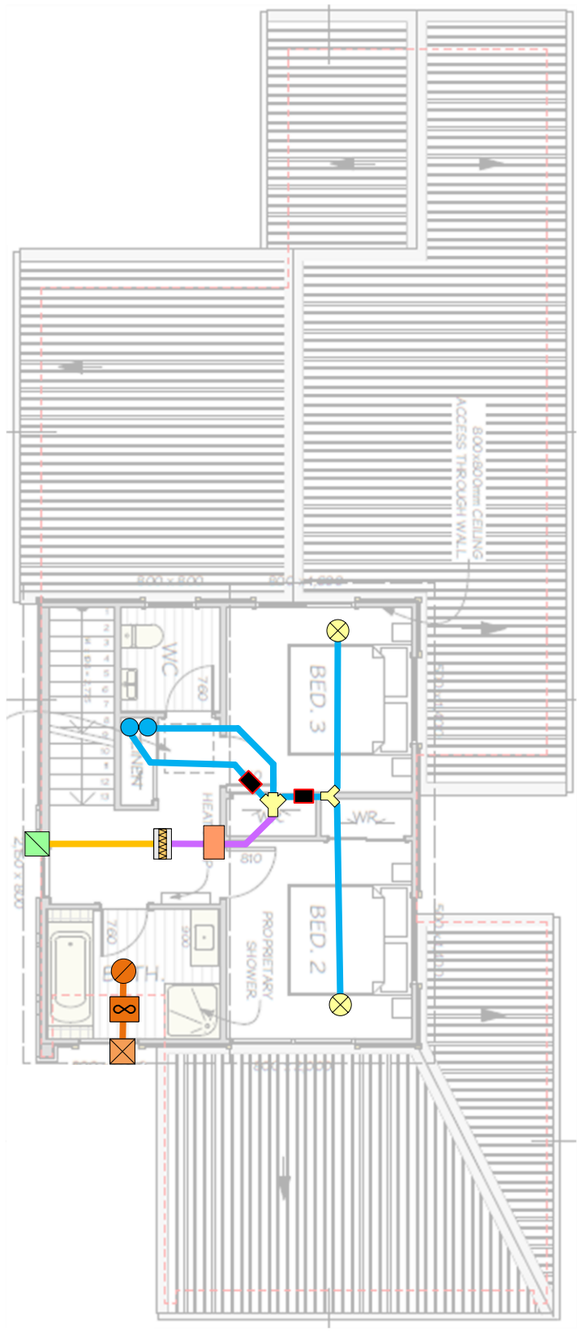
Please Note: Acoustic report has been based on the Acoustic Index run, being the run closest to the fan. Full acoustic analysis can be provided on request.



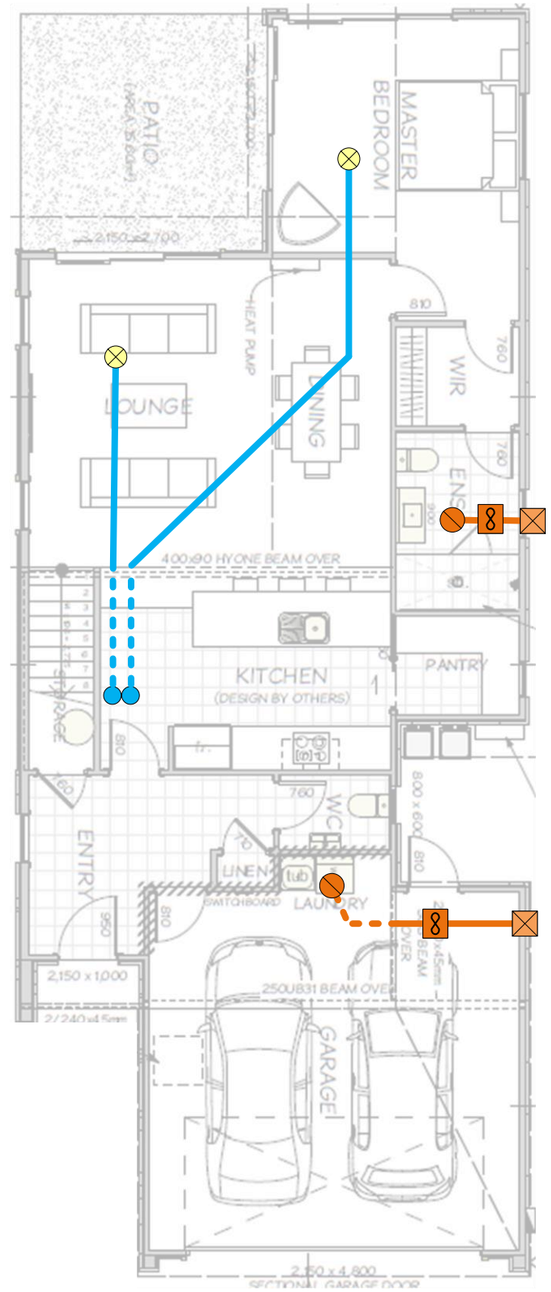

MANROSE SmartVent

Tasman District Council / AlphaOne Multiproof Approval – 107

Tasman District Council / AlphaOne Multiproof Approval – 107




LEVEL 1




GROUND LEVEL

SmartVent positive

- Grille (Outside)
- F7 Filter
- Fan
- Diffuser
- Y Branch
- Double Branch
- 200mm Insulated Duct
- 150mm Acoustic Duct
- 200mm Nude Duct
- Manual Damper
- Penetration
- Expected duct run

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technical@simx.co.nz | www.simx.co.nz

| PROJECT/ADDRESS: | DRAWING: | DRAWN BY | DATE |
|---|---|---|---|
| (Lots 363 - 367) 12,14,16,18, & 20, Kahikatea Way, Richmond | Mechanical Ventilation Layout | **Aiyappa Puliyanda** | **10/29/2021** |
| | | REFERENCE: 202107-51877 | PAGE: **1 OF 3** |

Tasman District Council / AlphaOne Multiproof Approval – 107

## PARTS LIST *(For each Lots)*

*Products required/recommended:*

- *1x FAN6983, SV04P2 (Standard Positive Pressure system with Carbon filter)*
- *2x DCT3527, 150mm x 2.5m PVC tubes (Penetration)*
- *4x DCT3772, 150mm 90 bends (Penetration)*
- *2x DCT0787, 150mm Manual dampers*

*Extract System:*

- *3x Any Extraction fan kit, with the minimum performance of 50l/s*

*Additional duct estimate:*

- *3x DCT0634, 150mm x 6m acoustic insulated duct*
- *2x DCT0723, 150mm duct connector*

## NOTES

*+ This design is developed based on the information provided, and the layout is applicable to the specified SmartVent products only.*
*+ While the Diffuser locations may vary to suit the install, please ensure its <2m from the windows and >1m from walls & smoke detectors/any sensors.*
*+ Diffusers are adjustable to balance the airflow into the respective areas. For further airflow balancing, barrel dampers are available separately.*
*+ This layout should be used alongside the duct layout guidelines in the system installation instructions. It is recommended that ducting is taught and as straight as possible, avoiding sharp bends.*
*+ For the Outside Air intake Grill, ensure a minimum separation distance of >1m from the natural ventilation openings and >2m from any exhaust vents.*
*+ Please note that this design is not to scale.*
*+ Systems are plotted to the ideal conditions. The final runs and install are to be determined/confirmed by the installer on site, while the system functionality must be confirmed by the client.*

## TECHNICAL NOTES

*+ Acoustic duct length needs to be installed as per the reports, to achieve the acoustic requirements (Minimum of 4m of acoustic ducting from the first branch). To minimize the fan break through noise acoustic wrapping can be used.*
*+ Ensure to adjust the Manual dampers to balance the airflow, as required. (DO NOT INSTALL IT CLOSED)*
*+ If the air intake grill is mounted on the external/gable wall, it must be weatherproof*

SmartVent

## Accessories

**Acoustic Insulated Duct**

| | |
|---|---|
| 150mm x 3m | DCT0633 |
| 150mm x 6m | DCT0634 |
| 200mm x 3m | DCT0635 |
| 200mm x 6m | DCT0636 |

**Insulated Duct**

| | |
|---|---|
| 150mm x 3m | DCT0583 |
| 150mm x 6m | DCT0584 |
| 200mm x 3m | DCT0585 |
| 200mm x 6m | DCT0586 |

**Nude Duct**

| | |
|---|---|
| 150mm x 3m | DCT0561 |
| 150mm x 6m | DCT0562 |
| 200mm x 3m | DCT0563 |
| 200mm x 6m | DCT0564 |

**Duct Fasteners**

| | |
|---|---|
| Hanging Strap | DCT2299 |
| Duct Tape 48mm x 5m | DCT0173 |
| Duct Tape 48mm x 30m | DCT0807 |

**Duct Joiners**

| | |
|---|---|
| 150mm Metal | DCT0723 |
| 200mm Metal | DCT0724 |

**Y Branch**

| | |
|---|---|
| 150–150–150 | DCT1233 |
| 200–150–150 | DCT0379 |
| 200–200–200 | DCT0376 |
| 250–200–200 | DCT0471 |

**Branch Take Off**

| | |
|---|---|
| 200–200–150 | DCT0877 |
| 250–250–150 | DCT0880 |

**Double Branch Take Off**

| | |
|---|---|
| 200–150–150–150 | DCT0889 |
| 250–200–150–150 | DCT0891 |

**Fixed Louvre Grilles – White Plastic**

| | |
|---|---|
| 125mm | DCT0041 |
| 200mm | DCT0340 |
| 150mm | DCT0063 |

**Ceiling Diffuser – Square White Plastic**

| | |
|---|---|
| 150mm Flat | DCT2208 |

**Extract Diffuser – Round White Plastic**

| | |
|---|---|
| 150mm | DCT2610 |
| 200mm | DCT2611 |

**Noise Reduction Fan Housing**

| | |
|---|---|
| 150/200mm Centrifugal | DCT2297 |
| 150/200mm Mixed Flow | DCT2298 |

**Replacement Filters**

| | |
|---|---|
| G4 Sock | DCT1411 |
| G4 Filter | DCT2221 |
| F7 Filter/EU 7 | DCT2093 |
| F7 with Carbon Filter | DCT2277 |
| HEPA with Carbon Filter | DCT2278 |

**Replacement Filters (2 Pack)**

| | |
|---|---|
| G3 Filter for BAL225 | DCT4493 |
| G3 Filter for BAL405/405 PLUS | DCT4494 |
| G3 Filter for SYN190/E/E2 | DCT4495 |
| G3 Filter for SYN1015/E/E2 | DCT4496 |
| G3 Filter for SYN2025/E/E2 | DCT4497 |
| G3 Filter for SYN3035/E/E2 | DCT4498 |

**Extension Leads**

| | |
|---|---|
| 3m Fan Lead (4–wire) | DCT2190 |
| 3m Heater or Damper Lead (3–wire) | DCT2194 |

**Other Accessories**

SmartVent is able to offer a full range of ducting accessories. Contact us to discuss any specific ducting requirements you may have.

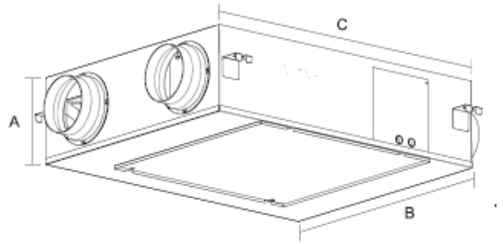
Simx Limited
1 Haliday Place East Tamaki 2013
PO Box 14347 Panmure Auckland 1741
**P:** +64 9 259 1660 | **F:** +64 9 259 1661
technical@simx.co.nz | www.simx.co.nz

| PROJECT/ADDRESS: | DRAWING: | DRAWN BY | DATE |
|---|---|---|---|
| (Lots 363 - 367) 12,14,16,18, & 20, Kahikatea Way, Richmond | Mechanical Ventilation Layout | **Aiyappa Puliyanda** | **10/29/2021** |
| | | REFERENCE: 202107-51877 | PAGE: **2 OF 3** |

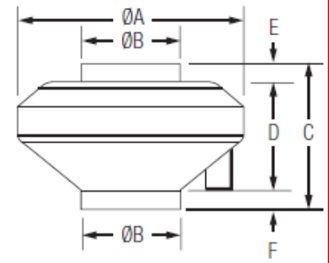
| Specifications | SYN3035E2 | SYN2025E2 | SYN1015E2 | SYN190E2 | BAL405 | BAL225 |
|---|---|---|---|---|---|---|
| Fan Type | AC Centrifugal | AC Centrifugal | AC Centrifugal | AC Centrifugal | EC Centrifugal | EC Centrifugal |
| Max. Fan Cores | 2 | 2 | 2 | – | – | |
| Spigot Size | 150mm | 150mm | 150mm | 150mm | 150mm | 125mm |
| Fan Speeds | 3 | 3 | 3 | 3 | 10 | 10 |
| Max. Air Flow per Fan @ 0 Pa | 122 l/s, 440m³/hr | 84 l/s, 301m³/hr | 55 l/s, 198m³/hr | 175 l/s, 630m³/hr | 136 l/s, 490m³/hr | 76 l/s, 275m³/hr |
| Max. Air Flow per Fan @ 150 Pa | 93 l/s, 333m³/hr | 51 l/s, 183m³/hr | 29 l/s, 106m³/hr | 107 l/s, 385m³/hr | 110 l/s, 395m³/hr | 62 l/s, 223m³/hr |
| Max. Static Pressure per Fan | 401 Pa | 308 Pa | 263 Pa | 356 Pa | 600 Pa | 380 Pa |
| Power Supply | 220–240V AC 50 Hz | 220–240V AC 50 Hz | 220–240V AC 50 Hz | 220–240V AC 50 Hz | 220–240V AC 50 Hz | 220–240V AC 50 Hz |
| Total Input Power | 215W | 136W | 95W | 114W | 173W | 128W |
| Current (A) | 1.03A | 0.66A | 0.45A | 0.52A | 0.79A | 0.58A |
| Operating Temp | –10°C to 40°C | –10°C to 40°C | –10°C to 40°C | –25°C to 50°C | –20°C to 45°C | –20°C to 45°C |

| Specifications | SV01P2 | SV01L2 | SV02E2 | SV02P2 | SV02L2 | SV04E2 | SV04P+ SV04P2 | SV04L+ SV04L2 | SV06E2 | SV06P+ SV06P2 | SV06L+ SV06L2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| House Size | up to 100m² | up to 80m² | up to 100m² | up to 100m² | up to 80m² | up to 280m² | up to 280m² | up to 200m² | up to 560m² | up to 560m² | up to 400m² |
| Max. Fans | 4 | 2 | 4 | 4 | 2 | 4 | 4 | 2 | 4 | 4 | 2 |
| Fan Type | AC Centrifugal | | | | | | AC Centrifugal | | | | |
| Spigot Size | 150mm | | | | | | 200mm | | | | |
| Fan Speeds | 3 | | | | | | 3 | | | | |
| Max. Air Flow per Fan @ 0 Pa | 175 l/s, 630m³/hr | | | | | | 296 l/s, 1066m³/hr | | | | |
| Max. Air Flow per Fan @ 150 Pa | 107 l/s, 385m³/hr | | | | | | 211 l/s, 760m³/hr | | | | |
| Max. Static Pressure per Fan | 320 Pa | | | | | | 440 Pa | | | | |
| Power Supply | 220–240V AC 50 Hz | | | | | | 220–240V AC 50 Hz | | | | |
| Input Power per Fan | 57W | | | | | | 105W | | | | |
| Current (A) per Fan | 0.26A | | | | | | 0.47A | | | | |
| Operating Temp | –25°C to 50°C | | | | | | –25°C to 50°C | | | | |

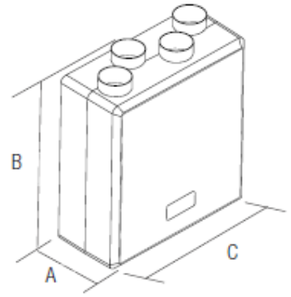
| Energy Recovery Core Dimensions (mm) | A | B | C |
|---|---|---|---|
| SYN3035E2 | 230 | 770 | 960 |
| SYN2025E2 | 220 | 650 | 820 |
| SYN1015E2 | 220 | 625 | 750 |



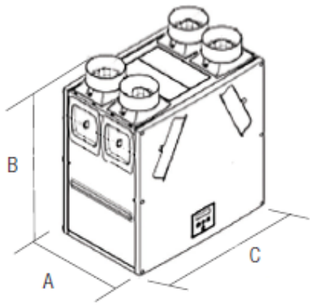
| Fan Dimensions (mm) | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| Spigot Size – 150mm | 340 | 150 | 280 | 170 | 50 | 60 |
| Spigot Size – 200mm | 340 | 200 | 280 | 170 | 50 | 60 |



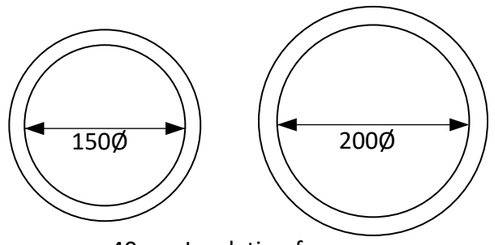

| Heat Recovery Core Dimensions (mm) | A | B | C |
|---|---|---|---|
| SYN190E2 | 260 | 645 | 560 |




| Heat Recovery Core Dimensions (mm) | A | B | C |
|---|---|---|---|
| BAL405 | 524 | 745 | 776 |
| BAL225 | 285 | 550 | 550 |




FLEXIBLE DUCTING:




40mm Insulation for R0.6

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| | | REFERENCE: 202107-51877 | PAGE: **3 OF 3** |

acoustic engineering services

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File Ref: AC18211 – 02 – R3

4 October 2019

Jo Taylor
Richmond West Development Company Ltd
PO Box 3083
Richmond 7020

Email: jo@hlsl.co.nz

Dear Jo,

**Re: Richmond West Development Company subdivision**
**Sound insulation requirement**

Acoustic Engineering Services (AES) have been engaged to provide acoustic engineering advice in relation to the following covenant which has been volunteered for dwellings within Richmond West Development Company (RWDC) subdivision:

*"...all dwellings must be acoustically designed or fitted with sound attenuation measures designed to meet an internal night-time (9.00 pm to 7.00 am) standard of 30 dBA Leq and 70 dBA Lmax with the ventilation system mentioned in 1 above, when operating".*

Our proposed method for undertaking the analysis required to satisfy this clause is:

1. Establish the external expected night time noise levels at this subdivision.

2. Calculate the resulting internal noise levels, and typical construction upgrades likely to satisfy this clause.

We note that the 70 dB $L_{AFmax}$ criterion in this covenant is unusually high, and more typical of an external noise rule. The discussions in the following section are therefore based on achieving the more stringent 30 dB $L_{Aeq}$ criterion.

Please find our analysis and results below.

## 1.0 BACKGROUND

The proposed residential subdivision is on the southern side of McShane Road, within the West Richmond Development Area. The closest point of the subdivision is located approximately 475 metres south of the Nelson Pine processing plant as shown in figure 1.1 below.

The development contains areas zoned Deferred Mixed Business, Deferred Light Industrial and Deferred Residential. We understand that it is likely the zoning will eventually be changed to residential, potentially when residential titles are created. Zones surrounding the development are currently shown as Deferred Mixed Business, Deferred Light Industrial, Deferred Residential and Rural. There is an Arvida development to the east of the site.

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Figure 1.1 – Proposed subdivision site and locality

## 2.0 NOISE SOURCES IN THE VICINITY OF THE PROPOSED SITE

The covenant provides no indication of what particular external noise sources the analysis must be conducted with regard to, or what time base the assessment must be conducted over (for example an average over 15 minutes, or 10 hours).

Without this detail, assumptions regarding the key noise sources in the area are required. Based on a desktop review we expect that key noise sources are likely to be as follows:

- Processing noise generated by Nelson Pine
- Traffic (including logging trucks) on McShane Road
- Noise associated with other existing industrial or rural activities in the area

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We have been advised that the primary intent of this rule is to protect Nelson Pine from reverse sensitivity noise effects and our assessment focuses on this source of noise, although we have briefly discussed other sources in the following sections.

We have also reviewed the District Plan limits in the area. The night-time noise limits which apply between 9:00 pm and 7:00 am, when the covenant clause applies, are outlined in Chapter 17 of the Tasman Resource Management Plan. Based on planning advice that the deferred zones will become the new zone type, and the RWDC subdivision will become a residential zone, for noise generated in the Mixed Business, Light Industrial, Residential or Rural 1 zones received at a site in a Residential Zone a 40 dBA $L_{eq}$ and 70 dBA $L_{max}$ limit applies. We note that for noise generated in the rural area, these limits exclude noise from intermittent or temporary rural activity.

As a mechanical ventilation system will be installed for all of the proposed dwellings (as this is also required by the covenant), and typical modern dwelling constructions with windows closed provide an outside to inside reduction of 23 – 28 dB[1], we don't expect noise from new activities which comply with the District Plan limits to result in construction upgrades being necessary for dwellings in this subdivision.

However, the District Plan noise limits do not address all noise generated in the area and the other sources discussed above will require further analysis.

## 2.1 Processing noise from Nelson Pine

Nelson Pine is located in the Rural Industrial Zone and we assume that the manufacturing plant will operate during the night time period. Noise from activities located in this zone must meet a night time noise limit of 50 dB $L_{Aeq}$ at adjoining light industrial sites not owned by the applicant. There appear to be no limits for noise received in other zones.

AES has previously undertaken extensive measurements of a large sawmill in Southland. Key noise sources at this site included a debarker, saws and other processing equipment used to break down logs and stack timber product, cyclonic extract systems, loaders, trucks and use of compressed air guns. At this site, noise levels of up to 57 dB $L_{Aeq}$ were measured at 400 metres from the centre of the main processing plant. We expect that Nelson Pine may generate noise levels of a similar order and have assumed that levels in the order of 57 dB $L_{Aeq}$ may be received at 400 metres from the boundary of Nelson Pine.

## 2.2 Traffic on nearby roads

The traffic noise levels incident on the dwellings closest to McShane Road will be dependent on the volume of traffic on this road, and percentage of heavy vehicles. Currently this road has an 80 km/hr speed limit and is shown as a distributor road in Road Hierarchy Map 167. In section 18.8.3.2 of the District Plan, distributor roads in the Richmond West Development Area have an indicative design capacity of 1000 – 10,000 vehicles per day and a minimum carriageway surface of alphatic concrete.

However, based on our correspondence we understand the Tasman District Council has advised the Applicant that mitigation for road traffic noise is not the intent of this rule. Therefore, we have excluded noise from McShane Road, Appleby Highway and Lower Queen Street from our analysis.

## 2.3 Noise associated with existing industrial or rural activities

Existing rural activity across McShane Road and between Appleby Highway and the development site may generate noise levels which exceed the District Plan limits. As noted above, for noise generated in the rural area, the limits exclude noise from intermittent or temporary rural activity (i.e. harvesting or mobile machinery).

[1] *G Bellhouse (2000) Testing of the sound insulation of the external envelope of six houses*

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We note that the Applicant is proposing to install an acoustic fence along the boundary with McShane Road, which will reduce noise from any intermittent or temporary rural activities (and also traffic noise from McShane Road). Noise from existing light industrial activity is also not likely to be problematic given the setback of at least 300 metres from existing light industrial zoned areas to the subdivision.

## 3.0 PREDICTED NOISE LEVELS

Based on the noise levels discussed in section 2.0, the expected maximum sound pressure levels incident upon the façades of potential new dwellings constructed within the RWDC subdivision have been calculated using SoundPlan computational noise modelling based on ISO 9613 *Acoustics – Attenuation of sound outdoors – Part 2: General method of calculation*. This assumes light downwind conditions in all directions which is conservative.

To determine the extent of upgrades required for this subdivision, we have calculated the extent of the 53 dB $L_{Aeq}$ contour. Where noise levels will be above 53 dB $L_{Aeq}$, in a typical dwelling with windows closed, based on an outside to inside reduction of 23 dB for traffic noise, internal levels may still exceed the 30 dB $L_{Aeq}$ criterion.

We understand that a 2.0 metre high acoustic fence will be installed between McShane Road and the subdivision. This fencing must be constructed to the following minimum specifications:

- Surface mass – at least 10 kg/m2 (such as 25 mm timber, 21 mm plywood, 9 mm fibre cement)
- The fence must be continuous and maintained with no gaps or cracks. For timber fences, this will require palings to be well overlapped (25 mm minimum) or a “board and batten” system, and a sleeper rail connecting the base of the palings to the ground. We also recommend a paling thickness of at least 25 mm to help resist warping.

With this fencing installed, the extent of this contour is shown in figures 3.1 and 3.2 below. Figure 3.1 shows noise levels expected to be incident on a single storey dwelling (including screening from the fence). Figure 3.2 shows noise levels at the upper floor of a two-storey dwelling (with less screening provided by the fence).

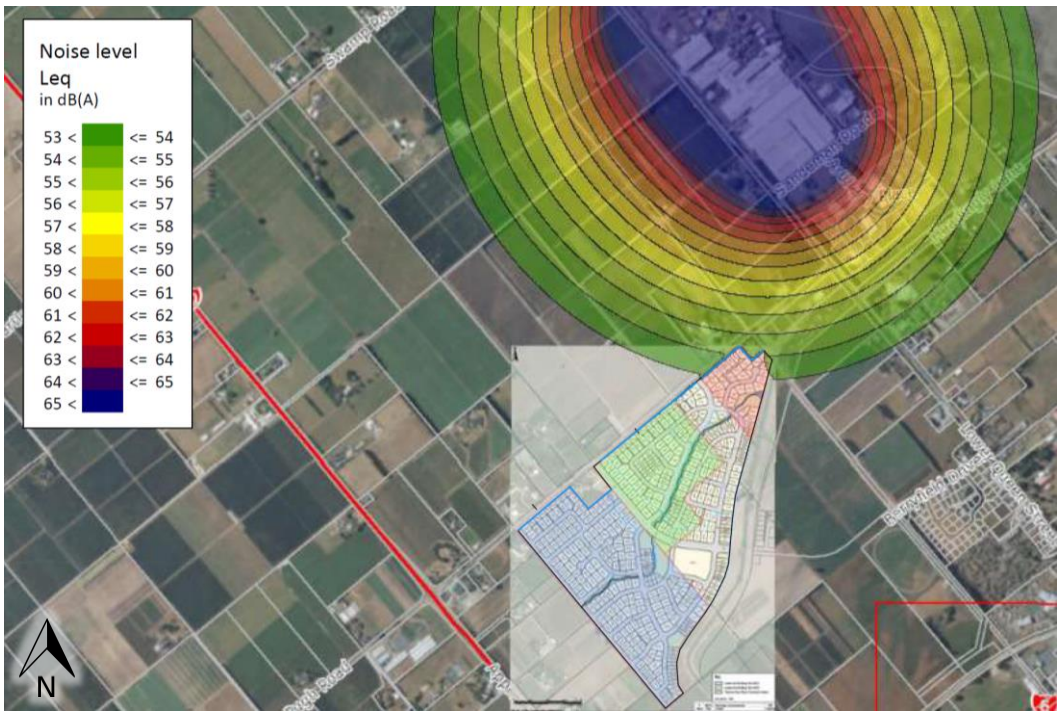


Figure 3.1 – Expected noise levels incident on ground level façades

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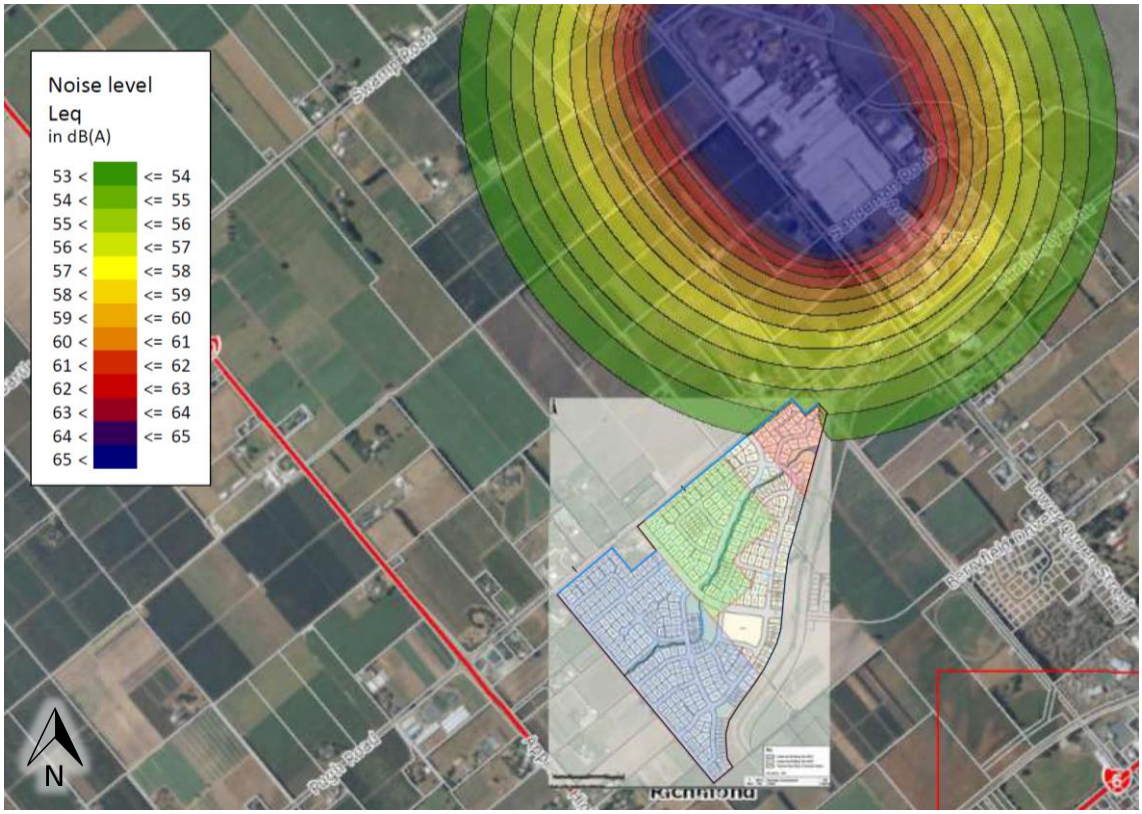


**Figure 3.2 – Expected noise levels incident on first floor façades**

The noise contours shown in figures 3.1 and 3.2 illustrate that the majority of the subdivision will not require any acoustic upgrades if a mechanical ventilation system is installed and windows can remain closed during the night-time period.

However, there are three sections in the north-eastern corner of the subdivision that will likely require upgrades to meet the internal noise level of 30 dB $L_{Aeq}$.

## 4.0 TYPICAL CONSTRUCTION UPGRADES

Based on the predicted noise levels shown in figures 3.1 and 3.2, we have determined typical upgrades that may be required for a dwelling to meet the internal noise level of 30 dB $L_{Aeq}$.

We note that the covenant provides no indication of the internal spaces inside the dwellings that must be considered. Typically internal night time noise conditions would be limited to bedrooms only, or bedrooms and habitable spaces (such as lounges and kitchens).

The construction required will depend on the external noise levels received. To provide a high level indication of the types of construction which may be required, the dwellings can be broadly categorized into the categories shown in figure 4.1 and 4.2 below. Figure 4.1 depicts upgrades required for a single storey dwelling, with figure 4.2 showing a closer view of the affected area.

Based on our correspondence we understand that all of the properties in the affected area are to be single storey dwellings, as such we have not reviewed the upgrades necessary for two storey dwellings.

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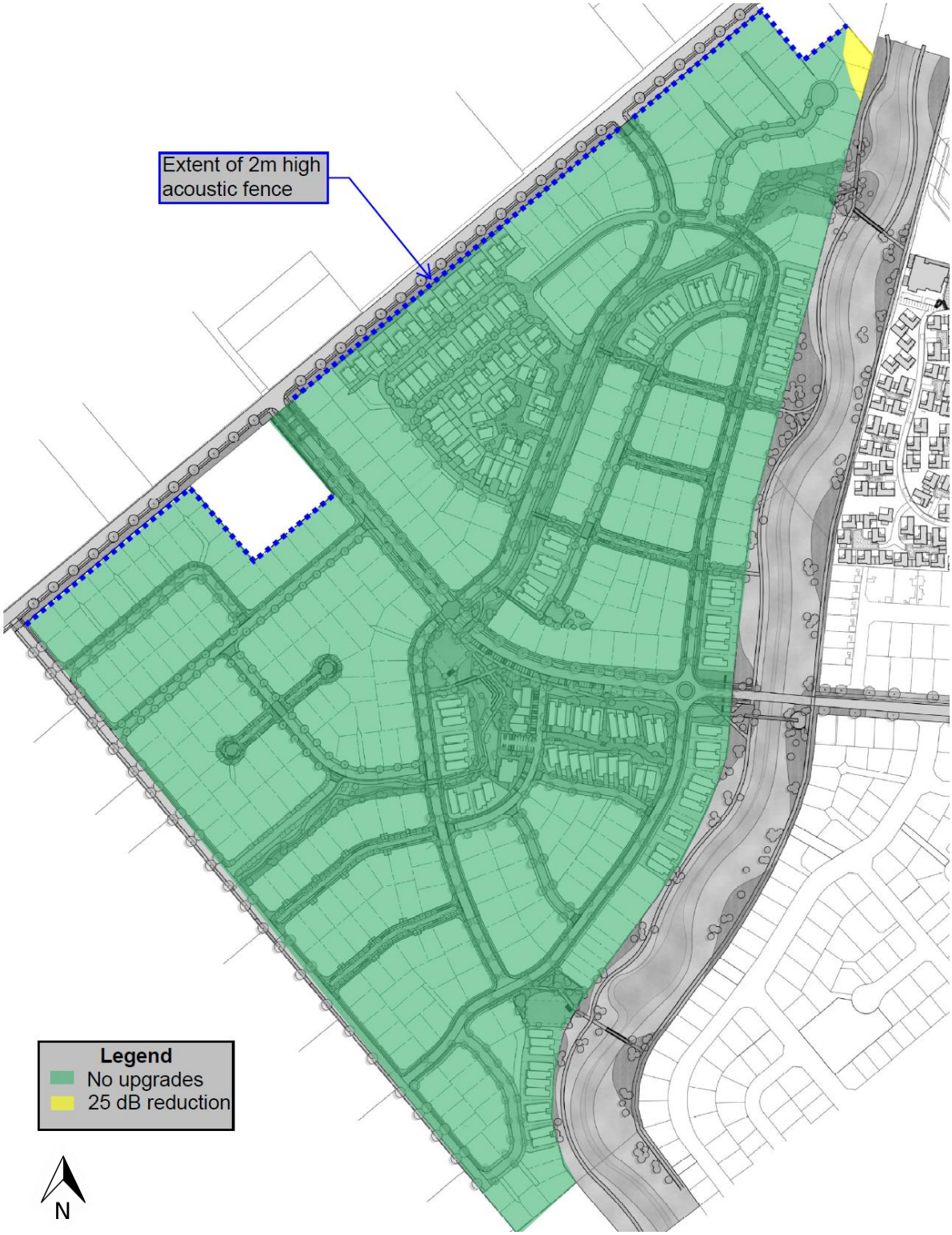


Figure 4.1 – Extent of upgrades required

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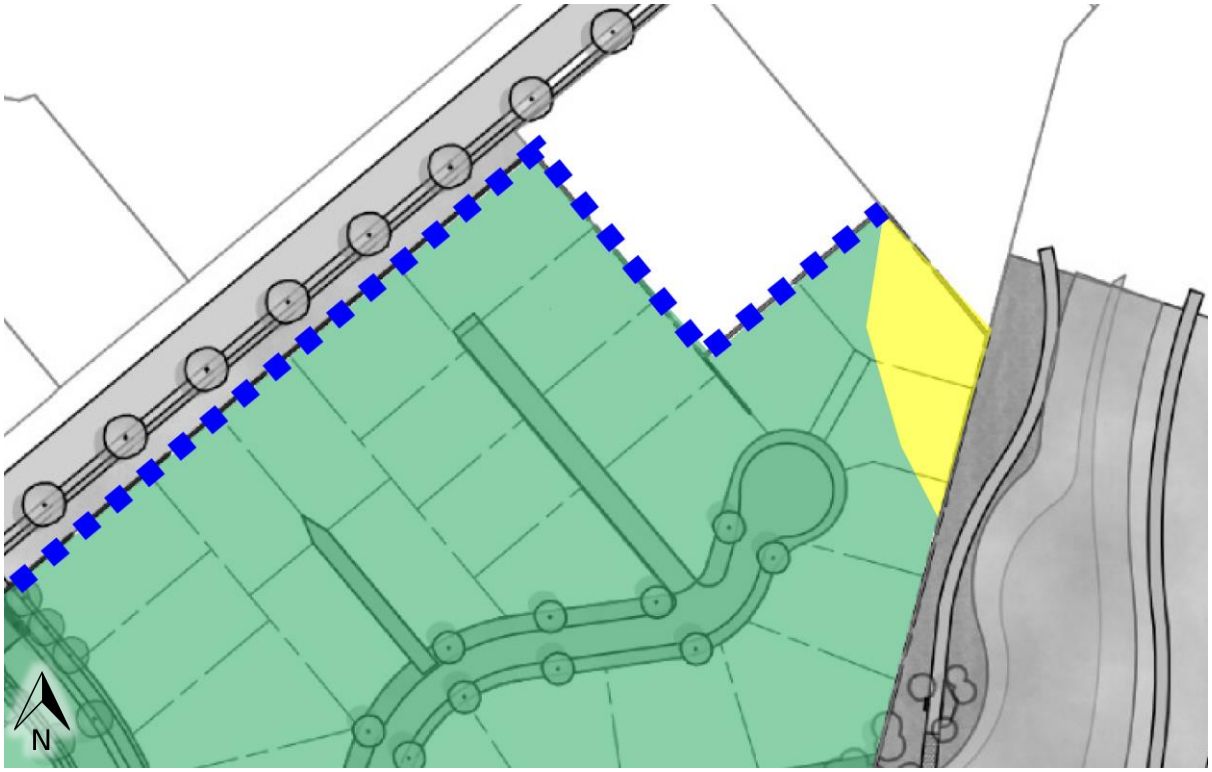


Figure 4.2 – Extent of upgrades required close view

As illustrated, only the three sections in the north-eastern corner will require upgrades to achieve an external to internal noise reduction of 25 dB.

To achieve this reduction, the external façade constructions for the aspects of the dwellings which are oriented towards the northeast will likely be similar to the following:

Table 4.1 – Proposed external façade elements to achieve a 25 dB reduction

| Façade element | Proposed construction |
|---|---|
| Glazing | Double glazing (4 mm float glass / 12 mm air space / 4 mm float glass) |
| Wall | Timber weatherboards over RAB board / minimum 90 mm timber framing with fibrous insulation / 10 mm Standard Gib plasterboard |
| Roof / ceiling | 0.40 mm profiled steel roofing / timber truss with fibrous insulation / 13 mm Standard Gib plasterboard |

The above constructions are similar to how most typical modern dwellings are constructed. If there are substantial areas of glazing on facades oriented towards the northeast, further upgrades may be required.

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## 5.0 CONCLUSIONS AND COMMENTS

Based on a high-level review of the noise sources expected in the vicinity of the RWDC subdivision, AES have calculated the extent of dwellings which may require upgrades to comply with the internal noise criteria of 30 dB $L_{Aeq}$ due to expected noise from Nelson Pine. Most dwellings constructed in this subdivision will require no upgrades to comply with this criterion, with the installation of a mechanical ventilation system.

However, there are three sections in the northeastern corner of the subdivision which will require some minor construction upgrades to meet the internal noise level requirement.

We also note that there are some aspects of the covenant which are unclear and ideally would be clarified, in particular the extent of internal spaces where the 30 dB $L_{Aeq}$ criteria applies. The extent of upgrades will vary significantly if this only includes bedrooms, or also includes living and other ancillary spaces as well.

Please do not hesitate to contact me to discuss further as required.

Kind Regards,

Gene Hopkins
*BE Hons (ECE)*
Acoustic Engineer

Tasman District Council / AlphaOne Multiproof Approval – 107

G.J. Gardner. HOMES

# H1 Calculations

For

## Multiproof Application

At

## Lot 363-367 DP 561194
## Street address 12,14,16,18,20 Kahikatea Way, Richmond.

For

## G.J Gardner Homes Nelson (LSK Builders 2011 Ltd).

Tasman District Council / AlphaOne Multiproof Approval – 107

# BRANZ NZS 4218:2009 CALCULATION METHOD TOOL

## PROJECT SUMMARY

| | |
|---|---|
| **Project name** | Multiproof Application |
| **Address** | Lot 363-367 DP 561194 Street address 12,14,16,18,20 Kahikatea Way, Richmond. |
| **Designer** | Premier Services Limited |
| **Address** | 8 Champion Road, Richmond 7020 |
| **Phone** | |
| **Date** | 20/07/2021 |
| **Reference number** | 21106-21110 |

| | | |
|---|---|---|
| **Climate zone** | 3: South Island, Taupo and Ruapehu Districts, northern part of Rangitikei District, Stewart Island | |
| **Wall construction type** | 1: Any wall type | |
| **If mixed wall types** | 0 | Percentage of wall area solid timber construction |
| | 0 | Percentage of wall area high thermal mass construction |
| | 100 | Percentage of wall area "Any wall type" |
| **If solid timber wall** | | |

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### Summary of calculation method heat loss

| Element | Area (m²) | Proposed building heat loss (W/°C) | Reference building heat loss (W/°C) |
|---|---|---|---|
| Roofs/ceilings | 108.4 | 33.2 | 32.8 |
| Walls | 132.0 | 53.7 | 67.0 |
| Floors | 96.9 | 57.3 | 74.5 |
| Vertical glazing | 35.1 | 134.8 | 195.1 |
| Skylights | 0.0 | 0.0 | - |
| Doors | 2.0 | 0.0 | - |
| Total | | 279.1 | 369.5 W/°C |

**Glazing percentage:** 21%

**Glazing <40%:** Yes

**Minimum R-values OK:** Yes

**Issues to check:** Some R-values appear to be very high. Check highlighted values.

**PASS/FAIL** **PASS**

# Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

Some of the possible material combinations may not be suitable for actual constructions, i.e. EPS based claddings directly fixed on timber framing. Please make sure to select only appropriate material combinations.

If your construction is not listed, please send an e-mail to designnavigator@gmail.com with a description and a detail drawing (pdf) of it.

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

- (•) Floors
- ( ) Walls
- ( ) Roofs

Date: 20/07/2021

Cupolex floor system — 1.69 m²°C/W

Type: Floor: Slab Floor

Slab Floor [view detail]

internal surface 0.09

Flooring : none (Example: polished surface of a concrete floor)

*R-value: 0.00*

Slab Insulation

| | | | |
|---|---|---|---|
| Slab floor area [m²]: | 96.90 | | |
| Perimeter length [m]: | 47.2 | | |
| External wall thickness [mm]: | 90 | | |
| Soil conductivity [W/m °C] | 1.2 | | |
| Underslab insulation: | Total slab | Insulation : | 0.8 |
| Piles Footings: | Number: | Penetration Diameter [mm]: | |
| Slab edge insulation: | none | Insulation : | |

[Print Page]

Current NZS4218:2009 Schedule Method minimum R-value Targets (non-solid contruction):

| | Zone 1 | Zone 2 | Zone 3 |
|---|---|---|---|
| Roof | R-2.9 | R-2.9 | R-3.3 |
| Wall | R-1.9 | R-1.9 | R-2.0 |
| Floor | R-1.3 | R-1.3 | R-1.3 |
| Glazing (vertical) | R-0.26 | R-0.26 | R-0.26 |
| Glazing (skylights) | R-0.26 | R-0.26 | R-0.31 |

Australian Building Code Targets:

| | All Zones except NSW | NSW |
|---|---|---|
| Roof | R-4.1 | R-6.3 |
| Wall | R-2.9 | R-3.8 |

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# Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

Some of the possible material combinations may not be suitable for actual constructions, i.e. EPS based claddings directly fixed on timber framing. Please make sure to select only appropriate material combinations.

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Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

- Floors ○
- Walls ◉
- Roofs ○

Date: 29/07/2020

R2.4 Rockcote 50mm — **3.26** m²°C/W

Type: Wall: Timber Frame with vented Cavity

Timber Frame with vented Cavity [view detail]

external surface 0.03

Cladding : 50mm extruded polystyrene with polymer render
*R-value: 1.75*

Air Barrier : Building paper
*R-value: 0.01*

Timber Frame & Cavity : 90mm, studs @ 600mm, dwangs @ 800mm

| *Wall Frame Area: 14.4%* | *Cavity Area: 85.6%* |
|---|---|
| 15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08 | 15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08 |
| Framing : *R-value: 0.75* | Pink®Batts® R2.4 Wall 2.4 |
| | still Airgap: 12mm airgap (non-reflective) *R-value: 0.15* |

Wall Lining : none
*R-value: 0.00*

internal surface 0.09

[Print Page]

Current NZS4218:2009 Schedule Method minimum R-value Targets (non-solid contruction):

| | Zone 1 | Zone 2 | Zone 3 |
|---|---|---|---|
| Roof | R-2.9 | R-2.9 | R-3.3 |
| Wall | R-1.9 | R-1.9 | R-2.0 |
| Floor | R-1.3 | R-1.3 | R-1.3 |
| Glazing (vertical) | R-0.26 | R-0.26 | R-0.26 |
| Glazing (skylights) | R-0.26 | R-0.26 | R-0.31 |

Australian Building Code Targets:

| | All Zones except NSW | NSW |
|---|---|---|
| Roof | R-4.1 | R-6.3 |
| Wall | R-2.9 | R-3.8 |

Tasman District Council / AlphaOne Multiproof Approval – 107

# Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

Some of the possible material combinations may not be suitable for actual constructions, i.e. EPS based claddings directly fixed on timber framing. Please make sure to select only appropriate material combinations.

If your construction is not listed, please send an e-mail to designnavigator@gmail.com with a description and a detail drawing (pdf) of it or use the new Design Navigator message board.

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

- Floors ○
- Walls ◉
- Roofs ○

Element Name (optional) — 2.11 m²°C/W

Type: Wall: Timber Frame with vented Cavity

Timber Frame with vented Cavity [view detail]

external surface 0.03

Cladding : Linea weatherboard
*R-value: 0.04*

Air Barrier : Building paper
*R-value: 0.01*

Timber Frame & Cavity : 90mm, studs @ 600mm, dwangs @ 800mm

| *Wall Frame Area: 14.4%* | *Cavity Area: 85.6%* |
|---|---|
| 15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08 | 15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08 |
| Framing : *R-value: 0.75* | Insulation : 2.4 |
| | still Airgap: none *R-value: 0.00* |

Wall Lining : Gypsum plasterboard 10mm
*R-value: 0.04*

internal surface 0.09

[Print Page]

Current NZS4218:2009 Schedule Method minimum R-value Targets (non-solid contruction):

| | Zone 1 | Zone 2 | Zone 3 |
|---|---|---|---|
| Roof | R-2.9 | R-2.9 | R-3.3 |
| Wall | R-1.9 | R-1.9 | R-2.0 |
| Floor | R-1.3 | R-1.3 | R-1.3 |
| Glazing (vertical) | R-0.26 | R-0.26 | R-0.26 |
| Glazing (skylights) | R-0.26 | R-0.26 | R-0.31 |

Australian Building Code Targets:

| | All Zones except NSW | NSW |
|---|---|---|
| Roof | R-4.1 | R-6.3 |
| Wall | R-2.9 | R-3.8 |

Tasman District Council / AlphaOne Multiproof Approval – 107

# Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

Some of the possible material combinations may not be suitable for actual constructions, i.e. EPS based claddings directly fixed on timber framing. Please make sure to select only appropriate material combinations.

If your construction is not listed, please send an e-mail to designnavigator@gmail.com with a description and a detail drawing (pdf) of it.

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

- Floors ○
- Walls ◉
- Roofs ○

Internal Gib Wall, 90mm frame @ 600mm crs. **2.16** m²°C/W

Type: Wall: Timber Frame (direct fixed cladding)

Timber Frame (direct fixed Cladding) view detail

external surface 0.03

Cladding : Gypsum plasterboard 10mm into still air (garage, etc.)
*R-value: 0.10*

Air Barrier : none
*R-value: 0.00*

Timber Frame & Cavity : 90mm, studs @ 600mm, dwangs @ 800mm

*Wall Frame Area: 14.4%* *Cavity Area: 85.6%*

Framing : *R-value: 0.75*

Pink®Batts® R2.4 Wall 2.4

still Airgap: 12mm airgap (non-reflective)
*R-value: 0.15*

Wall Lining : Gypsum plasterboard 10mm
*R-value: 0.04*

internal surface 0.09

Print Page

Current NZS4218:2009 Schedule Method minimum R-value Targets (non-solid contruction):

| | Zone 1 | Zone 2 | Zone 3 |
|---|---|---|---|
| Roof | R-2.9 | R-2.9 | R-3.3 |
| Wall | R-1.9 | R-1.9 | R-2.0 |
| Floor | R-1.3 | R-1.3 | R-1.3 |
| Glazing (vertical) | R-0.26 | R-0.26 | R-0.26 |
| Glazing (skylights) | R-0.26 | R-0.26 | R-0.31 |

Australian Building Code Targets:

| | All Zones except NSW | NSW |
|---|---|---|
| Roof | R-4.1 | R-6.3 |
| Wall | R-2.9 | R-3.8 |

Tasman District Council / AlphaOne Multiproof Approval – 107

# Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

Some of the possible material combinations may not be suitable for actual constructions, i.e. EPS based claddings directly fixed on timber framing. Please make sure to select only appropriate material combinations.

If your construction is not listed, please send an e-mail to designnavigator@gmail.com with a description and a detail drawing (pdf) of it or use the Design Navigator message board.

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

- Floors
- Walls
- Roofs

R2.6 Longrun Roofing, Truss's @ 900mm crs. **2.64** m²°C/W

Type: Roof: Timber framed truss Roof, direct fixed or battened flat Ceiling

Timber framed Roof, direct fixed or battened flat Ceiling [view detail]

external surface 0.03

Roofing : Corrugate iron with building paper

*R-value: 0.01*

Insulation :

Timber Frame & Cavity :

90mm rafters or joists @ 900mm, battens covered with insulation

| *Roof Frame Area: 5.0%* | *Cavity Area: 95.0%* |
|---|---|
| Roof space (still air) 0.11 | Roof space (still air) 0.11 |
| Framing : *R-value: 0.75* | Pink®Batts® R2.6 Ceiling 2.6 |

Roof Lining : Gypsum plasterboard 13mm

*R-value: 0.06*

internal surface 0.09

Non-IC-rated recessed downlights

Ceiling Area [m²]: Number of downlights: Clearance from lamp holder side [m]:

[Print Page]

Current NZS4218:2009 Schedule Method minimum R-value Targets (non-solid contruction):

| | Zone 1 | Zone 2 | Zone 3 |
|---|---|---|---|
| Roof | R-2.9 | R-2.9 | R-3.3 |
| Wall | R-1.9 | R-1.9 | R-2.0 |
| Floor | R-1.3 | R-1.3 | R-1.3 |
| Glazing (vertical) | R-0.26 | R-0.26 | R-0.26 |
| Glazing (skylights) | R-0.26 | R-0.26 | R-0.31 |

Australian Building Code Targets:

| | All Zones except NSW | NSW |
|---|---|---|
| Roof | R-4.1 | R-6.3 |
| Wall | R-2.9 | R-3.8 |

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# Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

Some of the possible material combinations may not be suitable for actual constructions, i.e. EPS based claddings directly fixed on timber framing. Please make sure to select only appropriate material combinations.

If your construction is not listed, please send an e-mail to designnavigator@gmail.com with a description and a detail drawing (pdf) of it or use the Design Navigator message board.

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

- Floors ○
- Walls ○
- Roofs ◉

R3.6 Longrun Roofing, Truss's @ 900mm crs. **3.37** m²°C/W

Type: Roof: Timber framed truss Roof, direct fixed or battened flat Ceiling

Timber framed Roof, direct fixed or battened flat Ceiling [view detail]

external surface 0.03

Roofing : Corrugate iron with building paper

*R-value: 0.01*

Insulation :

Timber Frame & Cavity :

90mm rafters or joists @ 900mm, battens covered with insulation

| *Roof Frame Area: 5.0%* | *Cavity Area: 95.0%* |
|---|---|
| Roof space (still air) 0.11 | Roof space (still air) 0.11 |
| Framing : *R-value: 0.75* | Pink®Batts® R3.6 Ceiling 3.6 |

Roof Lining : Gypsum plasterboard 13mm

*R-value: 0.06*

internal surface 0.09

Non-IC-rated recessed downlights

Ceiling Area [m²]: Number of downlights: Clearance from lamp holder side [m]:

[Print Page]

Current NZS4218:2009 Schedule Method minimum R-value Targets (non-solid contruction):

| | Zone 1 | Zone 2 | Zone 3 |
|---|---|---|---|
| Roof | R-2.9 | R-2.9 | R-3.3 |
| Wall | R-1.9 | R-1.9 | R-2.0 |
| Floor | R-1.3 | R-1.3 | R-1.3 |
| Glazing (vertical) | R-0.26 | R-0.26 | R-0.26 |
| Glazing (skylights) | R-0.26 | R-0.26 | R-0.31 |

Australian Building Code Targets:

| | All Zones except NSW | NSW |
|---|---|---|
| Roof | R-4.1 | R-6.3 |
| Wall | R-2.9 | R-3.8 |

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Tasman District Council / AlphaOne Multiproof Approval – 107

INSTALLATION INSTRUCTIONS

# Roof | PINK® BATTS® CEILING INSULATION

Tasman District Council / AlphaOne Multiproof Approval – 107

## Installation Instructions

**Correct installation with no compression, gaps or folds is critical to ensure Pink® Batts® ceiling insulation performance is not compromised.**

### Safety:

**Each installation is unique so prior to installation check for all hazards that may cause injury:**

- Carry out any required repair work before starting installation
- Ensure there's adequate lighting to identify any hazards
- Treat all electrical cables as live, being careful not to cut or expose cables and wires
- Beware of other sharp objects (protruding nails, splinters etc.), pests (bees and wasps), loose boards and pipe work
- Avoid installing during the warmest part of the day. The roof cavity temperature can increase to uncomfortable levels
- Do not stand on ceiling or ceiling battens

**Note: Seek professional advice if you are unsure how best to isolate the hazard or have a professional installer carry out the work on your behalf.**

We recommend PinkFit® professional installers. PinkFit® are a nationwide network of professional installers who guarantee that their completed installation will meet the requirements of NZS 4246:2016.

Call **0800 746 534** for your local PinkFit® installer

INSTALLATION INSTRUCTIONS

# Roof | PINK® BATTS® CEILING INSULATION

## Installation:

**Any slight irritation to exposed skin caused by the fibres in glass wool, or through their inhalation, is harmless and temporary.**

**However for your comfort while installing, it's recommended you wear:**
- Loose fitting work clothes which cover the arms and legs
- Covered shoes
- Dust mask
- Safety glasses

**For safety while installing, it's recommended you use:**
- Cut resistant gloves (if knife is used)
- Kneepads (for retrofitting)

**For an efficient installation, the following tools are recommended:**
- Stable working platform (for new build)
- Kneeling board or planks (for retrofitting)
- Knife
- Tape measure
- Install rod for tight spaces
- Head torch (for retrofitting)

**For retrofitting, take into consideration:**
- Using planks laid across joists to walk and work on
- Leveling and refitting any existing insulation if required with correct clearances
- Removing any damp insulation
- Starting installation at the point furthest away from the ceiling access hole

**To ensure Pink® Batts® ceiling insulation performance isn't compromised, confirm the correct product and R-value is used in ceiling applications.**
- Ensure the product is installed dry
- Friction fit product between framing, ensuring there are NO gaps, folds or compression of the product to achieve optimal performance
- If cutting is required, cut oversize by 5-10mm to ensure a good friction fit
- Ensure that Pink® Batts® ceiling segments are firmly butted against each other
- For retrofitting, install over timber where insulation already exists or where appropriate. Any open air pockets beside joist/truss cord ends at the roof perimeter to be blocked off with insulation off-cuts
- Fit Pink® Batts® insulation beneath electrical wiring and plumbing work. Minimise tucks
- Install to the outer edge of the top plate covering at least 50% of it while ensuring minimal overflow to the eaves
- Maintain a 25mm gap clearance between the Pink® Batts® insulation and any roofing material. If required, to maintain 25mm clearance, trim insulation or use a thinner product around the perimeter
- Insulate access hole cover and secure in place with strapping or glue
- Remove excess material

**Unlined Walls in Roof Cavities**
- **Pink® Batts® Wall** or **Pink® Batts® HandyPack insulation** should be secured in place by using horizontal strapping (max spacing of 300mm)

Tip: To verify Building Code Compliance, staple a product label at an easy to find location away from any hot items such as downlights or water cylinders e.g. on truss/rafter above ceiling access hole and hot water cupboard.

Note: **Pink® Batts® ceiling insulation shall not be installed in a roof space where foil has been installed as a roof underlay.**

**Refer to NZS 4246:2016 for full details.**

Tasman District Council / AlphaOne Multiproof Approval – 107

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# Clearances

Follow the clearances specified by the manufacturer; if they are not known then:

**Recessed Luminaire**

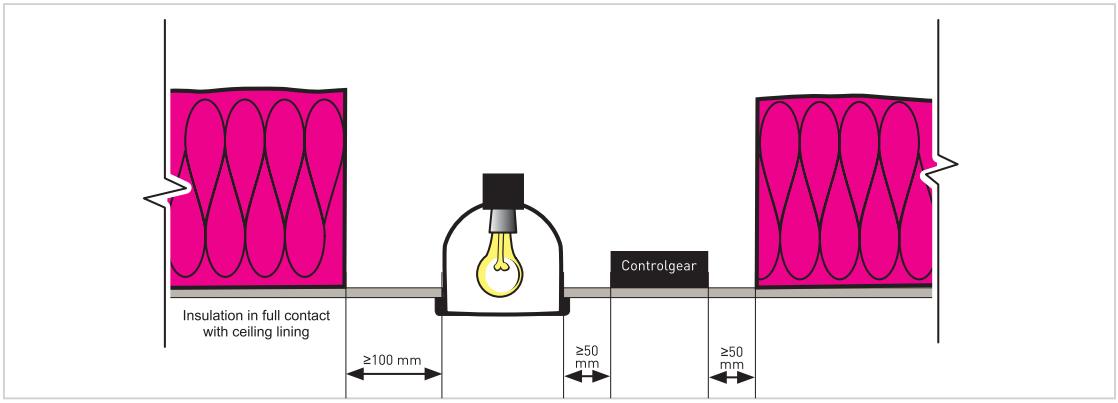
- CA rated recessed luminaires - Nil, however do not install insulation on top of the recessed luminaire
- IC rated recessed luminaires - Nil, insulation can be installed over the top of the recessed luminaire
- Unmarked - Minimum 100mm

**Surface Mounted Luminaire** - Minimum clearance 200mm; however it does not apply if the insulation is permanently shielded.

**Controlgear**

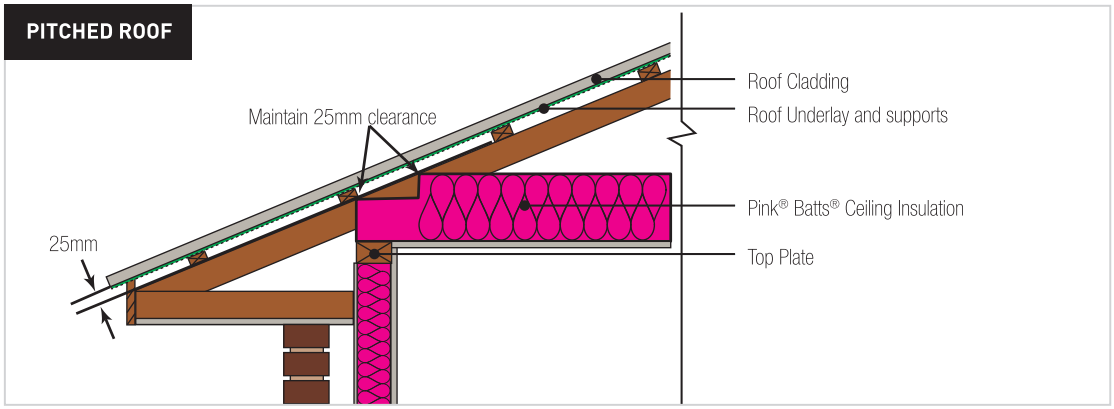
- If possible place it on top of the insulation and leave a minimum clearance of 50mm between controlgear and luminaire
- If not possible to place it on top of the insulation and leave 50mm from the insulation to the controlgear

Controlgear **shall not** sink into the insulation.




Unmarked luminaire and controlgear not placed on top of Pink® Batts® ceiling products.

- Built in appliances - Minimum 50mm
- Enclosures containing electrical equipment - Minimum 50mm
- Fan/heat/light unit - Minimum 100mm
- Ventilation systems - Minimum 50mm
- Unducted mechanical fan units - Minimum 200mm
- Unducted passive vents that remain functional - Minimum 200mm
- Metal chimney and flues - Minimum 75mm
- Brick chimney - Minimum 50mm
- Roof underlay - Minimum 25mm




Note: Pink® Batts® ceiling insulation can be installed from below when the ceiling is to be lined or replaced

*Caution: Electrical cables and equipment partially or completely surrounded with bulk thermal insulation may overheat and fail. This applies to wiring installed prior to 1989.

Tasman District Council / AlphaOne Multiproof Approval – 107

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# Roof | PINK® BATTS® CEILING INSULATION

INSTALLATION INSTRUCTIONS

## Product Specifications

| ROOF - Thermal Insulation | | PRODUCT CODE | SIZE (mm) | NOMINAL STABILISED THICKNESS (mm) | NOMINAL TOTAL AREA PER BALE ($m^2$) | APPROX. COVERAGE PER BALE* ($m^2$) | ENVIRONMENTAL CHOICE |
|---|---|---|---|---|---|---|---|
| **R1.8** | Pink® Batts® Classic R1.8 Ceiling | 7110118 | 1220 x 432 | 95 | 13.7 | 14.4 | ✓ |
| **R2.2** | Pink® Batts® Classic R2.2 Ceiling | 7110122 | 1220 x 432 | 115 | 12.6 | 13.3 | ✓ |
| **R2.6** | Pink® Batts® Classic R2.6 Ceiling | 7110126 | 1220 x 432 | 140 | 10.5 | 11.1 | ✓ |
| **R3.2** | Pink® Batts® Classic R3.2 Ceiling‡ | 7110132 | 1220 x 432 | 170 | 8.4 | 8.8 | ✓‡ |
| **R3.2** | Pink® Batts® Skillion Roof R3.2 | 7110232 | 1220 x 432 | 115 max | 3.7 | 3.9 | ✓ |
| **R3.6** | Pink® Batts® Classic R3.6 Ceiling‡ | 7110136 | 1220 x 432 | 180 | 7.4 | 7.7 | ✓‡ |
| **R3.6** | Pink® Batts® Skillion Roof R3.6 | 7110236 | 1220 x 432 | 165 max | 6.3 | 6.6 | ✓ |
| **R4.0** | Pink® Batts® Ultra® R4.0 Ceiling | 7110140 | 1220 x 432 | 195 | 6.3 | 6.6 | ✓ |
| **R5.0** | Pink® Batts® Ultra® R5.0 Ceiling | 7110150 | 1220 x 432 | 220 | 4.2 | 4.4 | ✓ |
| **R6.0** | Pink® Batts® Ultra® R6.0 Ceiling | 7110160 | 1220 x 432 | 235 | 3.7 | 3.9 | ✓ |
| **R6.3** | Pink® Batts® Ultra® R6.3 Ceiling | 7110163 | 1220 x 432 | 250 | 3.2 | 3.3 | ✓ |
| **R7.0** | Pink® Batts® Ultra® R7.0 Ceiling | 7110170 | 1220 x 432 | 260 | 2.6 | 2.8 | ✓ |
| **ROOF - Thermal Retrofit Insulation** | | | | | | | |
| **R2.9** | Pink® Batts® R2.9 Retrofit Ceiling | 7110129 | 1220 x 432 | 150 | 9.5 | 10.0 | ✓ |
| **R3.3** | Pink® Batts® R3.3 Retrofit Ceiling | 7110133 | 1220 x 432 | 175 | 8.4 | 8.8 | ✓ |
| **ROOF and WALL - Thermal Insulation** | | | | | | | |
| **R2.4** | Pink® Batts® HandyPack R2.4^ | 7200158 | 7000 x 580 | 90 | 4.06 | - | |

* Coverage relates to standard structures (ie with framing allowance) therefore actual coverage may vary.
‡ This product is manufactured in both New Zealand and Australia. Environmental Choice New Zealand applies to New Zealand made product only.
# For full details of the Pink® Batts® Lifetime Warranty visit pinkbatts.co.nz/lifetime-warranty.
^ Product does not have the Pink® Batts® Lifetime Warranty or BRANZ Appraised Accreditation.

Tasman District Council / AlphaOne Multiproof Approval – 107

# Roof

## PINK® BATTS® CEILING INSULATION

INSTALLATION INSTRUCTIONS

## Storage and Maintenance

Pink® Batts® insulation should be protected from damage and weather. Store under cover in clean dry conditions. The installed product should remain dry at all times. If the product has become wet or damp, the source of the dampness (e.g. leak in roof) should be repaired immediately and any wet or damp insulation should be removed and replaced with new product of an equivalent R-value.

## Disposal of bags

Recyclable LLDPE bags are used for packaging of Pink® Batts® insulation.
For further details download the relevant product data sheet from pinkbatts.co.nz

## Accreditations/Appraisals/Certifications

BRANZ Appraised
Appraisal No. 238 [2012]
Appraisal No. 632 [2012]
Appraisal No. 767 [2012]

Licence No 2504017.
Thermal Building Insulants

Tasman Insulation New Zealand Ltd
Certified QMS
Quality
ISO 9001

‡ R3.6 ceiling product is manufactured in both New Zealand and Australia. Environmental Choice New Zealand applies to New Zealand made products only.

# For full details of the Pink® Batts® Lifetime Warranty visit pinkbatts.co.nz

Tasman District Council / AlphaOne Multiproof Approval – 107

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Tasman Insulation New Zealand Ltd
9-15 Holloway Place, Penrose, Auckland,
New Zealand

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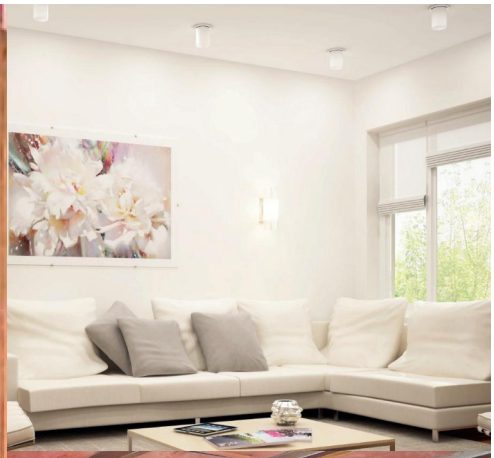

INSTALLATION INSTRUCTIONS

# Wall | PINK® BATTS® WALL INSULATION

Tasman District Council / AlphaOne Multiproof Approval – 107

## Installation Instructions

Correct installation with no compression, gaps or folds is critical to ensure Pink® Batts® wall insulation performance is not compromised.

### Safety:

**Each installation is unique, so prior to installation check for all hazards that may cause injury:**

- Carry out any required repair work before starting installation
- Ensure there's adequate lighting to identify any hazards
- Treat all electrical cables as live, being careful not to cut or expose cables and wires
- Beware of other sharp objects (protruding nails, splinters etc.), pests (bees and wasps), loose boards and pipe work

**Note: Seek professional advice if you are unsure how best to isolate the hazard or have a professional installer carry out the work on your behalf.**

We recommend PinkFit® professional installers. PinkFit® are a nationwide network of professional installers who guarantee that their completed installation will meet the requirements of NZS 4246:2016.

For your local PinkFit® installer call **0800 746 534** or visit **pinkbatts.co.nz/installing-pink-batts/**

INSTALLATION INSTRUCTIONS

# Wall | PINK® BATTS® WALL INSULATION

## Installation:

**Any slight irritation to exposed skin caused by the fibres in glass wool, or through their inhalation, is harmless and temporary.**

**However for your comfort while installing, it's recommended you wear:**

- Loose fitting work clothes which cover the arms and legs
- Covered shoes
- Dust mask
- Safety glasses

**For safety while installing, it's recommended you use:**

- Cut resistant gloves (if knife is used)

**For an efficient installation, the following tools are recommended:**

- Stable working platform
- Knife
- Tape measure

**To ensure Pink® Batts® wall insulation performance isn't compromised, use only wall products for installing in wall applications.**

- Ensure the product and all cavities are dry
- If cutting is required, cut oversize by 5 mm to ensure a good friction fit
- Ensure there are no gaps, folds or compression of the product to achieve optimal performance
- Fill gaps around windows and doors with off-cuts
- Follow the manufacturer's instructions for minimum clearances from hot inbuilt appliances. If they are unknown, refer to NZS 4246:2016
- Do not cover vents. Insulate around vents to allow unhindered ventilation
- Fit Pink® Batts® insulation tight and close around electrical cables and pipes. It's important to minimise compression, gaps and folds in the insulation. For electrical cables and small diameter pipes, partially cut insulation and place around the cables and pipes
- In new construction, it is recommended that Pink® Batts® insulation is installed once the cladding system is completely installed.

**Retrofitting insulation in external walls without wall underlay/or in poor condition**

a) Direct Fixed Cladding

- Use insulation that is at least 20mm thinner than the framing width - if the frame is 90mm we recommend to use **Pink® Batts® Classic R2.2 70mm** OR
- Fit inserts of Bitumac® 720 wall underlay.

b) Drained Cavity

- The insulation can be the same thickness as the frame. The use of horizontal strapping is recommended , OR
- Fit inserts of Bitumac® 720 wall underlay.

Unlined Walls in Roof Cavities

- **Pink® Batts® Wall** or **Pink® Batts® HandyPack insulation** should be secured in place by using horizontal strapping (max spacing of 300mm)

Pink® Batts® Masonry Wall Insulation

- It is recommended that an absorbent building paper or a waterproof membrane is placed between the insulation and the concrete. This is not intended to replace the DPC which must still be fixed between strapping and masonry.

**CAUTION**: Electrical cables and equipment installed prior 1989 may overheat and fail when partially or completely covered with bulk thermal insulation

Tip: To verify Building Code Compliance, staple a product label and installer information at an easy to find location away from any hot items such as downlights or water cylinders. An alternative is to supply the information to the building owner or authorised person.

**Refer to NZS 4246:2016 for further information related to the correct installation of insulation and clearances.**

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# Wall | PINK® BATTS® WALL INSULATION

INSTALLATION INSTRUCTIONS

## Product Specifications

| WALL - Thermal Insulation | PRODUCT CODE | SIZE (mm) | NOMINAL STABILISED THICKNESS (mm) | NOMINAL TOTAL AREA PER BALE ($m^2$) | APPROX. COVERAGE PER BALE* ($m^2$) | ENVIRONMENTAL CHOICE |
|---|---|---|---|---|---|---|
| **Masonry** | | | | | | |
| **R1.0** Pink® Batts® Masonry R1.0 | 7160110 | 1220 x 580 | 40 | 21.2 | - | ✓ |
| **R1.2** Pink® Batts® Masonry R1.2 | 7160134 | 1220 x 580 | 50 | 17.0 | - | |
| **70mm Wall Range** | | | | | | |
| **R2.2** Pink® Batts® Classic R2.2 70mm Wall | 7160248 | 1140 x 560 | 70 | 6.4 | 7.5 | |
| **90mm Wall Range** | | | | | | |
| **R1.8** Pink® Batts® Classic R1.8 Wall | 7127118 | 1140 x 560 | 90 | 16.6 | 19.6 | ✓ |
| **R2.2** Pink® Batts® Classic R2.2 Wall | 7127122 | 1140 x 560 | 90 | 13.4 | 15.8 | ✓ |
| **R2.2** Pink® Batts® Steel R2.2 Wall | 7160214 | 1220 x 610 | 90 | 15.6 | 15.6 | ✓ |
| **R2.2** Pink® Batts® R2.2 Narrow Wall | 7160243 | 1140 x 360 | 90 | 9.0 | 11.2 | ✓ |
| **R2.4** Pink® Batts® Classic R2.4 Wall | 7127124 | 1140 x 560 | 90 | 10.2 | 12.1 | ✓ |
| **R2.6** Pink® Batts® Ultra® R2.6 Wall | 7127126 | 1140 x 560 | 90 | 9.6 | 11.3 | ✓ |
| **R2.6** Pink® Batts® Ultra® Steel R2.6 Wall | 7160215 | 1220 x 610 | 90 | 9.7 | 9.7 | ✓ |
| **R2.6** Pink® Batts® Ultra® R2.6 Narrow Wall | 7160244 | 1140 x 360 | 90 | 7.4 | 9.2 | ✓ |
| **R2.8** Pink® Batts® Ultra® R2.8 Wall | 7127128 | 1140 x 560 | 90 | 6.4 | 7.5 | ✓ |
| **R2.8** Pink® Batts® Ultra® R2.8 Narrow Wall | 7160247 | 1140 x 360 | 90 | 4.5 | 5.6 | ✓ |
| **140mm Wall Range** | | | | | | |
| **R3.2** Pink® Batts® Ultra® R3.2 140mm Wall | 7127132 | 1140 x 560 | 140 | 9.6 | 11.3 | ✓ |
| **R3.2** Pink® Batts® Ultra® R3.2 140mm Narrow Wall | 7160245 | 1140 x 360 | 140 | 7.0 | 8.6 | ✓ |
| **R3.6** Pink® Batts® Ultra® R3.6 140mm Wall | 7127136 | 1140 x 560 | 140 | 7.0 | 8.3 | ✓ |
| **R4.0** Pink® Batts® Ultra® R4.0 140mm Wall | 7127140 | 1140 x 560 | 140 | 5.1 | 6.0 | ✓ |
| **R4.0** Pink® Batts® Ultra® R4.0 140mm Narrow Wall | 7160246 | 1140 x 360 | 140 | 4.1 | 5.0 | ✓ |
| **ROOF and WALL - Thermal Insulation** | | | | | | |
| **R2.4** Pink® Batts® HandyPack R2.4^ | 7200158 | 7000 x 580 | 90 | 4.06 | - | |

* Coverage relates to standard structures (ie with framing allowance) therefore actual coverage may vary.
\# For full details of the Pink® Batts® Lifetime Warranty visit pinkbatts.co.nz/lifetime-warranty.
^ Product does not have the Pink® Batts® Lifetime Warranty or BRANZ Appraised Accreditation.

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BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022




# Wall | PINK® BATTS® WALL INSULATION

## Storage and Maintenance

Pink® Batts® insulation should be protected from damage and weather. Store under cover in clean, dry conditions. The installed product should remain dry at all times. If the product becomes wet or damp, the source of dampness (e.g. leak in building) should be repaired and any wet or damp insulation should be removed and replaced with new insulation of an equivalent R-value.

## Disposal of bags

Recyclable LLDPE bags are used for packaging of Pink® Batts® insulation.

For further details download the relevant product data sheet from pinkbatts.co.nz

## Accreditations/Appraisals/Certifications

BRANZ Appraised
Appraisal No. 238 [2012]

Licence No 2504017.
Thermal Building Insulants

Tasman Insulation New Zealand Ltd
Certified QMS
Telarc. Registered
Quality
ISO 9001

GREENGUARD

pink batts Lifetime WARRANTY

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TASMAN
INSULATION NEW ZEALAND

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Form 2A

# Memorandum from licensed building practitioner: Certificate of design work

**Section 30C or section 45, Building Act 2004**

**The building** **JOB No 21106-21110**

Street address of building:

**Lot 363-367 DP 561194**
**Street address 12,14,16,18,20 Kahikatea Way, Richmond.**

**The owner**

Name: G.J Gardner Homes Nelson (LSK Builders 2011 Ltd).

Address: 195 Queen Street, Richmond

Telephone Number: 035439502

Email address: nelson@gjgardner.co.nz

**Identification of design work that is restricted building work**

I carried out or supervised the following design work that is restricted building work:

| **Design work that is restricted building work** | **Description** | **Carried out/ supervised** | **Reference to plans and specifications** |
|---|---|---|---|
| *[Tick]* | *[If appropriate, provide details of the restricted building work]* | *[Specify whether you carried out this design work or supervised someone else carrying out this design work]* | *[If appropriate, specify references]* |
| **Primary structure** | | | |
| Foundations and subfloor framing (✓) | *Engineer Designed Cupolex Floor Slab* | ( ) Carried out<br>(✓) Supervised | |
| Walls (✓) | *Wall framing* | ( ) Carried out<br>(✓) Supervised | |
| Roof (✓) | *Purlins only* | ( ) Carried out<br>(✓) Supervised | |
| Columns and beams ( ) | | ( ) Carried out<br>( ) Supervised | |
| Bracing (✓) | *Bracing Design* | ( ) Carried out<br>(✓) Supervised | |
| Other ( ) | | ( ) Carried out<br>( ) Supervised | |
| **External moisture management systems** | | | |
| Damp proofing (✓) | *Underslab.* | ( ) Carried out<br>(✓) Supervised | |

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| | | | |
|---|---|---|---|
| Roof cladding or roof cladding system (✓) | *Colorsteel 6-Rib roofing* | ( ) Carried out<br>(✓) Supervised | |
| Ventilation system (for example, subfloor or cavity) (✓) | *Wall cavity* | ( ) Carried out<br>(✓) Supervised | |
| Wall cladding or wall cladding system (✓) | *Rockcote plaster system & Linea weatherboards.* | ( ) Carried out<br>(✓) Supervised | |
| Waterproofing (✓) | *Behind tiles.* | ( ) Carried out<br>(✓) Supervised | |
| Other ( ) | | ( ) Carried out<br>( ) Supervised | |
| **Fire safety systems** | | | |
| Emergency warning systems, evacuation and fire service operation systems, suppression, or control systems, or other (✓) | *Smoke Alarms* | ( ) Carried out<br>(✓) Supervised | |

**Note:** The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.

**Note**: continue another page if necessary.

Are waivers or modifications of the building code required? ( ) Yes (✓) No

If Yes, provide details of the waivers or modifications below:

| **Clause** | **Waiver/modification required** |
|---|---|
| *[List relevant clause numbers of building code]* | *[Specify nature of waiver or modification of building code]* |
| | |
| | |
| | |

**Note**: continue another page if necessary.

**Issued by**

| | | | | | |
|---|---|---|---|---|---|
| Name: **Jeremy Ritchie** | | | | | |
| LBP or registration number: **BP 110013** | | | | | |
| The practitioner is a: | (✓) | Design LBP | ( ) | Registered architect | ( ) Chartered professional engineer |
| Mailing address: **PO Box 3293, Richmond Nelson 7020** | | | | | |
| Street address or registered office: | | | | | |

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| | | | |
|---|---|---|---|
| Phone number: | Landline: | **03 5441829** | Mobile: |
| | Daytime: | | After hours: |
| Fax number: | | | |
| Email : **jeremy@premierservices.co.nz** | | | |
| Website: | | | |

**Declaration**

I **Jeremy Ritchie** [*name of practitioner*]

state that the design work that is restricted building work recorded on this form:

(a) complies with the building code; or

Signature:

Date: **19th November 2021**

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G.J. Gardner. HOMES

# SPECIFICATION

For

## Multiproof Application

At

## Lot 363-367 DP 561194
## Street address 12,14,16,18,20 Kahikatea Way, Richmond.

For

## G.J Gardner Homes Nelson (LSK Builders 2011 Ltd).

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Tasman District Council
BUILDING CONSENT AUTHORITY

APPROVED BUILDING CONSENT DOCUMENTATION

ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

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NOTE: this specification is a secondary document. All details to be confirmed with G.J Gardner Building and cross referenced with the consented working drawing set.

# 1. PRELIMINARY & GENERAL

## 1.01 SCOPE OF WORK

This contract comprises the erection and completion in the best trade practice all the work shown or reasonably implied on the accompanying drawings and this specification, the supply of all necessary plant, tools and materials and the maintenance of all works as stated in these conditions.

## 1.02 BUILDING CONSENT AND NOTICES

The contractor shall be responsible for applying (as agent for the owner) to and uplifting from the local authority any building consents and for paying all necessary fees. It shall be the Contractors responsibility to give the required notice and the ensure that required inspections are carried out by the Local Authority and to ensure that all work is carried out to enable compliance certificates are able to be issued at completion of the works. The cost of any additional inspections required because of insufficient or faulty work by the Contractor shall be borne by the contractor.

## 1.03 COMPLIANCE CERTIFICATES

The contractor shall ensure that all relevant compliance certificates are issued.

## 1.04 NEW ZEALAND BUILDING REGULATIONS

All work shall be carried out to comply with the N Z Building Act 2004 & Regulations and shall conform to the New Zealand Building Code Approved Documents.

## 1.05 CONTRACT

NZ Standard 3915:2005 conditions of Contract for Building and Civil Engineering Construction, (where no person is appointed to act as engineer) shall apply to this project unless otherwise agreed upon by both parties. The contractor shall be responsible for presenting two identically filled in contract documents for signing by both parties prior to the commencement of any work.

## 1.06 HEALTH AND SAFETY

It is the responsibility of all contractors/visitors to and on site to comply with the Health and Safety at Work Act 2015

## 1.07 SUBCONTRACTORS

The Preliminary & General section of this specification shall equally bind all Subcontractors employed by the Main Contractor.

## 1.08 INSURANCE

The Contractor shall always keep the whole of the works fully covered by insurance, as set out in NZS3915:2005 Section 8. The Contractor shall also carry a minimum of $1,000,000 public liability insurance.

## 1.09 INTERPRETATION

Materials or work shown on the drawings but not specified (or specified and not shown,) shall be supplied as if both shown and specified. Materials shown but not specified must be of types commonly employed for the service they are intended to perform. The Contractor shall be responsible for setting out the work and shall make good at this own expense any errors that occur through his lack of checking or faulty workmanship.

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All figured dimensions should be used in preference to scale. Unless written as “provide only” or “fix only” the words “provide” and “fix” shall mean provide and fix.

## 1.10 STABILITY DURING CONSTRUCTION

The contractor shall carefully brace and support all parts of his work against damage by wind and protect work from the elements as necessary during the contact period.

## 1.11 PROTECTION OR PROPERTY

The contractor shall take care to protect all existing buildings, roads, grounds, shrubbery etc, on or about the site from damage by his operations. Any such damage shall be made good at the Contractors expense.

## 1.12 TEMPORARY SERVICES

The Contractor shall arrange for all temporary services, pay all fees in connection therewith and remove on completion of the contract.

## 1.13 SITE VISIT

Tenderers shall visit the site and ascertain the nature and extent of the work and the rights and interests that may be interfered with any other matter that may influence the making up of a tender or the carrying out of the contract. The levels shown on the plans are approximately correct but Tenderer shall verify these as no claims will be allowed on the bases of incorrect levels shown.

## 1.14 WORKMANSHIP

All workmanship shall be in accordance with the best trade practice. Work shall be accurately set out, structurally sound, true to line and face and shall be neatly finished to the satisfaction of the Owner.

## 1.15 ATTENDANCE

The Contractor shall allow for attendance upon all sub-contractors as necessary to enable satisfactory completion of the works. Allow to form all holes, chases, building in, making good and cutting away for all trades.

## 1.16 COMPLETION

The Contractor at the conclusion of the Contact shall have all trade debris removed from the site and the building left clean and ready for occupancy. All services and mechanical parts hall be in good working order.

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# 2. EXCAVATION & BACKFILLING

## 2.01 PRELIMINARY & GENERAL

Refer to Conditions of Contract and preliminary clauses of this specification that shall apply equally to this section

## 2.02 SCOPE

The Contractor shall perform all excavation and backfill as necessary to complete the works.

## 2.03 EXCAVATIONS

The Contractor shall remove all vegetation, topsoil, et cetera over the area to be built over. If topsoil is to be stockpiled it shall be as directed by the owner or his representative.

All foundations shall be excavated straight and level and wide enough to take boxing for concrete and for removal of same. The base of all excavations shall be hand trimmed to remove all loose material. Over excavation shall be filled with hardfill and compacted at the contractors' expense.

## 2.04 BACKFILLING

Backfilling to bring floors up to grade shall be approved granular hardfill competed in layers not exceeding 150mm thick with a mechanical compactor and finished with a 50mm sand blinding.

## 2.05 CONTROL OF WATER

The Contractor shall keep the excavations free of water at all times and shall provide all such pumping plant and other materials as may be required for this purpose.

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# 3. CARPENTRY

## 3.01 PRELIMINARY AND GENERAL

Refer to the following specifications and standards

| | |
|---|---|
| AS/NZS1860 | Particleboard flooring, 1860.1: Specifications |
| AS/NZS2269 | Plywood – Structural |
| NZS3602 | Timber and wood-based products for use in building |
| NZS3604 | Timber framed buildings |
| NZS3631 | New Zealand national timber grading rules |
| BRANZ | Good practice guide: Tiling |

Refer to Conditions of Contract and preliminary clauses of this specification, which shall apply equally to this section. All work shall comply with NZS3604:2011 and New Zealand Building Code Acceptable Solutions.

## 3.02 EXTENT OF WORK

The work shall include all labour, materials and equipment necessary to carry out and complete the carpentry as shown, or as further required by this specification. Any work that is intended or implied but not specifically shown but necessary for proper completion of the building shall be included.

## 3.03 ATTENDANCE & PROTECTION

Arrange and attend upon all works by other trades. Provide all blockings fixings, trims as necessary for completion of their respective works and make good after all trades. Provide all temporary supports. Provide for temporary protection from adverse weather and damage and ensure the closing in of the building as soon as possible.

## 3.04 MATERIALS AND WORKMANSHIP

All materials shall be the best of their respective kinds. All timber and wood products shall conform to NZS3602 requirements “Timber and Wood Based Products for use in Building”. All framing timber shall be gauged four sides and graded either SG8 unless otherwise shown on plans. Moisture content for timber shall not be greater than 16% at time of lining.

Timber sizes, spacing and treatment shall be as designated on the plans. Set out framing in accordance with the requirements of NZS3604:2011 and as required to support sheet linings and claddings Provide and fix blocks, dwangs, openings and other items as required by other trades.

## 3.05 COMPLIANCE WITH THIS SPECIFICATION

Do any work under specific design in accordance with details provided. The Contractor and Carpenter shall do all other work in accordance with NZS3604. Complying with the whole of Section 2 - General of NZS3604. The requirement here shall be to meet NZBC Approved Documents B1 - Structure, B2 - Durability, E2 - External Moisture.

a. All fixings of materials shall be the equal of that in Appendix (A) of NZS3604. Including sheet lining and cladding materials that are not wood based (e.g. Gibraltar board or wood cellulose sheeting), especially when used as diaphragms and for wall bracing.
b. Mild steel structural components used in subfloor spaces, exposed to the weather or in a position where condensation or dampness will occur shall be min. Type 304 stainless steel after forming and shall provide the necessary capacities called from by NZS3604 dependent on function and location.
c. Bolts acting as structural fixings to “H3.2” treated timber or greater shall be Type 304 stainless steel.

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## 3.06 TIMBER FRAMING, TREATED

Species, grade and in service moisture content to NZS3602 and treatment to NZS3640. Either mechanically stress graded to AS/NZS1748, or visual grading to NZS3631. Minimum timber to be used through project is SG8.

## 3.07 TIMBER FRAMING, MECHANICALLY STRESS GRADED

Species, grade and moisture content in service as set out in NZS3602. Machine stress graded to AS/NZS1748, with average moisture content at supply of 16% or less.

## 3.08 LAMINATED TIMBER

Radiata pine laminations to NZS3606, Table 1; treated as required by NZS3602, to the requirements of NZS3640, with special attention to Appendix B "Specification advisory notes". Supply weather resistant sealed.

## 3.09 MOISTURE CONTENT

Ensure the maximum allowable equilibrium moisture content (EMC) for non-air-conditioned or centrally heated buildings for framing to which linings are attached.

| | |
|---|---|
| Framing at erection: | 24% maximum |
| Framing at enclosure: | 20% maximum |
| Framing at lining: | 16% maximum |
| Timber strip flooring | 10% at time of laying |

## 3.10 DAMP PROOF COURSE

Provide continuous two-ply bituminous damp proof course between all timber and concrete that would otherwise be in contact.

## 3.11 HOLDING DOWN BOLTS

Bottom plates shall be fixed down over DPC with 140mm long 12ø galvanized Trubolts with 50x50x3mm galvanized plate washers or 12ø galvanized bolts cast into concrete min. 100mm at 600mm maximum centres.

## 3.12 FINISHING TIMBERS

All exposed finishing timbers shall be dressed to a smooth surface and shall be sanded to a smooth even surface ready for painting.

## 3.13 ROOF TRUSSES

Roof trusses shall be Gang-nail or equivalent factory manufactured trusses spaced as shown on the plans. The manufacturer shall provide setout drawings to the Contractor. All trusses shall be fixed at each end as per Roof trusses manufacturers producer statement and drawings.

## 3.14 BUILDING WRAP

Fix breather type synthetic building wrap to the exterior face of stud framing or sheet bracing material prior to the fixing of cladding materials. Building wrap shall extend from top plate to the underside of bearers supporting wall claddings. Wrap shall be run horizontally with top sheet lapping over sheet with laps not less than 75mm and shall be adequately secured to plates and studs. Where cladding is over a cavity fix danband tapes over building wrap horizontally at 300mm max. crs between dwangs to prevent wrap bulging into cavity when Batt insulation is placed in framing.

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## 3.15 CLADDING

ROCKCOTE RENDER SYSTEM
Rockcote Insulated Render System applied on a 20mm polystyrene cavity battens. See Rockcote Render System section of this specification.

JAMES HARDIE LINEA WEATHERBOARD
James Hardie Linea Weatherboards shall be fixed with galvanized nails strictly to the manufacturer's specification & details including all flashing tapes & flashings. See James Hardie Linea Weatherboard section of this specification.

## 3.16 LININGS

10mm Gibraltar Board - Shall be fixed to manufacturers specifications with galvanized clouts, adhesives or coated screws. Allow to tape joints, stop all surfaces sand and leave ready for painting. Replace 10mm Gibraltar Board where required for bracing panels as set out on plans. Fixings shall be as required by manufacturers and BRANZ appraisal certificates for the relevant brace panel type.

## 3.17 SOFFIT LININGS

Shall be 4.5mm James Hardie Hardiflex lining fixed with 40x2.8mm galvanized Hardiflex nails or Fastfix Fasteners; refer to James Hardie Eave and Soffit Installation Manual for details.

## 3.18 SCHEDULE OF LININGS

| Room | Wall lining | Finish | Ceiling Lining | Finish |
|---|---|---|---|---|
| Living Areas | 10mm Gib Board | Paint | 13mm Gib Board | Paint |
| Bedrooms | 10mm Gib Board | Paint | 13mm Gib Board | Paint |
| Bathroom/ENS | 10mm Gib Aqualine | Paint | 13mm Gib Aqualine | Paint |
| Garage/L'dry | 10mm Gib Board | Paint | 13mm Gib Board | Paint |

Bathrooms and Ensuite areas shall be finished with minimum 3-coat semi-gloss or gloss paint.

## 3.19 SKIRTING AND SCOTIA

| | |
|---|---|
| Skirting | As per Building Specification (60x12mm beveled recommended) |
| Scotia | As per Building Specification (Square Stopped recommended) |
| Architrave | As per Building Specification (60x12mm beveled recommended) |

Nail fixings of all finishing timbers shall be punched.

## 3.20 CEILING HEIGHTS/FEATURES

All rooms to be 2.4m high flat ceilings, or as noted on plans.

## 3.21 INTERIOR DOORS, DOOR JAMBS & HARDWARE

Interior doors shall be confirmed by owner. Hang on 1.5 pair of AC loose pin butt hinges on 19mm pine jambs. Doorframes shall be confirmed by owner.
All the interior door handles shall be confirmed by owner.
All exterior door handles shall be confirmed by owner.

Refer to building company specification.
When a heated towel is positioned on the wall behind a door, floor mounted doorstop shall be fitted, Brushed Nickel finish.

## 3.22 TILING GENERALLY & WATERPROOFING MEMBRANE

Prepare surfaces and carry out the tiling work in accordance with AS3958, Part 1, as modified by BRANZ Good practice guide: Tiling. Install waterproofing membrane between the tile

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adhesive and the substrate. Reinforce all junctions of the waterproofing membrane to BRANZ Good tiling practice 7.0 Waterproofing interior wet areas.

## 3.23 JOINERY UNITS

Provide and install kitchen joinery units in accordance with separate kitchen plans from kitchen designer. The joiner shall verify dimensions on the site before construction work commences. Colours and patterns shall be as selected by the owner.

## 3.24 4.24 CEILING ACCESS

As per plans.

## 3.25 WARDROBES

When allowance has been made for any storage systems, details as per plans & Building Specification.
NOTE: Storage systems in HWC should be constructed from silver ventilated wire.

## 3.26 COMPLETION

On completion remove all debris from the site sweep all floors and generally leave the building clean and ready for occupation.

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# 4. THERMAL INSULATION

## 4.01 GENERAL

Refer to the following specifications and standards
NZBC Hl/AS1 Energy Efficiency, Third Edition; 2.0 Building Thermal

## 4.02 INSPECTION

Before starting installation of blankets and batts, check that the location and framing are free from moisture, that the cavities are not interconnected and that mesh, building papers and vapour barriers are in place.

## 4.03 FIT THERMAL INSULATION

Lay, install, fit and fix thermal insulation to NZBC H1/AS1: Energy Efficiency, BRANZ Third Edition Building Thermal Envelope.

Install in housing to NZS4218. Friction fit thermal insulation in place to completely fill the whole of the cavities with no gaps and with no folds. Slightly oversize length for friction fit and cut across pad and fill cavity. Cut smaller pieces for smaller spaces and around penetrations. Leave no gaps between, and maintain full thickness of the insulating segments over the whole of the installation. Do not cover vents. Leave a clear 150mm clear gap around recessed light fittings and metal flues.

## 4.04 R- VALUE SCHEDULES

| | |
|---|---|
| Ceilings | R3.6 batts to entire roof of insulated envelope with the exception of 290mm around hipped roof perimeter of the insulated envelope, this perimeter area shall be insulated with R2.6 batts to achieve 25mm air gap at eave/top plate junction. |
| External Walls | R2.4 Batts |
| Under Floor | No under slab insulation is to be provided |

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# 5. ROCKCOTE EPS RENDER SYSTEM

## 5.01 GENERAL

Substrate: Timber Frame - 50mm EPS on a cavity
Coating System: Standard Render (6-8mm Meshed)
Finish: Rockcote Acrylic Based Texture - Classico Swirl
Paint System: 2 Coats of Resene X200 or Rockcote Armour

## 5.02 DESCRIPTION

This specification deals with Rockcote Insulated Cavity Plus Render System applied over a 50mm EPS sheet substrate. The system incorporates the installation of a 20mm drainage cavity and pre-coloured acrylic texture finish.

## 5.03 PROPERTIES

a. Thickness – 56mm (min/average)
b. Weight – 9 kg/m²
c. Windzone – All wind zones of 3604 and specific design wind pressures up to 2.5kPa design differential ULS Fire rating - Performance level 'A' classification was achieved in accordance with the New Zealand Building code Acceptable Solutions C/AS1 table 7.5 BRANZ report # FH3712 - November 9th 2006 Peak Heat Release rate 30.8 kW/m2, Total Heat Release rate 4.8 MJ/m2, NZBC acceptable solution C/AS1 part 7.11 appendix C9.1 with respect to fire properties of external wall cladding systems.
d. Durability – 15 year warranty / expected durability from BRANZ 30 years
e. Thermal – R.57 / includes de-rating x .45 for 20mm cavity Testing – BRANZ appraisal certificate # 476(2012)

## 5.04 BUILDING CODE COMPLIANCE

If the project has a building consent then the following clauses apply.

## 5.05 DURABILITY

The work covered by this part of the specification has been designed and constructed to achieve a minimum durability of 15 years.

## 5.06 ON GOING MAINTENANCE INSTRUCTIONS

Provide ongoing maintenance instructions required to meet the performance requirements of the NZBC B2 Durability.

## 5.07 SUBSTRATE

The substrate for this Rockcote RenderSpec has had all the appropriate inspections carried out by a BCA representative and that it complies with the NZBC requirements. If the substrate is existing, all tests and checks have been carried out by a BCA representative or Independant assessor and that the substrate is found to be sound and stable.

## 5.08 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Rockcote Systems wall cladding system. Materials and execution to Rockcote Systems specification except where varied by this specification and supported by architectural detailing.

## 5.09 QUALIFICATIONS

Use only LBP registered plasterers licensed to apply the Rockcote Systems exterior render systems.

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## 5.10 FINISH SAMPLE

Submit one 300x300mm sample of the selected texture finish and colour for approval. Obtain signature of acceptance on sample and return to the Registered Plasterer.

## 5.11 MAINTENANCE INSTRUCTIONS

Provide Rockcote Systems Maintenance Guide on or before practical completion of the contract for issuing to the building owner. Rockcote Systems Maintenance Guide to be provided on request.

## 5.12 PRODUCER STATEMENT

If the project has a building consent, then a producer statement shall be compiled by the Registered Plasterer in the form as required by the BCA.

## 5.13 WARRANTY

Warrant this system under normal environmental and use conditions against failure. Rockcote Systems system warranty.

Materials: 15 years by Rockcote Systems - Materials
Execution: 5 years by Registered Plasterer - Workmanship

## 5.14 ONSITE ASSISTANCE

Allow to inspect the whole of the work at each stage. Determine a programme for onsite assistance including notification when each part and stage of the work is ready for inspection prior to the work commencing. Permit representatives of Rockcote Systems to inspect the work in progress and to take samples of their products from site if requested refer Rockcote Systems Project Guide.

## 5.15 CLEANING

Remove debris, unused materials and elements from the site relating to the plaster system application. Replace damaged, cracked, or marked elements. Leave the whole of this work to the required standard.

## 5.16 FINAL ONSITE ASSISTANCE

Final Onsite Assistance by Rockcote Systems Registered plasterer and Rockcote project assessor of the entire finished cladding to take place immediately after completion of the wall cladding work and any defects or subsequent damage made good immediately.

Important: This specification must be read in conjunction with the Rockcote Systems technical drawings.

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# 6. JAMES HARDIE LINEA WEATHERBOARD

## 6.01 GENERAL

This James Hardie Linea Weatherboard specification is only suitable for timber-framed buildings. Other framing materials are outside the scope of this specification.

## 6.02 FRAMING DIMENSIONS

A 35mm minimum stud width is required unless noted otherwise in this specification. Timber must be graded in accordance with NZS3631 “New Zealand Timber Grading Rules”. The timber grade to be used must be in accordance with NZS3604 requirements.

## 6.03 DURABILITY

To comply with NZBC requirements the external framing must be treated to a minimum H1.2 treatment. Refer to NZBC Acceptable Solution B2/AS1 Durability for further information about the durability requirements. For timber treatment information refer to NZS 3602 (Timber and Wood-Based Products for use in Buildings) and NZS 3640 (Chemical Preservation of Round and Sawn Timber) for minimum timber treatment selection and treatment requirements. Also refer to framing manufacturer’s literature for further guidance on timber selection.

Framing must be protected from moisture at sites in accordance with the recommendations of framing manufacturers. Note: refer to NZS 3602 for information about the allowable moisture content in timber.

## 6.04 BUILDING UNDERLAY OR HOMERAB PRECLAD LINING

Building underlay must be provided as per the requirements of NZBC Acceptable Solution E2/AS1 ‘External Moisture’ Table 23. The building underlay must be fixed in accordance with E2/AS1 and the underlay manufacturer’s recommendations.

Walls which are not lined on the inside face e.g. garage walls or gable ends must include a rigid sheathing or an air barrier behind the cladding which complies with the requirements of NZBC Acceptable Solution E2/AS1 Table 23.

## 6.05 FLASHINGS

All wall openings, penetrations, intersections, connections, window sills, heads and jambs must be flashed prior to weatherboard installation. The building underlay must be appropriately incorporated with penetration and junction flashings. Materials must be lapped in such a way that water tracks down to the exterior on the face of building underlay. The selected flashing materials must comply with the durability requirements of Table 20 of NZBC Acceptable Solution E2/AS1.

## 6.06 VENT STRIP

The James Hardie uPVC cavity vent strip must be installed at the bottom of all walls constructed using the drained and ventilated cavity construction method. James Hardie uPVC vent strip has an opening area of 1000mm2/m length. It is important that the openings in the vent strip are kept clear and unobstructed to allow free drainage and ventilation of cavities.

## 6.07 CAVITY BATTENS

The cavity battens provide airspace between the frame and cladding and are considered a “packer” only in this specification. The timber battens must be minimum H3.1 treated in accordance with NZS3640 (Chemical Preservation of Round and Sawn Timber) to comply with the durability requirements of B2/AS1.

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## 6.08 NAIL SIZE AND FIXING METHOD

James Hardie Linea Weatherboards and James Hardie Axent Trim must be fixed to timber with the types of nails specified in James Hardie Linea Weatherboard Technical Specification January 2012 Tables 3 and 4, in accordance with the following requirements:

a. James Hardie Linea Weatherboard can either be face/exposed fixed or concealed fixed.
b. James Hardie Linea Weatherboard must be fixed into studs at maximum 600mm crs. Fixing crs to coincide with stud spacing.
c. All concealed nails must be driven flush with the board surface.
d. When concealed fixing James Hardie Linea Weatherboards, nails must be driven under the lap of boards, except at all corners and vertical edges of openings where James Hardie Linea Weatherboards must be face fixed.
e. Nails must be fixed 25mm from the end of the board when hand nailing. For gun nailing refer to James Hardie Linea Weatherboard Technical Specification January 2012 Section 5.4.

## 6.09 GUN NAILING

James Hardie Linea Weatherboard can also be gun-nailed with a D head or RounDrive nail when concealed fixing method is used:

a. Gun-nailing must not be used when James Hardie Linea Weatherboard is used for bracing.
b. Nails must be no closer than 50mm from the ends of boards when gun nailing is used, double studs will be required.
c. Be minimum length and gauge as per James Hardie Linea Weatherboard Technical Specification January 2012 Section 5.4. Table 3.
d. Be finished flush with surface of board.

## 6.10 JOINTING

The ends of James Hardie Linea Weatherboards are jointed off-stud by means of a tongue and groove joint. Tongue and groove joints may be located centrally between studs but no closer than 100mm from the edge of a stud. The joints must be staggered by 600mm minimum. Sealant must be provided in the tongue and groove joint.

## 6.11 CLEANING

Remove debris, unused materials and elements from the site relating to the plaster system application. Replace damaged, cracked or marked elements. Leave the whole of this work to the required standard.

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# 7. GLAZING & ALUMINIUM JOINERY

## 7.01 GENERAL

Refer to the following specifications and standards

| | |
|---|---|
| NZBC Bl/AS1 | Structure, 7.0 Glazing |
| NZBC F2/ASl | Hazardous building materials, 1.0 Glazing |
| NZBC F4/AS1 | Safety from falling, 1.0 Barriers in buildings |
| NZBC Hl/AS1 | Energy Efficiency- Third Edition |
| WANZ | Aluminium Window Handbook |
| WANZ | Specification for powder coatings |
| WANZ | Installation code for aluminium joinery products |
| BRANZ Bulletin 349 | Finishes for aluminium |

Refer to the following specifications and standards

| | |
|---|---|
| NZS 3604 | Timber framed buildings |
| AS/NZS2208 | Safety glazing materials in building |
| NZS4223 | Glazing in buildings |
| AS/NZS4666 | Insulating glass units |
| AS/NZS4667 | Quality requirements for cut-to-size glass |

## 7.02 EXECUTION GENERALLY

Execute all fabrication and installation work in accordance with the requirements of NZS4211, WANZ Aluminium window handbook and WANZ Installation code for aluminium joinery products.

## 7.03 QUALIFICATIONS

Fabrication by a member of WANZ. Confirm all framing openings on site for dimension, plumb and straightness prior to fabrication or ordering of aluminium joinery.

## 7.04 PERFORMANCE

The structural and weather-tight performance of the completed window installation, the glazing and infill panels is the responsibility of the window manufacturer.

## 7.05 FLASHINGS GENERALLY

Material grade and colour of head flashings is to match the window frames. Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials. Ensure all fixings and bracketing are compatible with aluminium. Do not use electroplated zinc fasteners or brass fastenings.

## 7.06 INSTALL FLASHINGS

Install flashings to heads, jambs and sills of frames as supplied and required by the window manufacturer and as detailed on the drawings. Finish head flashings to match window finish.

Place all flashings so that the head flashing weathers the jamb flashings, which in turn weathers over the up stand of the sill flashing. Ensure that sill flashings drain to the outside air. Where window/door frames are recessed, ensure that head flashings over-sail jamb facings by 15mm at each end.

## 7.07 FABRICATION SEALANT

To the window manufacturer's requirements.

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## 7.08 GLAZING TAPE AND GASKETS

To the window manufacturer's requirements.

## 7.09 JOINERY MATERIALS

All exterior window frames, sashes, doorframes and doors shall be 35mm APL Residential powder-coated aluminium suite, fixed in accordance with manufacturers specifications. Sizes are as shown on the plans. Liners to domestic quality windows and doors shall be 20mm Radiata grooved to take wall linings. All glazing shall comply with NZS4223 Pt 3 1993. Provide all necessary flashings to ensure finished frames are watertight and comply fully with New Zealand Building Code E2/AS1. Units shall be complete with latches and commercial quality locksets.

## 7.10 JOINERY INSTALLATION

Install in accordance with manufacturer's specific installation requirements. Wedge and rigidly fix in place without distortion, plumb, true to line and face, complete with full-length sill tray, jamb and cap flashings and with all doors and sashes operating freely. Wedge behind transoms, mullions and frame joints and adjacent to all jamb fixings. Provide WANZ support bars to all floor level openings and other openings over 600mm wide. WANZ support bar size to suit cladding material.

## 7.11 COMPLETE AIR SEAL

Form an air-tight seal by means of proprietary expanding foam, compressible foam strips, or sealants used with backing rods, applied deep within the reveal to completely fill the gap between joinery and structural framing. Ensure that in combination with the internal linings a complete air seal is created.

## 7.12 CORROSION PROTECTION

Seal or suitably coat cut ends and holes drilled in aluminium before the frames are installed. Before fixing, apply bituminous coatings, slips or underlays between dissimilar metals in contact, or aluminium in contact with concrete.

## 7.13 DRAINAGE

Provide anti-condensation channels to all sills. Sills to sashes and fixed lights to incorporate positive drainage to the exterior.

## 7.14 COMPLETION

Clean off or remove safety indicators at completion of the building.

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# 8. ROOFING (Colour Coated Steel)

## 8.01 GENERAL

Refer to the following specifications and standards

| | |
|---|---|
| NZBC E2/AS1 | External moisture |
| AS1397 | Steel sheet and strip |
| NZS3403 | Specification for Corrugated steel sheet |

NZ Metal Roofing Manufacturers Inc: NZ metal roofing & wall cladding code of practice

## 8.02 QUALIFICATIONS

Carry out roofing work using experienced, competent roofers familiar with the materials and techniques specified.

## 8.03 CO-ORDINATE

Co-ordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof.

## 8.04 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed roofing system, including all penetrations through the roof and junctions with walls and parapets. Set out the planned layout before fixing commences, to ensure true lines and the correct relationship to module, grid and roof features. Take care to avoid damaging pre-finished roofing both during and after fixing. Wear only soft-soled shoes on the finished surface.

## 8.05 SCOPE

Provide and install all roof coverings, valleys, ridges, barges spouting downpipes and any other associated flashings required to ensure a thoroughly watertight job. Colours shall be as selected by the owner.

## 8.06 MATERIALS

Roof cladding shall be 0.4mm BMT "Colorsteel" 6-Rib roofing installed by a specialist roofing company. Install profiled metal roofing and fix complete with all matching accessories, flashed to all roof features and penetrations; and in accordance with the requirements in the NZ Metal Roofing Manufacturers Inc: NZ metal roofing and wall cladding code of practice. Colour coated steel 0.40mm thick shall be fixed with spiral shank colour coated nails to manufacturers specifications over self-supporting building paper lapped 150mm. Troughs in the top of every sheet shall be turned up. Profile shall be as shown on the plans.

a. Ridges and Barge Flashings - 0.55mm colour coated steel, edges shall be prepainted soft aluminium to be worked down into troughs. Flashings shall match the material used for the main roof.
b. Sealants - Use only neutral cure silicone rubber sealants recommended by the roofing manufacturer.
c. 80ø UPVC round downpipes painted to locations as shown on drainage plan.

## 8.07 HANDLING AND STORAGE

Colour coated steel shall be stored in dry well ventilated conditions. Care shall be taken with handling to ensure coated surface is not damaged. Damaged materials shall be replaced at the contractor's expense.

Colour coated steel shall not be cut using abrasive discs. Clean down all surfaces to remove all metal swarfing at the completion of each day's work.

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## 8.08 UNDERLAY

Breather type, waterproof, self-supporting type lay and fix to NZBC E2/AS1: 8.1.5 Underlays, NZS3604, Section 11.2.2 and the roofing manufacturer's requirements.

## 8.09 PENETRATIONS AND JUNCTIONS

Flash and over-flash all penetrations through the roof. Check that adjoining walls and parapets are prepared ready for the installation of the roofing. Confirm that openings have been prepared ready for the installation of skylights and other penetrations through the roof. Required work includes the following:

a. Underlay turned up at wall and parapet lines.
b. Underlay finished and dressed off to all openings, ready for the installation of skylights and other penetrations.
c. Roofing installation neatly finished to all sides of openings and to all wall and parapet junctions.
d. Installation of flashings (those required to be installed prior to installation of penetrating elements and/or wall linings).

## 8.10 COMPLETION

Ensure the work is complete with all flashings, under cloaks, valleys, ridges, and hips properly installed so the finished roof is completely weathertight. Sweep down the completed roof and flush out spouting, gutters, and rainwater pipes, ensuring that metal filings, metal scraps and loose fixings are removed.

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# 9. PLUMBING WORK

## 9.01 PRELIMINARY & GENERAL

Refer to conditions of contract and preliminary clauses of this specification that shall apply equally to this section. All work shall comply with the acceptable solutions as found in the NZBC approved documents. Refer to the following specifications and standards.

| | |
|---|---|
| AS/NZS1260 | PVC pipes and fittings for drain, waste applications |
| AS/NZS3500 | Plumbing and drainage Part 2 |
| AS/NZS2642 | Polybutylene pipefittings |
| NZS3501 | Specification for copper tubes for water, gas |
| NZS4602 | Low pressure copper storage electric water heaters |
| NZS4606 | Storage water heaters |
| NZS4607 | Installation of thermal storage electric water heaters |
| NZS7641 | Un-plasticized PVC waste and ventilating pipes |

Gasfitters and Drainlayers Act 1976

## 9.02 QUALIFICATIONS

Carry out work by or under the direct supervision of a person registered under the Plumbers, Gasfitters and Drainlayers Act 1976.

## 9.03 SCOPE

Provide and install all fittings as shown on plans complete with all associated pipework, valves, wastes, traps and wastepipes. Provide and fit spouting and downpipes in uPVC. Test all fittings and pipework and ensure that there are no leaks and all are in good working order.

All pipework shall be concealed where possible within the wall spaces. The main contractor shall fix all necessary dwangs and blocking. All work shall be carried out according to the best trade practices. Co-operate with all other trades for the laying of the pipework.

## 9.04 ELECTROLYTIC ACTION

Avoid electrolytic action by eliminating actual contact or continuity of water between any dissimilar metals.

## 9.05 PIPEWORK

All water pipes shall be Aquatherm "Fusiotherm" fusion welded pipe system. All supplies to wet areas shall be 20mm with 15mm branches. Size the piping layout to eliminate loss of pressure at any point by simultaneous draw-off. Run pipes complete with all fittings, support and fixing, and jointed to the pipe manufacturer's specifications, all to New Zealand Building Code G12/AS1. Conceal pipe-work and pressure test before the wall linings are fixed.

## 9.06 LEAK PROTECTION

Aquatite wetwall Caddies to be fitted behind all plumbing penetrations through internal wall linings and exterior hose taps The Wetwall Caddy is a moulded ABS plastic device, that encompasses water control valves, and protects the wall cavity from any potential leaks that may occur. Aquatite Caddies to be installed as per manufactuers installation instructions.

## 9.07 FITTINGS

Fit and install sanitary fixtures and associated screens, elements and hardware, plumb, true to line and rigid, to the fixture manufacturer's requirements. Supply standard chrome plated brass wastes and plastic plugs on chrome plated chains with all basins, tubs and baths.

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| | |
|---|---|
| **BATHROOM, ENSUITE, WC** | All fixtures & fittings to be installed by authorised installer. Details as per Building Specification and/or plans. |
| | |
| **KITCHEN SINK** | All Kitchen Fixtures and Final Locations to be confirmed by the building company/owner before works commencing.<br>Kitchen sink shall be stainless steel within a stainless steel drainer installed in a Laminate bench top, all supplied and fitted by others. Provide waste, taps, plug etc and to connect and leave in working order. |
| **LAUNDRY** | Provide and install a pressed stainless steel laundry tub on cupboard unit connected and leave in working order (selected by owner). |
| **HOSE TAPS** | As per plans |

## 9.08 MIRRORS

TBC by owner.

## 9.09 INSTALL TRAPS, WASTE AND VENT PIPES

Connect waste outlets to traps and run waste pipes and back vents concealed, sized and fixed to AS/NZS3500 Part 2/NZBC G13/AS1. Discharge wastes into the drainage system stack, soil pipe, or gully trap as shown. Bird proof mesh to all roof vents and vermin proof mesh to all un-trapped waste pipes.

## 9.10 INSTALLING HOT WATER PIPE INSULATION

Storage water heater pipe insulation piping associated with storage water heater shall be thermally insulated to NZS4305. Provide 25mm of closed cell polymer (R0.6) insulation to the vent pipe for 300mm above the standing water level and the first 2m of the distribution pipe.

## 9.11 FLASHINGS

Provide and fix all necessary flashings, caps, silltrays, etc in conjunction with builder to ensure a thoroughly watertight job. Provide and fit collars and escutcheon plates to match the pipe-work at all penetrations through building envelope.

## 9.12 TEST

Test soil and waste disposal systems to ensure no leakage exists and leave in proper working order.

## 9.13 COMPLETION

Clean tapware, fittings & remove labels and clean fittings. Remove unused materials from the site.

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# 10. DRAINAGE WORK

## 10.01 PRELIMINARY & GENERAL

Refer to conditions of contract and preliminary clauses of this specification that shall apply equally to this section.

Refer to the following specifications and standards.

| | |
|---|---|
| AS/NZS1260 | PVC pipes and fittings for drain, waste applications |
| AS/NZS3500 | Plumbing and drainage Part 2 |
| NZS7641 | Un-plasticized PVC waste and ventilating pipes |

Gasfitters and Drainlayers Act 1976

## 10.02 QUALIFICATIONS

Carry out work by or under the direct supervision of a person registered under the Plumbers, Gasfitters and Drainlayers Act 1976. All work shall comply with NZBC B2, E1/AS1 and G13/AS1 & AS2.

## 10.03 SCOPE OF WORK

This section comprises the installation of the sewer and stormwater drainage systems including subsoil drains, sumps etc. as shown on the drawings, complete with all labour and materials as required.

## 10.04 CONNECTION TO EXISTING DRAINAGE

The Drainlayer is responsible for verifying the position and depth of the connection and shall commence laying the drains from this point.

## 10.05 DRAIN TRENCHES

The excavation of trenches for drains shall be accurately made with base clear and true to grade so that no unnecessary filling is required. Adequate width shall be allowed in accordance with depth of drain to enable laying and jointing to be carried out. Trenches shall be kept firm and dry and shall be opened up only in lengths that can be protected, utilized and refilled within a reasonable time.

## 10.06 LAYING OF DRAINS

All drains shall be adequately supported in the bottom of the trench. Backfill in layers not exceeding 150mm thick. Pre-wrap with densotape to allow for movement if drains are to be encased in concrete.

## 10.07 FITTINGS

The plan shows the layout of the system. Additional fittings that are normally required such as inspection bends et cetera that may be required to comply with normal practice or regulations but are not specifically shown must be allowed for by the Drainlayer.

## 10.08 FALL OF DRAINS

The whole of the drainage system shall be laid to a regular and even fall.

## 10.09 INSPECTIONS

Provide notices as required for the Local Authority to make inspections required before drains are covered. Any work unsatisfactory to the inspector shall be rectified at the Contractors expense.

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## 10.10 COMPLETION

Backfill all trenches, consolidate as filling proceeds and leave area in a tidy state.

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# 11. ELECTRICAL WORK

## 11.01 PRELIMINARY & GENERAL

Refer to conditions of contract and preliminary clauses of this specification that shall apply equally to this section. Refer to the following specifications and standards.

| | |
|---|---|
| AS/NZS3000 | Electrical regulations |
| AS/NZS3008 | Electrical installations - Selection of cables |
| NZS6401 | PVC-insulated cables for electric power and lighting |

Electricity Regulations 1997
New Zealand Electrical Codes of Practice (ECP)

## 11.02 QUALIFICATIONS

Carry out work by or under the direct supervision of a holder of a practicing certificate under the Electricity Regulations 1997. All work shall comply with NZBC G9, Electrical safety regulations and associated Codes of Practice. (Specifically, NZECP51 and NZECP52).

## 11.03 SCOPE OF WORK

The work comprises locating of the existing supply point, the running of an underground main to the building meter board and switchboard and for the installation of all lighting and power outlets as required by the owners plans including the provision of all labour and materials required to complete this work.

## 11.04 FEES

Pay all fees and charges and obtain all necessary permits for this trade.

## 11.05 MATERIALS AND WORKMANSHIP

All materials used shall be to approved New Zealand standards. Allow for materials necessary to complete the Contract, whether specified or not. All work shall be carried out by a Registered Electrician holding a current practice license in accordance with the regulations and best trade practice and in a manner that will cause minimum inconvenience to other trades and the work as a whole.

Do all cutting away, drilling etc and with timber, cut the minimum only for the entry of cables. Verify with the Builder or Engineer prior to cutting through any structural members.

## 11.06 SET-OUT

Study documents and site conditions to ensure no conflict with other services or features will arise. Resolve conflicts and discrepancies before proceeding with work affected. Confirm on site the exact location, disposition and mounting heights of all outlets, fittings, equipment, penetrations, and use of exposed wiring. Fix outlet items level, plumb and in line.

## 11.07 MAINS CABLE

Allow to visit the site and to determine the length of mains cable required to complete the work. The cable shall be of adequate size to meet the required loads.

## 11.08 MCB PANEL

Provide and install a recessed switchboard complete with all necessary control equipment.

## 11.09 WIRING

Run new 2 and 3 core TPS cable for sub circuit wiring to lights, power outlets, switches and for installation of appliances shown on the plans. Run all speaker circuits television aerials and wiring shown for computers, fax machines, outdoors power etc. Provide all outlets as

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shown on the plan. Arrange for the provision and running of all telecom cabling as shown on the plan. Locate cable runs in center of walls so that nailing or screwing of linings can be done without damaging cables.

**Holes made should be just sufficient in size to pull cables through - not adversely affect the strength of the framing.**

Ensure wiring is to locations agreed with the owner without fouling installations by other trades, (e.g. to required mounting height of switches and power outlets above floor level or above work tops and to required alignment of lights along and across ceilings).

## 11.10 5.12 HEAT PUMP

As per Building Specification.

## 11.11 SMOKE ALARMS

Install smoke alarms to NZBC F7/AS1 and to the alarm manufacturer's requirements, fitted neatly and without damage to the surrounding finish.

## 11.12 EARTH BONDS & EARTH LEAKAGE PROTECTION

Bond together and to earth all plumbing fittings not adequately isolated, to the Electricity Regulations 1997 and to the fitting manufacturer's requirements. RCD protection to AS/NZS 3000.

## 11.13 TELEPHONE WIRING

Install telephone cable to telephone outlet positions shown by the owner. Install in conduit for outlets on masonry surface. Fix and connect BT jack point outlets to NZ Telecom requirements and terminate wiring at incoming terminal block.

## 11.14 BATHROOM ELECTRICAL FIXTURES

Install electrical fixtures specified in other parts of this specification. Any exhaust fans are to be ducted to the exterior. Connect the following bathroom and toilet electrical items:

a. Heated towel rails – Install to manufacturers requirements.
b. Extract fans – Install to manufacturers requirements.

## 11.15 KITCHEN ELECTRICAL FIXTURES

Install electrical fixtures specified in other parts of this specification. Exhaust fans are to be ducted to the exterior. Connect the following kitchen electrical items:

a. Waste disposal unit – Install to manufacturers requirements.
b. Stove and cook top – Install to manufacturers requirements.
c. Range hood exhaust fan – Install to manufacturers requirements.

## 11.16 LABELLING

Complete all labeling in clear machine printed permanent manner. Include label under each controller, switch and circuit breaker on distribution boards. Include a warning notice if light dimmers are used in the installation. List the rating of each circuit.

## 11.17 INSPECT, TEST AND CERTIFY

Inspect, test, certify and connect to mains when wiring and installation has been completed. Alternatively, if requested arrange independent testing and certification and give a copy of the Compliance Certificate (Energy Work Certificate) to the Owner to forward to the

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Territorial Authority. Note that the latter serves the purpose of a guarantee. Delay in issuing the Certificate shall delay final payment.

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# 12. PAINTING & INTERIOR FINISHES

## 12.01 PRELIMINARY

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

## 12.02 COMPLIANCE

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

2310:2002(AS/NZS) Glossary of paint and painting terms

2311:2009(AS/NZS) Guide to the painting of buildings

3750.0:2008(AS/NZS) Paints for steel structures - Introduction and list of Standards

AS 1580 Methods of test for paints

BRANZ IB 257 Wood primers

NZS 7702 Colours for specific purposes

## 12.03 ALTERNATIVES

The materials specified in this section or on the drawings indicate the required standards for these works. Alternatives which are considered equal to or superior to these may be tendered for approval (in writing, and they must NOT be used unless they are approved in writing).

## 12.04 CO-OPERATION

Co-operate with all trades and attend upon Concretor, Joiner, Carpenter, etc. to ensure that the surfaces provided by these trades are completely suitable for the Painter works that are required.

## 12.05 TILING

All tiling shall comply with the best trade practices

## 12.06 PREPARATION

No painting or varnishing or other surface coating work shall be undertaken unless the surfaces to be coated are in a correct and proper condition to ensure first class results.

Inspect the works of other trades on which Painter work is scheduled and report to the Main Contractor and the Architect/Designer any defects or irregularities that would affect the permanency or finish of the painting work, and do not proceed until the defects or irregularities have been completely rectified. Failure to examine and report will be construed as an acceptance that all preparatory works are completely satisfactory.

This clause does not relieve the Painter of any of the usual preparatory work to surfaces customarily performed by this trade

Clean down all surfaces with sugar soap, strippers, mould killers, etching agents, etc. as required. Sand or rub all sharp edges off exterior timbers and other materials as appropriate

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before painting. Finish rub down ALL surfaces. Ensure that the moisture content of all substrates is appropriate. Remove locks, fastenings, and similar hardware before painting and refix on completion. Remove all electrical switch and power plates before painting and refix them on completion. Mask adjacent surfaces as required to a true line and remove the masking on completion. Dust and wipe down all surfaces for Painter work and completely remove all dust, rubbish, dirt etc. from areas involved immediately prior to commencement. To each area of the works complete all surface preparation before applying paint to any surface.

## 12.07 PROTECTION

Take adequate precautions to prevent paint spots falling on prefinished or similar surfaces, and extreme care to keep absorbent materials (e.g. cedar, sawn framing, decking, paving) completely clean during all adjacent painting work. Correction of any such disfigurement shall be to the Architect/Designer's approval.

## 12.08 QUALIFICATIONS

The Painting Subcontractor must be a member of the Master Painters Association. All work shall be of the highest reasonable standard, and executed by experienced and competent tradesmen to the Architect/Designer's approval.

## 12.09 WORKMANSHIP

Strictly adhere to all Manufacturers' instructions. Strictly observe Manufacturers' requirements with regard to surface and air temperatures for painting. No work shall be carried out on surfaces that are not completely dry, and no external work shall be carried out during damp or wet conditions. In all finishes any irregularities or brushmarks or dust etc. in each preceding coat shall be rubbed down to provide a smooth clean surface for the following coat. Each coat shall be finished over all surfaces before a further coat is applied, and each coat shall be completely dry before subsequent coats. Finish broad areas before painting trim, paint ceilings before walls and walls before joinery, trim and other items.

Each coat and the full completed system shall be of uniform finish, colour, texture and sheen, shall have proper covering of thin edges, corners, end grain etc. and shall be free of blemishes such as runs, sags, fat edges, entrained hairs, brush marks, starved patches etc.

## 12.10 WALLPAPERS & LINING PAPERS

Wallpapers and lining papers, where scheduled, shall be hung plumb, true and square, and with precise butts. Patterns shall be accurately matched at each join. All rolls used in any one area shall be from the same batch. Use a fungicide incorporated adhesive that is recommended by the supplier. Edges neatly and precisely cut to the adjacent element. Finish free of air bubbles, wrinkles, gaps or stains.

## 12.11 MATERIALS

All Painter materials shall be ready mixed and delivered in unopened containers. Materials shall be used only for the purpose and in the manner intended by the manufacturer; any apparent scheduled discrepancy in this respect shall be referred to the Architect/Designer immediately for clarification. Where surfaces are specified to be finished in a particular manner or material, all preparatory work, priming, or undercoating, that is necessary to ensure a proper finish shall be provided, irrespective of any apparent omission herein.
Thinning shall only be to manufacturer's specification. Thoroughly stir as required to lift any settled pigment and ensure the paint is homogeneous. Paints shall be factory or shop tinted to the colour required. Undercoats shall be fully tinted to match the final colour scheduled.

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All paints shall have the finished film thickness that is specified by the manufacturer (checked by monitoring the coverage per litre).

## 12.12 COMPLETION

Allow to touch up to approval any Painter work which is damaged during the finishing works of other trades. Replace all hardware, remove all masking, covers, containers etc., thoroughly clean all affected surfaces, and leave all spaces ready for immediate occupation. Avoid scratching or abrading glass or hardware during any cleaning.

## 12.13 COMPLETION

Clean surfaces and clean fittings on completion. Remove unused materials from the site.

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G.J. Gardner. HOMES

# Bracing

For

## Multiproof Application

At

## Lot 363-367 DP 561194
## Street address 12,14,16,18,20 Kahikatea Way, Richmond.

For

## G.J Gardner Homes Nelson (LSK Builders 2011 Ltd).

Tasman District Council / AlphaOne Multiproof Approval – 107

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# GIB EzyBrace® Systems specification BL1-H

| Specification code | Minimum length (m) | Lining requirement | Other requirements |
|---|---|---|---|
| BL1-H | 0.4 | 10mm or 13mm GIB Braceline® to one side only | Hold downs |

## WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

## BOTTOM PLATE FIXING

**Timber floor**

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide.

Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or Three power driven 90 x 3.15mm nails at 600mm centres.

**Concrete floor**

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of NZS 3604:2011.

## WALL LINING

- A layer of 10mm or 13mm GIB Braceline®
- Sheets can be fixed vertically or horizontally.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

## PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

## FASTENING THE LINING

**Fasteners**

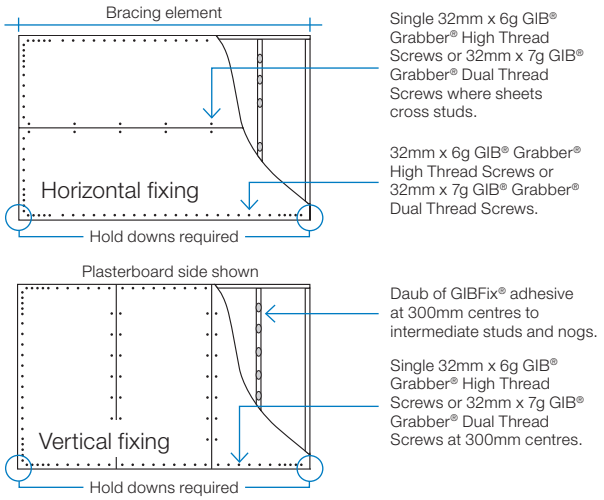
32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

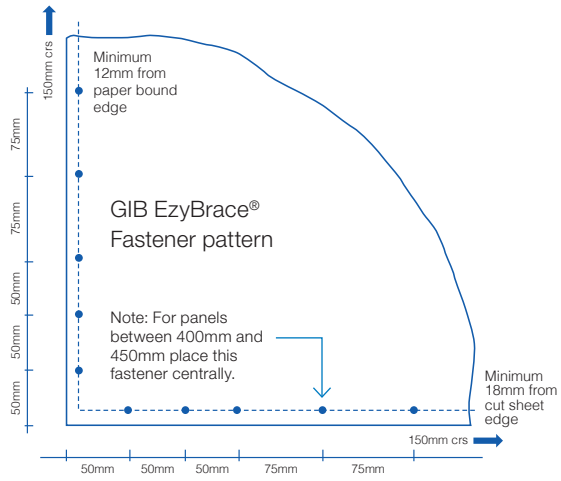
**Fastener centres**

50,100,150, 225, 300mm from maximum each corner and 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm maximum centres to the sheet joint. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm maximum centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

## JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.




Unless stated all fastener spacings are maximums.

*In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems*

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# GIB EzyBrace® Systems specification BLP-H

| Specification code | Minimum length (m) | Lining requirement | Other requirements |
|---|---|---|---|
| BLP-H | 0.4 | 10mm or 13mm GIB Braceline® to one side of the frame plus minimum 7mm structural plywood manufactured to AS/NZ 2269.0 :2012 to the other side | Hold downs |

## WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure; B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

## BOTTOM PLATE FIXING

**Timber floor**

Use panel hold downs at each end of the bracing element. The GIB® HandiBrac is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide.

Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or Three power driven 90 x 3.15mm nails at 600mm centres.

**Concrete floor**

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of AS/NZ 2269/0 :2012.

## WALL LINING

- A layer of 10mm or 13mm GIB Braceline® to one side of the wall plus minimum 7mm structural plywood manufactured to AS/NZS 2269.0 :2012 to the other side.
- Sheets can be fixed vertically or horizontally.
- Plywood is to be fixed vertically with edges supported.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

## PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

## FASTENING THE LINING

**Fasteners**

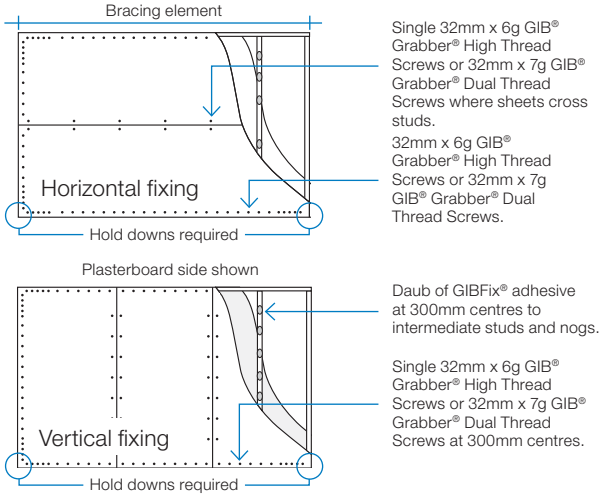
GIB Braceline® side: 32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. Plywood: 50 x 2.8mm Galv or Stainless steel annular grooved FH nails. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

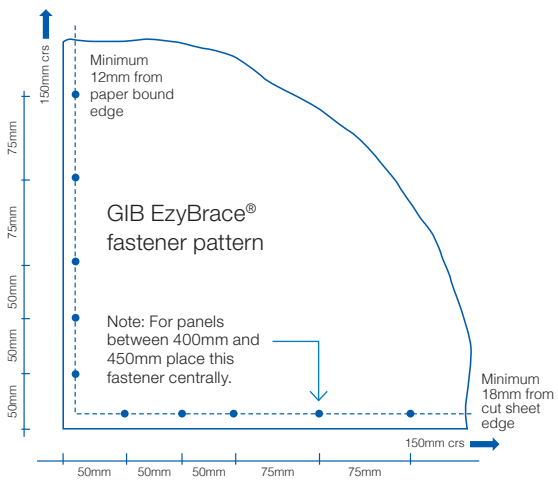
**Fastener centres**

GIB® Plasterboard side: 50,100,150, 225, 300mm from each corner and then 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm centres to the intermediate sheet joints. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge. Plywood side: 150mm centres to the perimeter of each sheet. GIB® corner fastener pattern does not apply to the plywood side. 300mm centres to intermediate studs.

## JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.




Unless stated all fastener spacings are maximums.

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# GIB EzyBrace® Systems specification GS1-N

| Specification code | Minimum length (m) | Lining requirement |
|---|---|---|
| GS1-N | 0.4 | Any 10mm or 13mm GIB® Standard plasterboard to one side only |

## WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

## BOTTOM PLATE FIXING

**Timber floor**

Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or three power driven 90 x 3.15mm nails at 600mm centres.

**Concrete floor**

Internal Wall Bracing Lines: In accordance with the requirements of NZS 3604:2011 for internal wall plate fixing or 75 x 3.8mm shot fired fasteners with 16mm discs spaced at 150mm and 300mm from end studs and 600mm centres thereafter.

External Wall Bracing Lines: In accordance with the requirements of NZS 3604:2011 for external wall bottom plate fixing.

## WALL LINING

- Any 10mm or 13mm GIB® plasterboard lining.
- Sheets can be fixed vertically or horizontally.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

## PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

## FASTENING THE LINING

**Fasteners**

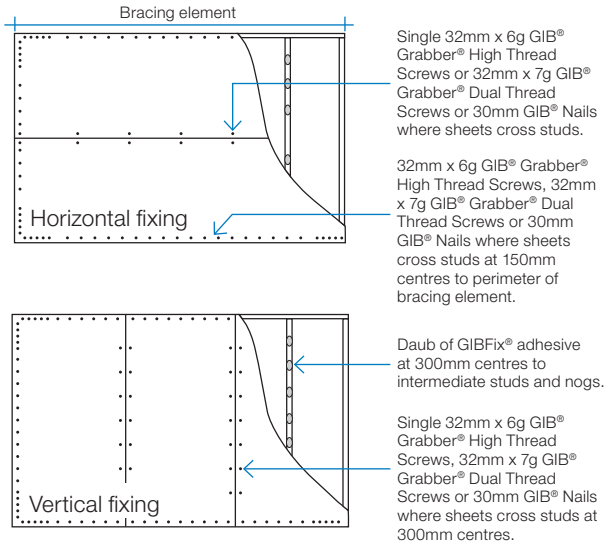
32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

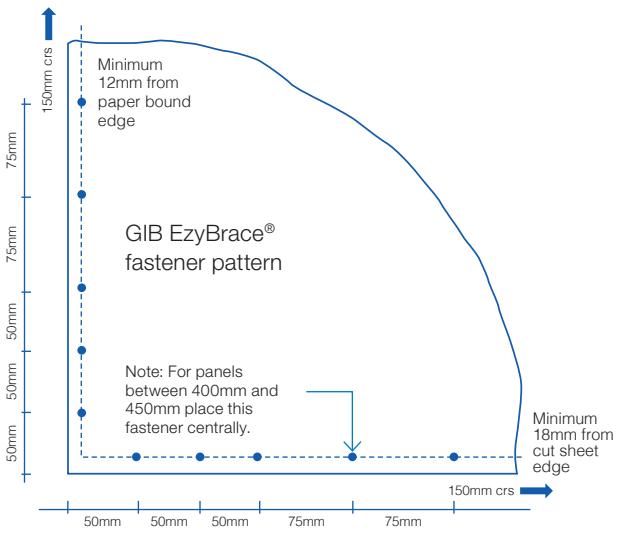
**Fastener centres**

50,100,150, 225, 300mm maximum from each corner and 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm maximum centres to intermediate sheet joints. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm maximum centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

## JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.




Unless stated all fastener spacings are maximums.

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# GIB® plasterboard linings

When fixing part sheets of GIB® plasterboard, a minimum sheet width of 300mm applies for bracing elements. Horizontal fixing is recommended. If fixing vertically, full height sheets shall be used where possible. Where sheet end butt joints are unavoidable they must be formed over nogs or over the studs and fastened at 200mm centres. Alternatively, and preferably, sheet end butt joints may be back-blocked.

When a GIB® Bracing element has been designated for a section of wall, BU ratings cannot be increased by incorporating additional proprietary bracing elements within that same section of wall.

### LIMITATIONS

- GIB® plasterboard must be stacked flat and protected from the weather.
- GIB® plasterboard must be handled as a finishing material.
- GIB® plasterboard in use must not be exposed to liquid water or be installed in situations where extended exposure to humidities above 90% RH can reasonably be expected.
- GIB EzyBrace® Systems must not be used in showers or behind baths.
- It is highly recommended not to install GIB® plasterboard in any situation where external claddings are not in place or the property is not adequately protected from the elements.
- If GIB® plasterboard is installed under these conditions, the risk of surface defects such as joint peaking or cracking is greatly increased.

# GIB EzyBrace® Systems in water-splash areas

When GIB® plasterboard is installed in locations likely to be frequently exposed to liquid water it must have an impervious finish. Examples are adhesive fixed acrylic shower linings or ceramic tiles over an approved waterproof membrane over GIB Aqualine®. The NZBC requires 15 years durability in these situations. Bracing elements are required to have a durability of 50 years. Bracing elements are not to be located in shower cubicles or behind baths because of durability requirements, the likelihood of renovation, and practical issues associated with fixing bracing elements to perimeter framing members. Otherwise GIB EzyBrace® Systems can be used in water-splash areas as defined by NZBC Clause E3, provided these are maintained impervious for the life of the building.

For futher design details refer to the current GIB Aqualine® Wet Area Systems literature.

# Renovation

When relining walls during the process of renovation, ensure that bracing elements are reinstated (check the building plans).

# Openings in bracing elements

### SMALL OPENINGS

Small openings (e.g. power outlets) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the braced element. A block may need to be provided alongside the perimeter stud as shown below.

### LARGE OPENINGS

Openings above 90 x 90mm such as switch boards, recessed cabinets and TV's etc. should be placed outside of the bracing element or locate bracing on the other side of the wall framing.

FIGURE 10: SMALL OPENINGS IN BRACING ELEMENTS

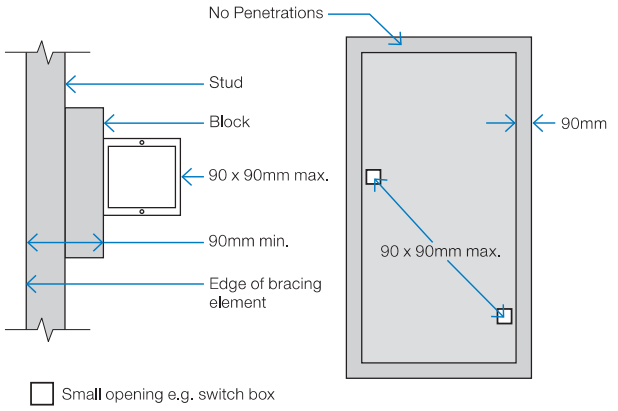


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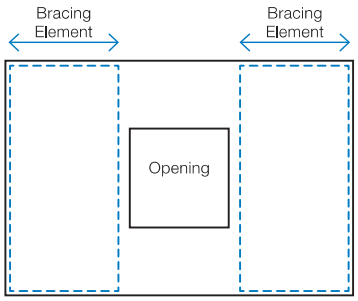
FIGURE 11: LARGE OPENINGS AND BRACING ELEMENTS

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## Timber framing

General framing requirements such as grade, spacings and installation shall comply with the provisions of NZS 3604:2011. To achieve the published bracing performance the minimum actual framing dimensions are 90 x 45mm for external walls and 70 x 45mm for internal walls.

As a minimum the use of Kiln Dried Stress Graded timber for all wall, roof and mid-floor framing members is recommended.

## GIBFix® Framing System (alternative layout)

Practices recommended as part of the GIBFix® Framing System aim to increase timber framing efficiencies, reduce reliance on unnecessary framing at wall junctions and minimise surface imperfections that commonly arise from constructing plasterboard junctions over multiple timber members. GIBFix® Angles fixed to a single timber framing member are introduced to tie together plasterboard junctions, improving seismic resilience and decrease the risk of future defects due to timber movement. The GIBFix® Framing System can be used in conjunction with the GIB EzyBrace® System.

Note: GIBFix® Angles and 32mm x 7g GIB® Grabber® Dual Thread Screws may also be used in traditional wall framing layouts and in GIB EzyBrace® Systems.

When the GIBFix® Framing System is used a minimum of 2 equally spaced nogs for walls between 2.4m and 3m in height are required at corners and wall junctions.

When used in GIB EzyBrace® systems GIBFix® Angles must run from top to bottom on all applicable studs. If 2 GIBFix® Angles are required on a stud they must be overlapped by a minimum of 300mm with 2/32mm 7g GIB® Grabber® Dual Thread Screws penetrating through both GIBFix® Angles.

For full specification details refer to GIBFix® Framing System literature available at gib.co.nz/gibfix.

## Guidelines for intersection walls

GIB® Bracing Elements may have intersecting walls with a minimum length of 200mm. Fasteners are required around the perimeter of the bracing element. Vertical joints at T-junctions shall be fixed and jointed as specified for intermediate sheet joints. The bracing element length must be no less than 900mm.

Where a Wall Bracing Element is interrupted by a T-junction the element is deemed to be continuous for the whole length (900mm minimum in the example illustrated).

When fixing part sheets of GIB® plasterboard to the side of a T-junction, a minimum width of 300mm applies for bracing elements. See figures 12 and 13.

FIGURE 12: WALL INTERSECTION (TRADITIONAL WALL FRAMING)

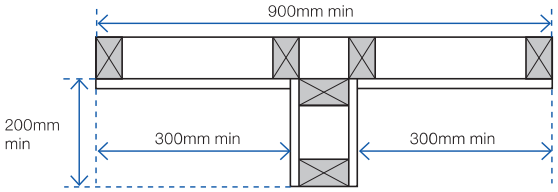


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FIGURE 13: WALL INTERSECTION (GIBFIX® FRAMING SYSTEM)

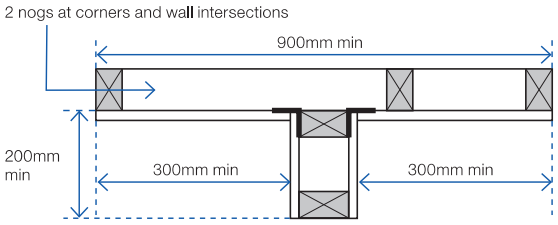


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FIGURE 14: CORNER INTERSECTION (GIBFIX® FRAMING SYSTEM)

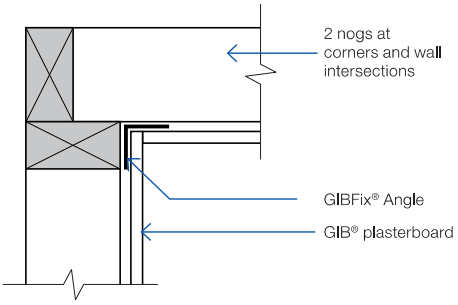


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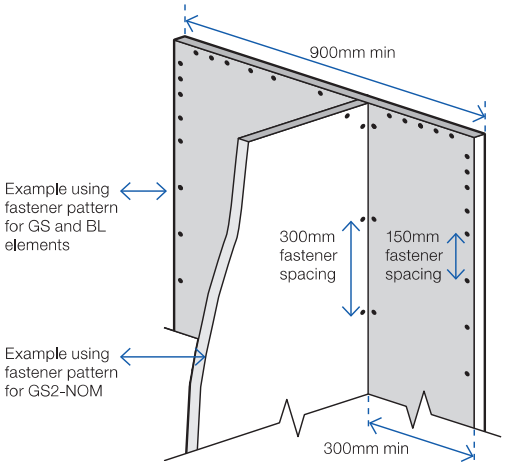
FIGURE 15: WALL INTERSECTION FASTENER PLACEMENT




Junction

Min 32mm x 6g GIB® Grabber® High Thread or 32mm x 7g GIB® Grabber® Dual Thread Screws @ 300mm ctrs each side.

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# Top plate connections

For top plate connections refer to NZS3604:2011 section 8.7.3.

# Parapets and gable end walls

Bracing elements must be fixed from top plate to bottom plate. Fixing to a row of nogs is not acceptable unless either:

A continuous member such as an ex 90 x 45mm ribbon plate is fixed across the studs just above a row of nogs at the ceiling line, as shown in figure 16.

**or**

GIBFix® Angle as shown in figure 17. The angle is fixed to a row of nogs with 30 x 2.5mm galv flat head nails or 32mm x 7g GIB® Grabber® Dual Thread Screws at 300mm centres.

# Bottom plate fixing

### TIMBER FLOOR

For elements with an 'N' specification use 2/100 x 3.75mm hand or 3/90 x 3.15mm power-driven nails at 600mm centres.

In addition, for elements with an 'H' specification, use GIB HandiBrac® panel hold-down fixings at each end of the bracing element, see p.16.

### CONCRETE FLOOR — EXTERNAL WALL BRACING ELEMENTS

For bracing elements with an 'N' specification fix external wall plates in accordance with NZS 3604:2011.

Use GIB HandiBrac® panel hold-down fixings at each end of bracing elements with an 'H' specification and minimum intermediate fixings as required by NZS 3604:2011.

### CONCRETE FLOOR — INTERNAL WALL BRACING ELEMENTS

For bracing elements with an 'N' specification fix plates in accordance with NZS 3604:2011 or use 75 x 3.8mm shot-fired fasteners with 16mm discs spaced at 150 and 300mm from end-studs and 600mm centres thereafter.

For bracing elements with an 'H' specification use GIB HandiBrac® panel hold-down fixings at each end of the element and minimum intermediate fixings as required by NZS 3604:2011.

FIGURE 16: PARAPETS AND GABLE ENDS WITH RIBBON PLATE

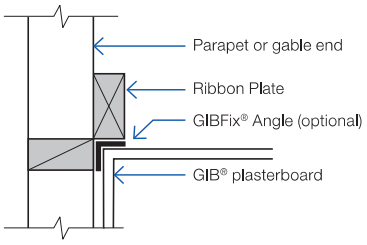
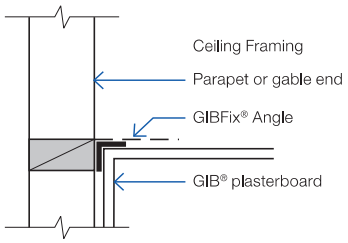



FIGURE 17: PARAPETS AND GABLE ENDS WITH GIBFIX® ANGLE




GFS003

### BOTTOM PLATE FIXINGS FOR GIB® BRACING ELEMENTS

| Brace type | Concrete slabs | | Timber floors |
|---|---|---|---|
| | External wall | Internal wall | External and Internal walls |
| GS1-N | As per NZS 3604:2011. No specific additional fastening required. | As per NZS 3604:2011. Alternatively use 75 x 3.8mm shot-fired fasteners with 16mm discs, 150mm and 300mm from each end of the bracing element and at 600mm thereafter. | Pairs of 100 x 3.75mm flat head hand driven nails or 3/90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011. |
| GS2-N | Not applicable. | | |
| GS2-NOM | | | |
| GSP-H<br>BL1-H<br>BLP-H | Intermediate fastenings to comply with NZS 3604:2011<br><br>In addition:<br>GIB HandiBrac® fixings or metal wrap-around strap fixings and bolt as illustrated on p.15 and 16. | | Pairs of 100 x 3.75mm flat head hand driven nails or 3/90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011.<br><br>In addition:<br>GIB HandiBrac® fixings or metal wrap-around strap fixings and bolt as illustrated on p.15 and 16. |
| BLG-H | Not applicable | As for GSP-H, BL1-H, BLP-H on concrete slab as illustrated on p.15 and 16. | |

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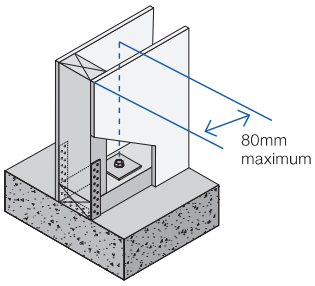
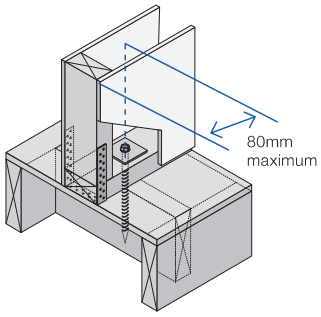
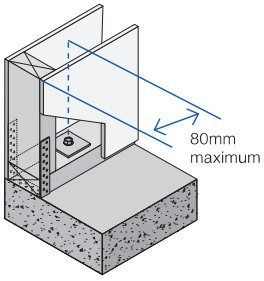
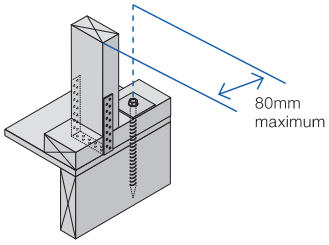
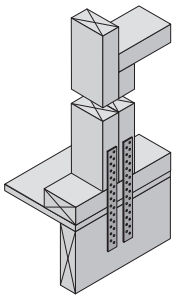
# Bracing strap installation

Care needs to be taken with the installation of the bracing strap. It should be checked in to be flush with the face of the stud providing a flat substrate for the plasterboard and positioned in such a way that the corner fastenings of the bracing element are not affected by it. Keeping the strap to the edge of the end stud as shown will allow the corner fastenings to be installed without having to penetrate the bracing strap.

| Concrete floor | Timber floor |
|---|---|
| 400 x 25 x 0.9mm galvanised strap to pass under the plate and up the other side of the stud. Six 30 x 2.5mm flat head galvanised nails to each side of the stud. Three 30 x 2.5mm flat head galvanised nails to each side of the plate. Hold down bolt with 50 x 50 x 3mm washer to be fitted within 80mm of the end of the element. | |
| Internal wall | |
|  GEB004 |  GEB005 |
| External wall | |
|  GEB006 |  GEB007 |
| Note: Where applicable drawings have been produced for CAD design. These are identified by a unique number in the bottom corner of each detail box that can be found at gib.co.nz/library. | 2/300 x 25 x 0.9mm galvanised straps with six 30 x 2.5mm flat head galvanised nails to each stud and into the floor joist and three nails to the plate. Block to nog fixed with 3/100 x 3.75mm nails to stud. |
| |  GEB008 |

| Hold-down fastener requirements | |
|---|---|
| Concrete floor | Timber floor |
| A mechanical fastening with a minimum characteristic uplift capacity of 15kN fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element. | 12 x 150mm galvanised coach screw fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element |

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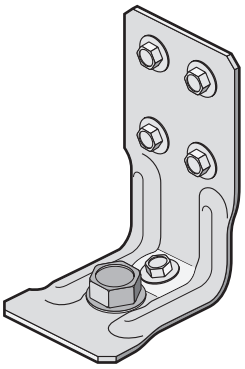
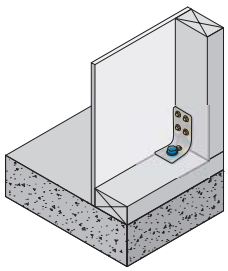
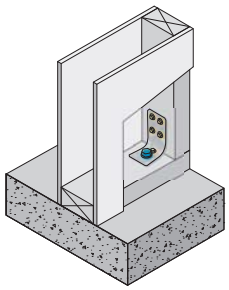
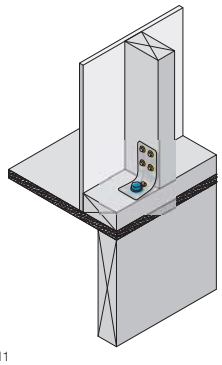
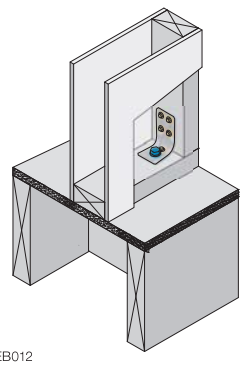
# GIB HandiBrac® installation



Developed in conjunction with MiTek™, the GIB HandiBrac® has been designed and tested by Winstone Wallboards for use in GIB EzyBrace® elements that require hold-downs. The GIB HandiBrac® is a substitute for bottom plate hold-down straps.

- Quick and easy to fit.
- May be fitted at any stage before lining.
- Framing face is clear to allow flush lining.
- Easily inspected.

The GIB HandiBrac® with BOWMAC® blue head screw bolt is suitable for timber and concrete floors constructed in accordance with NZS 3604:2011.

| Concrete floor | | Timber floor | |
|---|---|---|---|
| External walls | Internal walls | External walls | Internal walls |
|  GEB009 |  GEB010 |  GEB011 |  GEB012 |
| Position GIB HandiBrac® as close as practicable to the internal edge of the bottom plate. | Position GIB HandiBrac® at the stud/plate junction and at mid-width of plate. | Position GIB HandiBrac® flush with the outside stud face, as close as practicable to the centre of the boundary joist. | Position GIB HandiBrac® in the centre of floor joist or full depth solid block. |
| **Hold-down fastener requirements** | | | |
| A mechanical fastening with a minimum characteristic uplift capacity of 15kN or use supplied BT10/140 screwbolt in GIB HandiBrac® pack. | | 12 x 150mm galvanised coach screw or use supplied BT10/140 screwbolt in GIB HandiBrac® pack. | |

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# GIB HandiBrac® placement with GIBFix® Framing System for concrete floors

Figure 18 shows the preferred positioning of the GIB HandiBrac® panel hold-down brackets within the GIBFix® Framing System layout and where they are required by bracing systems with an 'H' in the specification code.

Note that, in corners and at wall junctions, a single GIB HandiBrac® can serve 'H' type bracing elements in both directions, but additional intermediate concrete anchors may need to be installed to meet the minimum requirements of NZS 3604:2011 for bottom plate fixing.

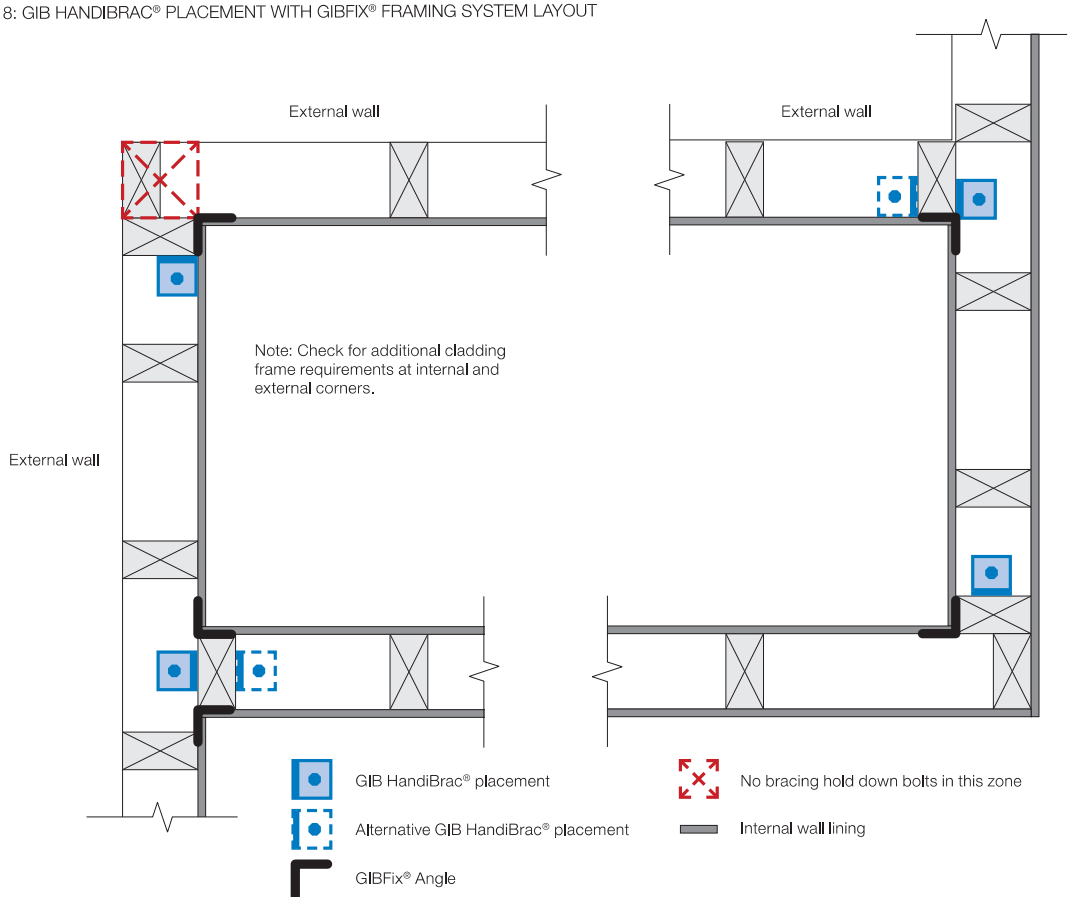
The GIB HandiBrac® is fixed to the stud which has the GIBFix® Angle.

For bracing elements with sheet material both sides of the wall connect corner studs using 8/90mm gun nails as shown in figure 19.

## TIMBER FLOORS

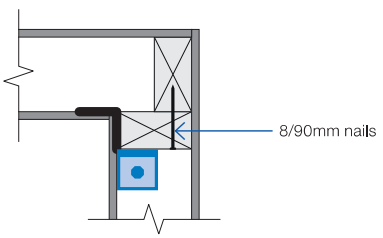
For timber floors bolt fixing in to solid joist or block is required, as shown on p 15.

FIGURE 18: GIB HANDIBRAC® PLACEMENT WITH GIBFIX® FRAMING SYSTEM LAYOUT




GEB013

FIGURE 19: STUD CONNECTION FOR 'H' TYPE BRACING ELEMENTS WITH SHEET MATERIAL BOTH SIDES




GEB014

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# Ceiling diaphragms

GIB® plasterboard ceiling diaphragms are stiff and strong horizontal elements which effectively transfer loads to bracing walls. They themselves do not have a bracing unit rating but are used when bracing lines exceed 6m separation. The basic shape of a ceiling diaphragm is square or rectangular. Protrusions are permitted but cut-outs are not. The length of a ceiling diaphragm shall not exceed twice its width. Dimensions are measured between supporting bracing lines. Supporting bracing lines shall have a bracing capacity no less than the greater of 100 bracing units or 15 bracing units per metre of diaphragm dimension, measured at right angles to the line being considered, see figure 21.

# Limitations for GIB® plasterboard ceiling diaphragms

Ceiling diaphragms may be constructed using any GIB® plasterboard provided perimeter fixing is at;

150mm centres for: Diaphragms up to 7.5m in length, no steeper than 15°.

100mm centres for: Diaphragms up to 7.5m in length, no steeper than 45°. Diaphragms up to 12m in length, no steeper than 25°.

Diaphragms outside these parameters must be specifically designed.

**General fixing requirements for GIB® Ceiling Diaphragms:**

- Linings must be installed over the entire area of the diaphragm.
- Fastening must be no less than 12mm from sheet edges and not less than 18mm from sheet ends.
- Sheets must be supported by framing members (e.g., ceiling battens) spaced at no more than 500mm centres for 10mm GIB® plasterboard and at no more than 600mm centres for 13mm GIB® plasterboard.
- Sheets within the diaphragm area may be fastened and finished conventionally in accordance with the publication entitled, "GIB® Site Guide". All joints shall be GIB® Joint Tape reinforced and stopped. It is recommended that sheet butt joints are formed off framing and back-blocked (see "GIB® Site Guide").
- Use full width sheets where possible. At least 900mm wide sheets with a length not less than 1800mm shall be used. Sheets less than 900mm wide but no less than 600mm may be used provided all joints with adjacent sheets are back-blocked (see "GIB® Site Guide" and figure 22).
- Fasteners are placed at the specified centres around the ceiling diaphragm with the corners fastened using the GIB EzyBrace® fastener pattern.

FIGURE 20: PROTRUSIONS AND CUTOUTS

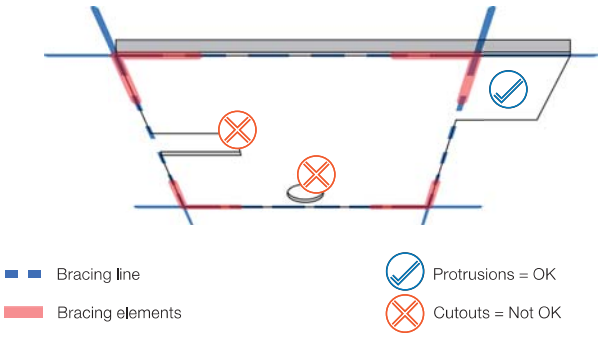



FIGURE 21: DIAPHRAGM BRACING LINING SPACINGS

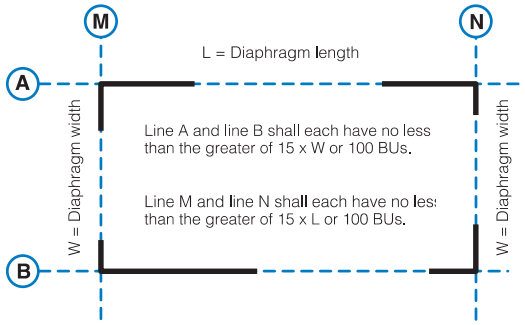
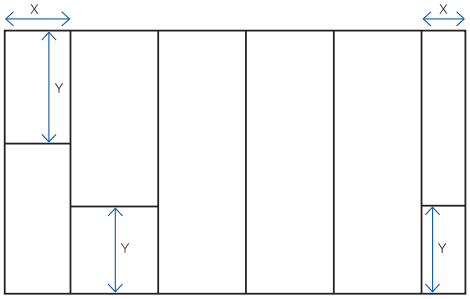
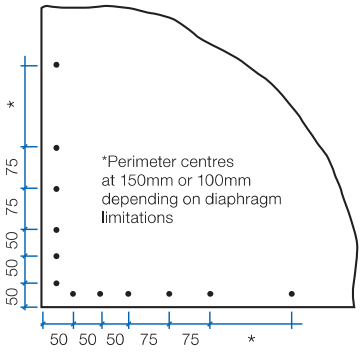



FIGURE 22: GIB® CEILING DIAPHRAGM SHEET WIDTHS AND LENGTHS




X = 900mm min or 600–900mm min provided all adjacent joints are back-blocked.
Y = 1800mm min sheet lengths at ends of ceiling diaphragms.

FIGURE 23: GIB EZYBRACE® FASTENER PATTERN




Unless stated all fastener spacings are maximums.

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# Ceiling battens in ceiling diaphragms

Ceiling diaphragms may be constructed using steel or timber ceiling battens.

Battens shall be spaced at a maximum of:
- 500mm for 10mm GIB® plasterboard.
- 600mm for 13mm GIB® plasterboard.

Timber battens shall be fixed in accordance with the requirements of NZS 3604:2011.

Metal battens shall be GIB® Rondo® battens with two external flanges of 8mm to allow direct screw fixing to roof framing.

GIB® Rondo® metal battens shall be fixed with 2/32mm x 8g GIB® Grabber® Wafer Head Self Tapping screws to supporting framing.

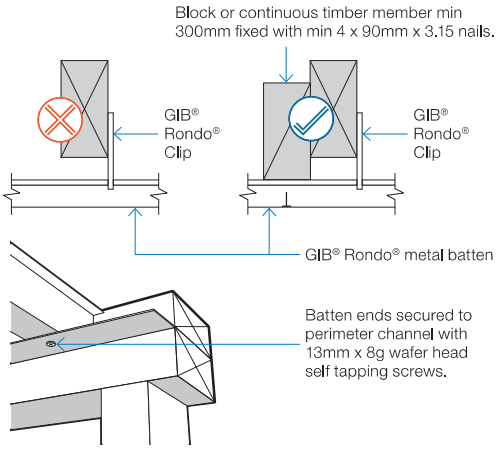
GIB® Rondo® metal battens must be fixed directly to the roof framing. If a clip system has been used, a timber block (min 300mm) or a continuous timber member can be fixed alongside the bottom chord to permit a direct connection to the batten, see figure 26.

For GIB® Rondo® metal battens, a GIB® Rondo® metal channel or metal angle is required at the perimeter of the diaphragm. The perimeter channel shall be fastened to the top plate with 32mm x 8g GIB® Grabber® Wafer Head Self Tapping screws or 32mm x 7g GIB® Grabber® Dual Thread screw at 300mm centres maximum.

Linings are fastened to metal using 25mm x 6g GIB® Grabber® Self Tapping screws and to timber framing using 32mm x 6g GIB® Grabber® High Thread screws. Alternatively 32mm x 7g GIB® Grabber® Dual Thread screws can be used in both cases. Fastener centres are specified on p.18.

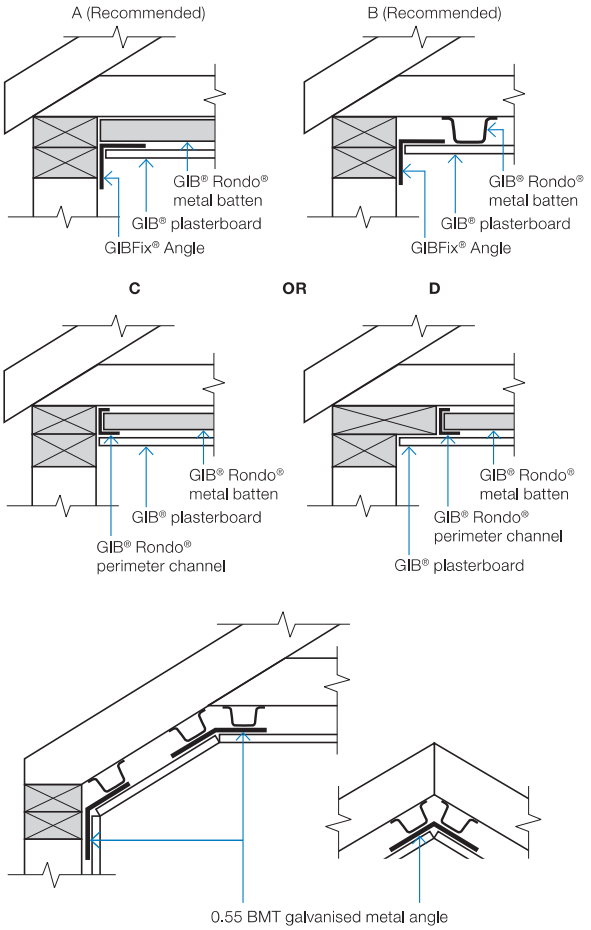
Coved ceiling diaphragms can be achieved by using nominally 32 x 32 x 0.55mm proprietary galvanised metal angles ("back-flashing") at the changes in direction. These angles shall be:
- Fastened at 300mm on each edge to metal battens using 32mm x 8g GIB® Grabber® Wafer Head Self Tapping screws or 32mm x 7g GIB® Grabber® Dual Thread screws.
- Fastened to timber framing using 32mm x 7g GIB® Grabber® Dual Thread screws when linings are installed.

FIGURE 26: GIB® RONDO® METAL CEILING BATTEN INSTALLATION



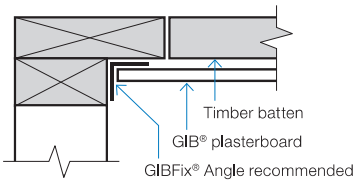

GEB016

FIGURE 27: GIB® RONDO® METAL CEILING BATTENS WITH CORNER ANGLES




GEB017

FIGURE 28: TIMBER CEILING BATTENS*




GEB018

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# Openings in ceiling diaphragms

## SMALL OPENINGS

Small opening (e.g. down lights) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the ceiling diaphragm.

## LARGE OPENINGS

Openings are allowed withing the middle third of the diaphragms length and width. Fixing of sheet material to opening trimmers shall be at 150mm centres. Neither opening dimension shall exceed a third of the diaphragm width. Larger openings or openings in other locations require specific engineering design.

Where fireplace flue or range hood openings are required in a ceiling diaphragm use a galvansed metal backing plate as shown in figure 25, with a maximum hole diameter of 350mm.

Figure 25 can also be used for range hood openings in walls.

For information on openings in ceiling diaphragms contact the GIB® Helpline on 0800 100 442.

FIGURE 24: LARGE OPENINGS IN CEILING DIAPHRAGMS

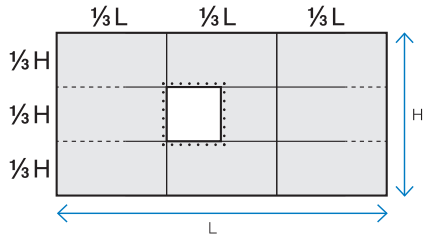
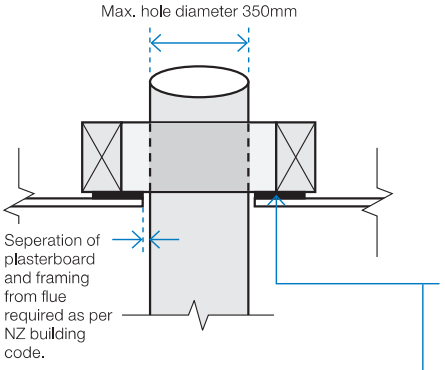



FIGURE 25: FIREPLACE FLUES AND RANGE HOOD OPENINGS

**Section view**

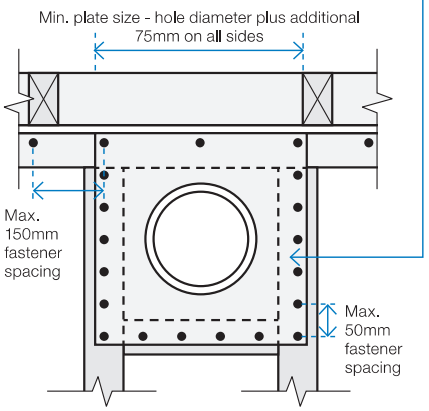



**Steel plate**
0.55 BMT Galvanised sheet Max. opening 350mm diameter. Installed prior to GIB® plasterboard.

**Framing**
90 x 45mm framing trimmed to provide extra fixing.

**GIB® plasterboard ceiling**
Installed over the steel plate and into framing using a minimum of 32mm x 6g GIB® Grabber High Thread or 32mm x 7g GIB® Grabber Dual Thread screws at 50mm max centre spacing.

**Plan view**




Plasterboard ceiling not shown in plan view

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# Length of GIB EzyBrace® elements ('N' Type)

The length of GIB EzyBrace® elements with an 'N' extension (requiring standard NZS3604:2011 plate connections) can be taken as the full frame length measured from the outside of the end-stud to the opening face as illustrated in figures 29-32.

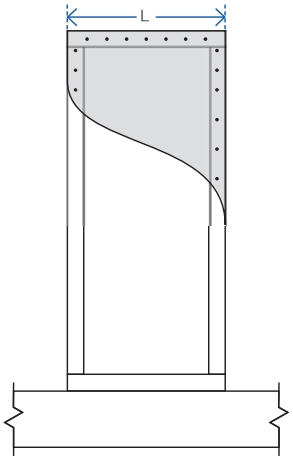
'N' type GIB EzyBrace® elements are identified by GIB® specification numbers GS1-N, GS2-N and GS2-NOM

The dimension 'L' shall not be less than 400mm.

Perimeter bracing fixing for linings of both 'H' and 'N' type elements is along the top and bottom plates, end stud, and doubling stud immediately adjacent to the opening.

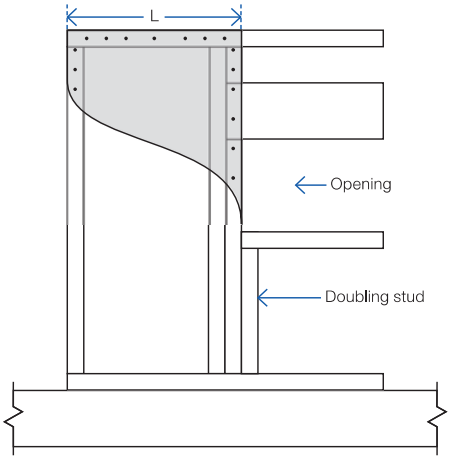
Fastener spacings and diagram scales shown in Figures 29–32 are indicative only. Refer to p.23–30 for construction details.

FIGURE 29: GS BRACING ELEMENTS (OPTION A)



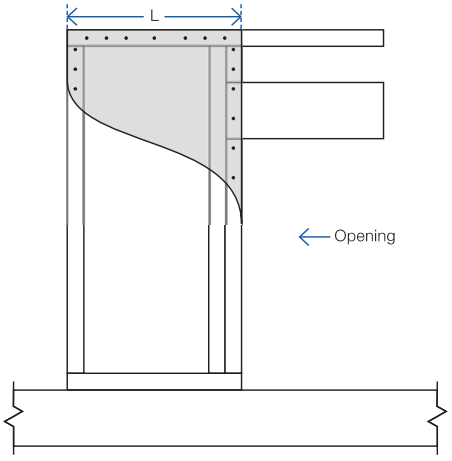

GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 30: GS BRACING ELEMENTS (OPTION B)



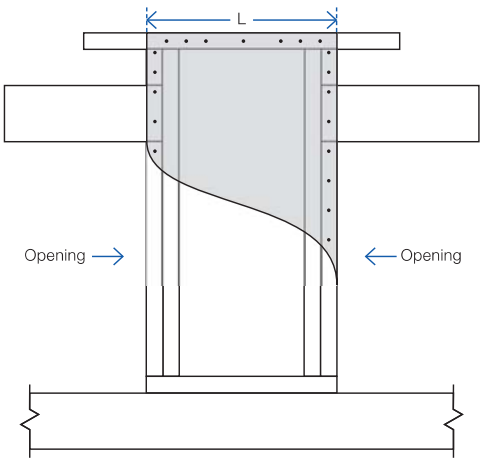

GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 31: GS BRACING ELEMENTS (OPTION C)




GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 32: GS BRACING ELEMENTS (OPTION D)




GS1-N, GS2-N elements
'L' indicates the length of the bracing element

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# Length of GIB EzyBrace® elements ('H' Type)

GIB EzyBrace® elements with an 'H' extension (requiring special panel hold-down fixings) can be used when the dimension 'L' as illustrated in figures 33–36 is 400mm or more.

'H' type GIB EzyBrace® elements are identified by GIB® specification numbers GSP-H, BL1-H, BLG-H and BLP-H.

The length of an 'H' type element is not only determined by the sheet material, but also by the placement of the hold-down fixings.

Hold-down fixings cannot be placed closer together than what is shown for the standard panel in figure 33.

Hold-down fixings can be placed under windows provided sill trimming studs beneath the opening are connected to the bracing element using 8/90mm gun nails, as illustrated in figure 34.

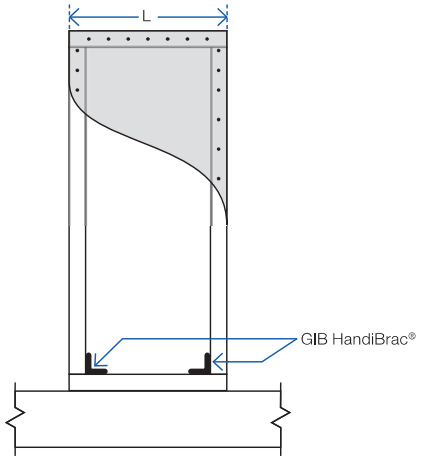
Spike doubling stud to trimming stud using a minimum of 2/90mm gun nails at 600mm centres. Lintel straps (where required for wind uplift) should be checked in and be located away from the bracing element fasteners.

Perimeter bracing fixing for linings of both 'H' and 'N' type elements is along the top and bottom plates, end stud, and doubling stud immediately adjacent to the opening as indicated in figures 34-36.

When using bracing straps, installed in accordance with p.17, fix the strap to the same framing member as shown for the GIB Handibrac® below, and install the adjacent anchor bolt in the same position as the GIB HandiBrac® bolt.

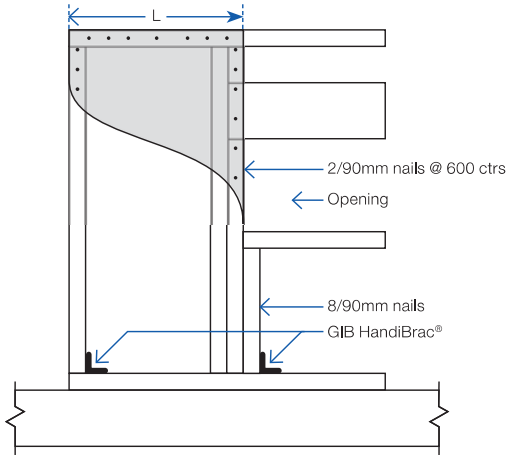
Fastener spacings and diagram scales shown in figures 33–36 are indicative only. Refer to p.23–30 for construction details.

FIGURE 33: BL BRACING ELEMENTS (OPTION A)



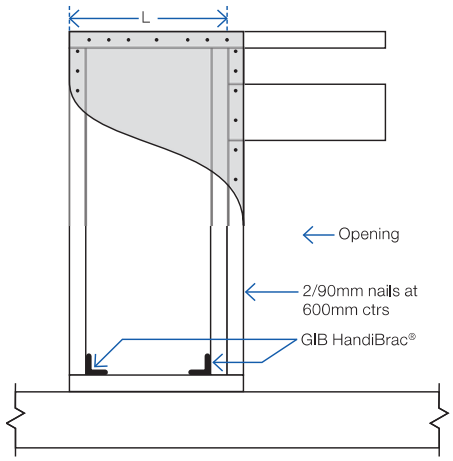

'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 34: BL BRACING ELEMENTS (OPTION B)



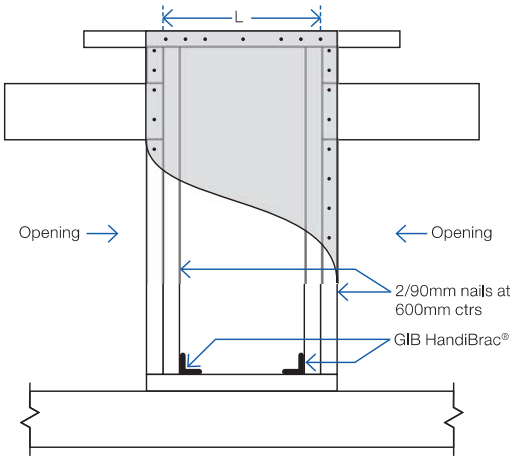

'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 35: BL BRACING ELEMENTS (OPTION C)




'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 36: BL BRACING ELEMENTS (OPTION D)




'H' type elements with specific hold downs
'L' indicates the length of the bracing element

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CBI 5113

July 2015

# GIB HandiBrac®

## Panel Hold-Down Bracket

NEW GIB HANDIBRAC® UPDATES INSIDE

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GIB®

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# GIB HandiBrac®

## Panel Hold-Down Bracket

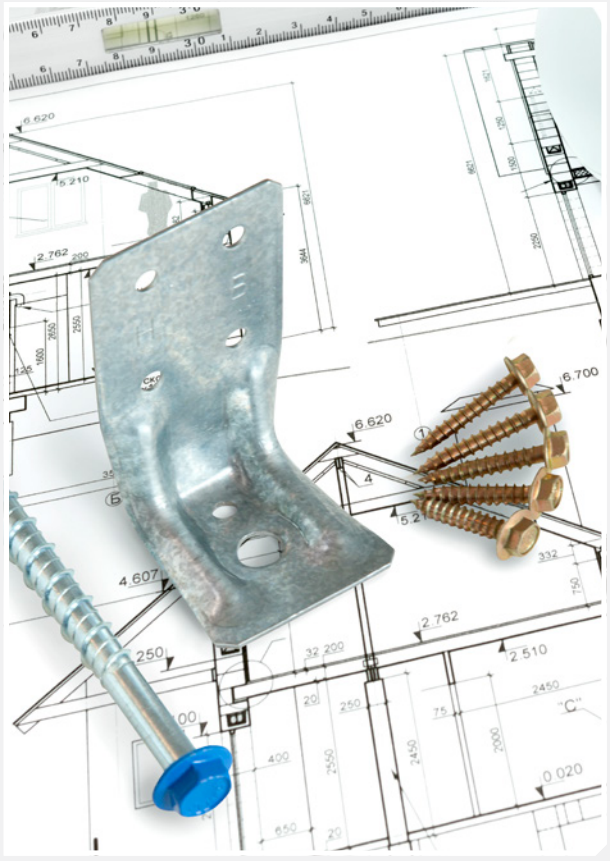
**Developed in conjunction with MiTek™, the GIB HandiBrac® has been designed and tested by Winstone Wallboards for use in GIB EzyBrace® elements that require hold-downs. The GIB HandiBrac® is a substitute for bottom plate hold-down straps.**

- Quick and easy to fit
- May be fitted at any stage before lining
- Framing face is clear to allow flush lining
- Easily inspected

The GIB HandiBrac® with BOWMAC® blue head screw bolt is suitable for timber and concrete floors constructed in accordance with NZS 3604:2011

The GIB HandiBrac® provides quick and easy installation. The registered design provides a flush surface for the wall linings because it is fitted inside the framing.

There is therefore no need to check in the framing as is recommended with conventional straps. Because the GIB HandiBrac® conveniently allows for installation and inspection at any stage prior to fitting internal linings, it is suitable for both new and retrofit construction.



# GIB HANDIBRAC® OVERVIEW

## COMPONENTS

GIB HandiBrac® is available in boxes of 10, each containing 5 pairs.

Components per paired pack include:

- 2 x GIB HandiBrac® Brackets
- 10 x Tek Screws
- 2 x BOWMAC® screw bolts included within specific GIB HandiBrac® pack

## GIB® BRACING ELEMENTS

The GIB HandiBrac® is a proprietary product that has been tested and is suitable for use with specified GIB EzyBrace® Systems.

## FIXING TO TIMBER FRAMED FLOORS

BOWMAC® screw bolt to achieve a characteristic uplift strength of 12kN.

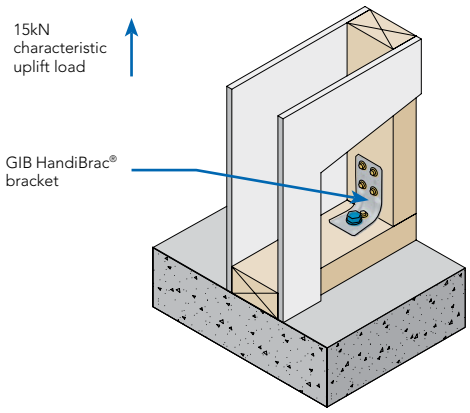
## FIXING TO CONCRETE SLABS

BOWMAC® screw bolt to achieve a characteristic uplift strength of 15kN

# PANEL HOLD-DOWN DETAILS

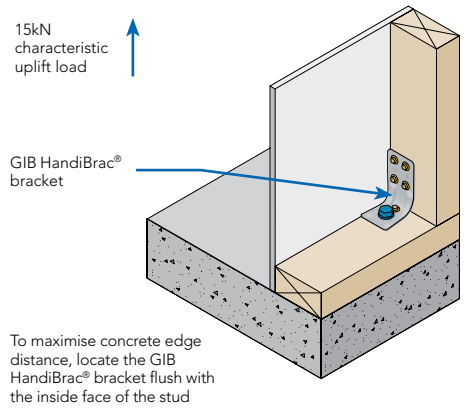
## CONCRETE FLOOR – INTERNAL WALL

The bottom plate at both ends of the bracing element is fixed using a BOWMAC® screw bolt. For BOWMAC® screw bolt installation see instructions on next page



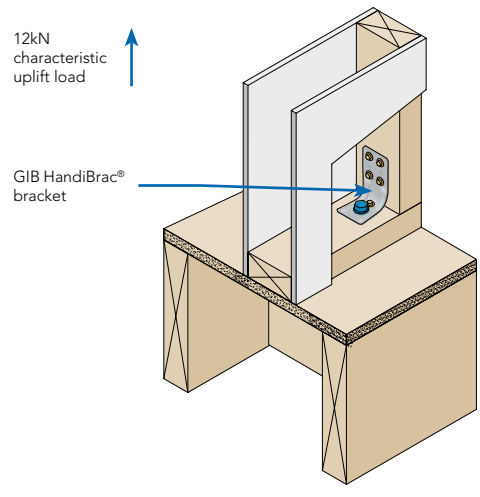

## CONCRETE FLOOR – EXTERNAL WALL

The bottom plate at both ends of the bracing element is fixed using a BOWMAC® screw bolt. For BOWMAC® screw bolt installation see instructions on next page.



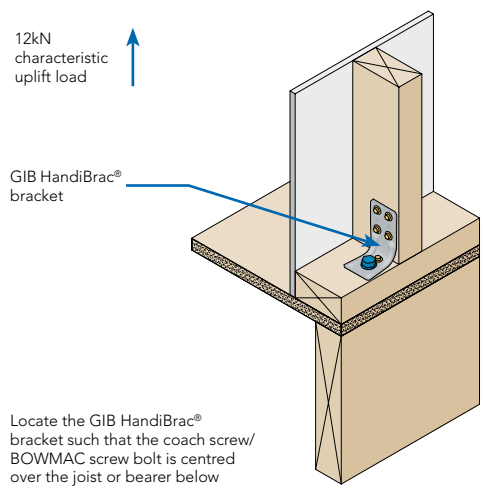

## TIMBER FLOOR – INTERNAL WALL

Bottom Plate is fixed using a BOWMAC® screw bolt. For BOWMAC® screw bolt installation see instructions on next page.




## TIMBER FLOOR – EXTERNAL WALL

Bottom Plate is fixed using a BOWMAC® screw bolt. For BOWMAC® screw bolt installation see instructions on next page.

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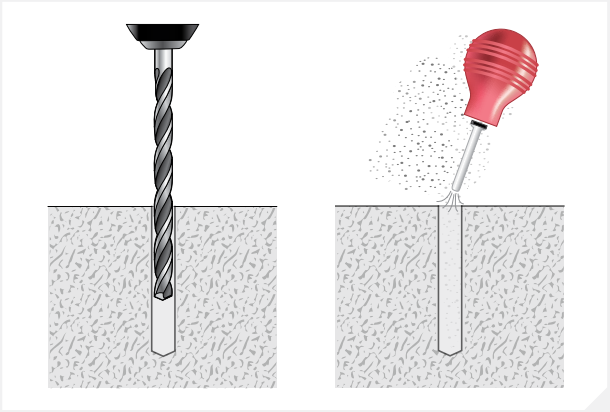
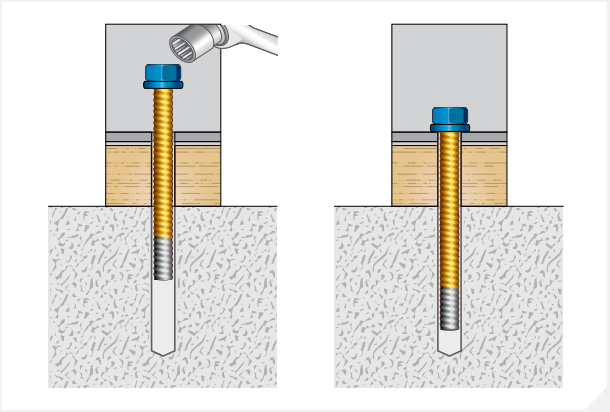
# INSTALLATION OF GIB HANDIBRAC® BRACKET

1. Install the screw located in the bracket base
2. Install the BOWMAC® screw bolt as per instructions below
3. Install remaining four screws into the face of the timber stud

### Installation Tips

- Use quality hexagonal socket with a ratchet spanner
- During installation debris or dust created by the thread cutting action may cause some resistance to be experienced. This is easily overcome by unscrewing the BOWMAC® screw bolt for one turn or more and then continuing to fix to the full embedment.





## PREPARATION

- Use a 10mm diameter masonry bit for a solid concrete substrate and an 8mm diameter bit for fixing to a timber sub-floor.
- Drill a hole into the base material to depth 8 mm deeper than the required embedment and clean out the hole of dust and debris prior to installation of BOWMAC® screw bolt.

## FIXING THE BRACKET

- Insert the bolt through the GIB HandiBrac® plate and bracket and into the hole.
- Begin tightening the bolt by applying forward pressure when engaging the first thread.
- Additional forward pressure may be required for installation in high strength, dense base materials.
- Continue tightening the anchor until the head is firmly seated against the GIB HandiBrac® base.
- In extremely dense material, use of an impact wrench is recommended.
- Be sure the bolt is at the required embedment depth.
- The installation is now complete.

# GIB HANDIBRAC®

## TRADEMARKS

The name GIB®, GIB HandiBrac® and the shield device are registered trademarks of Fletcher Building Holdings Limited.

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NZ Registered Design Application #420161

## MANUFACTURER

GIB HandiBrac® is manufactured and distributed by MiTek New Zealand Ltd.

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**Auckland Office**
40 Neales Rd, East Tamaki, Auckland 2013, New Zealand
P O Box 58-014, Botany, Auckland 2163, New Zealand
Ph: 64-9-274 7109, Fax: 64-9-274 7100

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www.miteknz.co.nz

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G.J. Gardner. HOMES

# Cladding Details

For

## Multiproof Application

At

## Lot 363-367 DP 561194
## Street address 12,14,16,18,20 Kahikatea Way, Richmond.

For

## G.J Gardner Homes Nelson (LSK Builders 2011 Ltd).

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**BRANZ Appraised**
Appraisal No. 447 [2020]

# LINEA™ WEATHERBOARD CAVITY CLADDING

**Appraisal No. 447 (2020)**

This Appraisal replaces BRANZ Appraisal No. 447 (2010)

**BRANZ Appraisals**

Technical Assessments of products for building and construction.

**James Hardie New Zealand Limited**
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## Product

1.1 Linea™ Weatherboard Cavity Cladding is a cavity-based bevel-back fibre cement weatherboard wall cladding. It is designed to be used as part of an external cladding system for residential and light commercial type buildings where domestic construction techniques are used.

1.2 Linea™ Weatherboard Cavity Cladding consists of Linea™ Weatherboard, which is a bevel-back fibre cement weatherboard, fixed over timber battens to form the cavity. The cladding is finished with a latex paint system.

## Scope

2.1 Linea™ Weatherboard Cavity Cladding has been appraised as an external wall cladding for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- constructed with timber framing complying with the NZBC; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.

2.2 Linea Weatherboard Cavity Cladding has also been appraised for weathertightness and structural wind loading when used as an external horizontally fixed wall cladding solution for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- constructed with timber framing complying with the NZBC; and,
- situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5 kPa.

2.3 Linea™ Weatherboard must only be installed horizontally on vertical surfaces.

2.4 Linea™ Weatherboard Cavity Cladding is appraised for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. *[Note: The Appraisal of Linea™ Weatherboard Cavity Cladding relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone.]*

*[Note: Linea™ Weatherboard Cavity Cladding can be used to provide fire resistance rated construction, but these aspects have not been assessed by this Appraisal and are outside its scope.]*

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

## Building Regulations

**New Zealand Building Code (NZBC)**

3.1 **In the opinion of BRANZ, Linea™ Weatherboard Cavity Cladding if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:**

**Clause B1 STRUCTURE:** Performance B1.3.1, B1.3.2 and B1.3.4. Linea™ Weatherboard Cavity Cladding meets the requirements for loads arising from self-weight, earthquake, wind, impact and creep [i.e. B1.3.3 (a), (f), (h), (j) and (q)]. See Paragraphs 9.1-9.3.

**Clause B2 DURABILITY:** Performance B2.3.1 (b), 15 years and B2.3.2. Linea™ Weatherboard Cavity Cladding meets these requirements. See Paragraphs 10.1-10.3.

**Clause E2 EXTERNAL MOISTURE:** Performance E2.3.2. Linea™ Weatherboard Cavity Cladding meets this requirement. See Paragraphs 14.1-14.5.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. Linea™ Weatherboard Cavity Cladding meets this requirement and will not present a health hazard to people.

## Technical Specification

4.1 System components and accessories for Linea™ Weatherboard Cavity Cladding supplied by James Hardie New Zealand Limited are:

- **Linea™ Weatherboards** are bevel-back weatherboards with a tongue and groove at each end for jointing. The weatherboards are pre-primed with an acrylic primer on the front face and both edges. Linea™ Weatherboards are 16 mm thick and are available 135 mm, 150 mm and 180 mm wide. All boards are supplied 4,200 mm long. Linea™ Weatherboards are manufactured from a reduced density cellulose fibre cement formulation. The boards are formed, cut to length and then cured by high-pressure autoclaving. After autoclaving, a bevel is cut on the back face of the weatherboards, the front edge at the bottom of the board is chamfered and the ends are tongue and grooved for jointing. Linea™ Weatherboards are manufactured to meet the requirements of AS/NZS 2908.2.

**Accessories**

- **Axent™ Trim** - a 16 mm thick fibre cement trim manufactured from a reduced density cellulose fibre cement formulation. Axent™ Trim is pre-primed with an acrylic primer on the front face and both edges, and is available in sizes of 84 mm and 100 mm wide by 2,600 mm long.
- **External and internal corner mouldings** - chromate treated aluminium external box corner, 90° internal corner 'W' mould and 135° internal corner 'W' mould. The mouldings are available in 2,700 mm and 4,000 mm lengths.
- **Corner soakers** - 90° soakers are available for 135 mm, 150 mm and 180 mm Linea™ Weatherboards. The soakers are available in chromate treated aluminium, copper and stainless steel.
- **Cavity vent strip** - uPVC, available in 3,000 mm lengths.
- **Rigid wall underlay** – HomeRAB™ Pre-Cladding, RAB™ Board, plywood or fibre cement sheet complying with NZBC Acceptable Solution E2/AS1, Table 23, or rigid sheathing covered by a valid BRANZ Appraisal for use as rigid air barrier systems.

4.2 System components and accessories used with Linea™ Weatherboard Cavity Cladding which are supplied by the building contractor are:

- **Flexible wall underlay** – building paper complying with NZBC Acceptable Solution E2/AS1 Table 23, or breather-type membranes covered by a valid BRANZ Appraisal for use as wall underlays.
- **Flexible building underlay support** – polypropylene strap at 300 mm centres fixed horizontally and drawn taut, 75 mm galvanised mesh, galvanised wire, or additional vertical battens for securing the flexible building underlay in place and preventing bulging of the bulk insulation into the drainage cavity. *(Note: Mesh and wire galvanising must comply with AS/NZS 4534. Additional vertical battens may also be installed to provide support.)*

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- **Flexible sill, head and jamb flashing tape** - flexible flashing tapes complying with NZBC Acceptable Solution E2/AS1, Paragraph 4.3.11, or flexible flashing tapes covered by a valid BRANZ Appraisal for use around window and door joinery openings.
- **Cavity battens** - nominal 50 mm wide by 25 mm thick (minimum finished size of 45 mm wide by 18 mm thick) timber treated to Hazard Class H3.1.
- **Joinery head flashings** - folded from aluminium or galvanised steel to suit the window or door trim opening. Refer to NZS 3604, Section 4 and NZBC Acceptable Solution E2/AS1, Table 20 for durability requirements.
- **Planted sill and scribers** - timber treated to Hazard Class H3.1, pre-primed before installation.
- **Window and door trim cavity air seal** - air seals complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.6, or self-expanding, moisture cure polyurethane foam air seals covered by a valid BRANZ Appraisal suitable for use around window, door and other wall penetration openings.
- **Flexible sealant** - sealant complying with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid BRANZ Appraisal for use as a weather sealing sealant for exterior use.
- **Cavity batten fixings** - 40 x 2.8 mm flathead hot-dip galvanised nails.
- **Linea™ Weatherboard fixings** - 60 x 3.15 mm flathead hot-dip galvanised HardieFlex nails or stainless steel ring shank HardieFlex nails (for concealed nailing in NZS 3604 Wind Zones up to, and including, Very High), 75 x 3.15 mm jolthead hot-dip galvanised nails or stainless steel ring shank nails (for face nailing in NZS 3604 Wind Zones up to, and including, Very High), and 90 x 3.55 mm jolthead hot-dip galvanised nails or stainless steel ring shank nails (for face nailing in the NZS 3604 Extra High Wind Zone and specific design wind pressures up to a maximum design differential ULS of 2.5 kPa).

*(Note: Stainless steel fixings must be Grade 316 and hot-dip galvanising must comply with AS/NZS 4680).*

- **Axent™ Trim fixings** - 60 x 3.15 mm or 75 x 3.15 mm hot-dip galvanised jolthead nails and stainless steel ring shank jolthead nails.
- **Aluminium joinery head flashing** - as supplied by the joinery manufacturer or the contractor.
- **Flashings** - balustrade and parapet cap flashings, and inter-storey joint flashings. Refer to NZS 3604 Section 4, and NZBC Acceptable Solution E2/AS1, Table 20 for durability requirements.

**Paint System Specification**

4.3 Paint systems are not supplied by James Hardie New Zealand Limited and have not been assessed, therefore they are outside the scope of this Appraisal.

4.4 All exposed faces, including top edges at sills and all bottom edges of Linea™ Weatherboard, Axent™ Trim and accessories must be finished with at least 2 coats of an exterior grade latex acrylic paint system complying with any of Parts 7, 8, 9, or 10 of AS 3730.

## Handling and Storage

5.1 Handling and storage of all materials supplied by James Hardie New Zealand Limited or the building contractor, whether on-site or off-site, is under the control of the building contractor. Linea™ Weatherboards must be stacked flat, off the ground and supported on a level platform. They must be kept dry at all times either by storing under cover or providing waterproof covers to the stack. Care must be taken to avoid damage to edges, ends and surfaces. Weatherboards must always be carried on edge.

5.2 Accessories must be stored so they are kept clean, dry and undamaged. All accessories must be used within the maximum storage period recommended by the manufacturer.

## Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Linea™ Weatherboard Cavity Cladding. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

# Design Information

## Framing

### Timber Treatment

7.1 Timber wall framing behind Linea™ Weatherboard Cavity Cladding must be treated as required by NZBC Acceptable Solution B2/AS1.

### Timber Framing

7.2 Timber framing must comply with NZS 3604 for buildings or parts of a building within the scope limitations of NZS 3604. Buildings or parts of a building outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170. Where specific design is required, the framing must be of at least equivalent stiffness to the framing provisions of NZS 3604. Studs must be at maximum 600 mm centres in Low, Medium, High and Very High Wind Zones and maximum 400 mm centres for the NZS 3604 Extra High Wind Zone and specifically designed buildings. Nogs must be fitted flush between the studs at maximum 800 mm centres (for studs at 600 mm centres) when a flexible wrap is used. The nogs may be omitted when a rigid air barrier is used.

7.3 Timber framing must have a maximum moisture content of 20% at the time of the cladding application. *(Note: If weatherboards are fixed to framing with a moisture content of greater than 20%, problems may occur at a later date due to excessive timber shrinkage.)*

## General

8.1 When Linea™ Weatherboard Cavity Cladding is used for specifically designed buildings up to 2.5 kPa ULS wind pressure, only the weathertightness and structural aspects of the cladding are within the scope of this Appraisal. All other aspects of the building need to be specifically designed and are outside the scope of this Appraisal.

8.2 Punchings in the cavity vent strip provide a minimum ventilation opening area of 1,000 $mm^2$ per lineal metre of wall in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3 b).

8.3 At ground level, the bottom edge of Linea™ Weatherboards must be kept clear of paved surfaces, such as footpaths, by a minimum of 100 mm and unpaved surfaces by 175 mm in accordance with NZBC Acceptable Solution E2/AS1, Table 18. The ground clearances to finished floor levels as set out in NZS 3604 must be adhered to.

8.4 At balcony, deck or low pitch roof/wall junctions, the bottom edge of Linea™ Weatherboards must be kept clear of any adjacent surface, or above the top surface of any adjacent roof flashing by a minimum of 50 mm.

8.5 All external walls of buildings must have barriers to airflow in the form of interior linings with all joints stopped for Wind Zones up to, and including, Very High, a rigid underlay must be used for buildings in the Extra High Wind Zone and SED buildings up to 2.5 kPa design differential ULS wind pressure. Unlined gables and unlined walls must incorporate a rigid sheathing or an air barrier which meets the requirements of NZBC Acceptable Solution E2/AS1, Table 23. For attached garages, wall underlays must be selected in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. Where rigid underlays are used, the cavity batten fixing lengths must be increased by a minimum of the thickness of the underlay.

8.6 Where Linea™ Weatherboard Cavity Cladding abuts other cladding systems, designers must detail the junction to meet their own requirements and the performance requirements of the NZBC. Details not included within the Technical Literature have not been assessed and are outside the scope of this Appraisal.

### Inter-storey Junctions

8.7 Inter-storey drained joints must be constructed in accordance with the Technical Literature. Inter-storey drained joints must be provided to limit continuous cavities to the lesser of 2-storeys or 7 m in height, in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.9.4 b).

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## Structure

### Mass

9.1 The mass of the 135 mm wide Linea™ Weatherboard when installed on the wall is 25.7 kg/m$^2$ at equilibrium moisture content (EMC). The mass of the 150 mm wide board is 24.93 kg/m$^2$ at EMC and the mass of the 180 mm wide board is 23.92 kg/m$^2$ at EMC. Linea™ Weatherboard Cavity Cladding is therefore considered a light wall cladding in terms of NZS 3604.

### Impact Resistance

9.2 Linea™ Weatherboard Cavity Cladding will resist impacts likely to be encountered in normal residential use. The likelihood of impact damage to the cladding when used in light commercial situations should be considered at the design stage, and appropriate protection such as the installation of bollards and barriers provided for vulnerable areas.

### Wind Zones

9.3 Linea™ Weatherboard Cavity Cladding is suitable for use in all Wind Zones of NZS 3604 up to, and including, Extra High where buildings are designed to meet the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, or up to 2.5 kPa ULS wind pressure where buildings are specifically designed.

## Durability

### Serviceable Life

10.1 Linea™ Weatherboard Cavity Cladding installations are expected to have a serviceable life of at least 50 years provided the paint coating system is maintained in accordance with this Appraisal to ensure the Linea™ Weatherboards and fixings remain dry in service. Linea™ Weatherboards must be painted within 3 months of fixing.

10.2 Coastal locations can be very corrosive to fasteners, especially locations within distances of up to 500 m from the sea including harbours, or 100 metres from tidal estuaries and sheltered inlets, and otherwise as shown in NZS 3604, Figure 4.2. These coastal locations are defined in NZS 3604 as Zone D. To achieve a 50 year serviceable life in Zone D, Linea™ Weatherboards must be fixed with stainless steel fasteners. Fasteners outside Zone D may be hot-dip galvanised steel.

10.3 Microclimatic conditions, including geothermal hot spots, industrial contamination and corrosive atmospheres, and contamination from agricultural chemicals or fertilisers can convert mildly corrosive atmosphere into aggressive environments for fasteners. The fixing of Linea™ Weatherboards in areas subject to microclimatic conditions requires specific design in accordance with NZS 3604, Paragraph 4.2.4, and is outside the scope of this Appraisal.

## Maintenance

11.1 Regular maintenance is essential for Linea™ Weatherboard Cavity Cladding installations to continue to meet the NZBC durability performance provision and to maximise their serviceable life.

11.2 Annual inspections must be made to ensure that all aspects of the cladding system, including the paint coating system, flashings and any sealed joints remain in a weatherproof condition. Any damaged areas or areas showing signs of deterioration which would allow water ingress must be repaired immediately. Sealant and paint coatings must be repaired in accordance with the sealant or paint coating manufacturer's instructions.

11.3 Regular cleaning (at least annually) of the paint coating surface is recommended to remove grime, dirt and organic growth and to maximise the life and appearance of the coating. Paint systems must be re-coated at approximately 7-15 yearly intervals in accordance with the paint manufacturer's instructions.

11.4 Minimum ground clearances as set out in this Appraisal must be maintained at all times during the life of the cladding. *(Note: Failure to adhere to the minimum ground clearances given in this Appraisal and the Technical Literature will adversely affect the long term durability of Linea™ Weatherboard Cavity Cladding.)*

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## Fire Affecting Areas Beyond the Fire Source

**Vertical Fire Spread**

12.1 This Appraisal only covers buildings 10 m or less in height. NZBC Functional Requirement C3.2 identifies that external vertical fire spread to upper floors only needs be considered for buildings with a building height greater than 10 m. Control of external vertical fire spread is therefore outside the scope of this Appraisal.

**Horizontal Fire Spread**

12.2 Linea™ Weatherboards have a peak heat release rate of less than 100 kw/m$^2$ and a total heat released of less than 25 MJ/m$^2$. Testing was carried out as per Paragraph 5.4 of NZBC Acceptable Solution C/AS1 and Paragraph 5.8.1 of NZBC Acceptable Solution C/AS2, achieving a Type A performance. Linea™ Weatherboards can therefore be used within 1 m of the relevant boundary.

12.3 Refer to NZBC Acceptable Solutions C/AS1 and C/AS2 and Verification Method C/VM2 for fire resistance rating and control of external fire spread requirements for external walls.

## Prevention of Fire Occurring

13.1 Separation or protection must be provided to the Linea™ Weatherboards from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Acceptable Solution C/AS1 and C/AS2, and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

## External Moisture

14.1 Linea™ Weatherboard Cavity Cladding, when installed in accordance with this Appraisal and the Technical Literature will prevent the penetration of moisture that could cause undue dampness or damage to building elements.

14.2 The cavity must be sealed off from the roof and sub-floor space to meet code compliance with NZBC Clause E2.3.5.

14.3 Linea™ Weatherboard Cavity Cladding allows excess moisture present at the completion of construction to be dissipated without permanent damage to building elements to meet code compliance with NZBC Clause E2.3.6.

14.4 The details given in the Technical Literature for weather sealing are based on the design principle of having a first and second line of defence against moisture entry for all joints, penetrations and junctions. The ingress of moisture must be excluded by detailing joinery and wall interfaces as shown in the Technical Literature. Weathertightness details that are developed by the designer are outside the scope of this Appraisal and are the responsibility of the designer for compliance with the NZBC.

14.5 The use of Linea™ Weatherboard Cavity Cladding where there is a designed cavity drainage path for moisture that penetrates the cladding, does not reduce the requirement for junctions, penetrations, etc to remain weather resistant.

## Internal Moisture

15.1 Buildings must be constructed with an adequate combination of thermal resistance and ventilation, and space temperature must be provided to all habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or may accumulate.

**Water Vapour**

15.2 Linea™ Weatherboard Cavity Cladding is not a barrier to the passage of water vapour, and when installed in accordance with the Technical Literature and this Appraisal will not create or increase the risk of moisture damage resulting from condensation.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

# Installation Information

## Installation Skill Level Requirements

16.1 All design and building work must be carried out in accordance with the Linea™ Weatherboard Cavity Cladding Technical Literature and this Appraisal by competent and experienced tradespersons conversant with the cladding system. Where the work involves Restricted Building Work (RBW) this must be completed by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant Licence class.

## System Installation

**Building Underlay and Flexible Sill and Jamb Tape Installation**

17.1 The selected building underlay and flexible sill and jamb tape system must be installed by the building contractor in accordance with the underlay and tape manufacturer's instructions prior to the installation of the cavity battens and the rest of the Linea™ Weatherboard Cavity Cladding system. Flexible building underlay must be installed horizontally and be continuous around corners. Underlay must be lapped 75 mm minimum at horizontal joints and 150 mm minimum over studs at vertical joints. Generic rigid sheathing materials must be installed in accordance with NZBC Acceptable Solution E2/AS1 and be overlaid with a flexible wall underlay. Proprietary systems shall be installed in accordance with the manufacturer's instructions. Particular attention must be paid to the installation of the building underlay and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed wall framing in the opening is protected.

**Cavity Battens**

17.2 Cavity battens must be installed over the building underlay to the wall framing at maximum 600 mm centres where the studs are at 600 mm centres or at 400 mm centres when studs are at 400 mm centres. The battens must be fixed in place with 40 x 2.8 mm hot-dip galvanised flathead nails at maximum 800 mm centres.

17.3 Where studs are at greater than 400 mm centres, a building underlay support must be installed over the building underlay between the cavity battens at maximum 300 mm centres.

**Linea™ Weatherboard Installation**

17.4 Linea™ Weatherboards may be cut on-site by power saw. Holes and cut-outs may be formed by drilling a number of holes around the perimeter of the opening required and tapping out the centre with a hammer, or by using a hole saw.

17.5 Linea™ Weatherboards must be dry prior to installation. Before the weatherboards are installed, cut ends exposed to the exterior such as at aluminium box corners or internal corners must be sealed with an acrylic sealer to reduce the absorbency of the fibre cement.

17.6 Linea™ Weatherboards must be installed starting at the bottom of the wall. A cant strip (H3.1 treated timber or fibre cement) must be fixed behind the bottom course of weatherboards to ensure the weatherboards are set at the correct angle. The cant strip must be continuous around the perimeter of the building. The bottom course of weatherboards must overhang the bottom plate by a minimum of 50 mm.

17.7 Before the weatherboards are installed, the corner detail must be prepared to suit the selected option, e.g. external box corner, corner soaker. The necessary flashings, including window flashings, must be installed before commencing weatherboard fixing.

17.8 The first course of weatherboards must be full length, i.e. 4,200 mm and commence from an external corner. Jointing of Linea™ Weatherboards is made off the stud using the pre-cut tongue and groove joint. Tongue and groove joints may be located centrally between the studs, but must be no closer than 100 mm to the edge of a stud. A bead of sealant must be applied to the front side of the tongue before the corresponding board is inserted. Subsequent courses of weatherboards must be installed so that the tongue and groove joints are staggered by 600 mm minimum from joints in the previous course.

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17.9 Linea™ Weatherboards must have a minimum lap of 30 mm, and should be set out so as near to a full board as possible will finish under and over windows and doors and at the top of the wall. A storey rod can be used to accurately position weatherboard courses.

17.10 Linea™ Weatherboards must be fixed to each stud using concealed fixings behind the lap of the boards or face nailing, except that face nailing must be provided at all corners and vertical edges of openings.

17.11 Concealed fixing must be carried out using 60 x 2.8 mm hot-dip galvanised or stainless steel Hardieflex nails depending on the location, see Paragraph 10.2. Nails must be fixed 25 mm from the top edge of the board and must be driven flush with the board surface.

17.12 Face nailing must be carried out using 75 x 3.15 mm hot-dip galvanised or stainless steel jolthead nails in NZS 3604 Wind Zones up to, and including, Very High, or 90 x 4.0 mm hot-dip galvanised or stainless steel jolthead nails in the NZS 3604 Extra High Wind Zone and specific design wind pressures up to a maximum design differential ULS of 2.5 kPa, depending on the location, see Paragraph 10.2. Nails must be fixed 15 mm up from the bottom of the board and punched a maximum of 2 mm below the surface of the board. The top board must be pre-drilled for fixing.

17.13 Linea™ Weatherboards can be hand or gun nailed. Nails must not be closer than 25 mm to the end of the board when hand nailing, or closer than 50 mm when gun nailing. *[Note: Gun nailing must only be used for concealed nailing.]*

**Aluminium Joinery Installation**

17.14 Aluminium joinery and associated head and sill [for direct fixed] flashings must be installed by the building contractor in accordance with the Technical Literature. An 8 mm nominal gap must be left between the joinery reveal and the wall framing so a PEF rod and air seal can be installed after the joinery has been secured in place.

17.15 After installing the window and door joinery, Axent™ Trim, planted sills and scribers may be installed in accordance with the Technical Literature to provide additional weatherproofing for the joinery/weatherboard junction.

**Inspections**

17.16 The Technical Literature must be referred to during the inspection of Linea™ Weatherboard Cavity Cladding installations.

**Finishing**

17.17 The paint coating manufacturer's instructions must be followed at all times for application of the paint finish. Linea™ Weatherboards and trim must be clean and dry before commencing painting.

## Health and Safety

18.1 Cutting of Linea™ Weatherboards must be carried out in well ventilated areas, and a dust mask and eye protection must be worn.

18.2 When power tools are used for cutting, grinding or forming holes, health and safety measures as set out in the Technical Literature must be observed because of the amount of dust generated.

18.3 Safe use and handling procedures for Linea™ Weatherboards and the components that make up the cladding system are provided in the relevant manufacturer's Technical Literature.

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# Basis of Appraisal

The following is a summary of the technical investigations carried out:

## Tests

19.1 The following testing has been completed by BRANZ:

- BRANZ expert opinion on NZBC E2 code compliance for Linea™ Weatherboard Cavity Cladding was based on testing and evaluation of all details within the scope and as stated within this Appraisal. Linea™ Weatherboard Cavity Cladding was tested to E2/VM1 (as contained within NZBC Clause E2, Third Edition, Amendment 5).
- Uniform wind face load tests to simulate wind pressures on 12 mm thick Linea™ Weatherboards were carried out by BRANZ, and the results were used in assessing 16 mm thick Linea™ Weatherboard used in Linea™ Weatherboard Cavity Cladding.
- Cone calorimeter testing to determine the peak rate of heat release and total heat release of Linea™ Weatherboard was completed by BRANZ. The testing was carried out in accordance with AS/NZS 3837.

19.2 Linea™ Weatherboards have been tested by a National Association of Testing Authorities (NATA) accredited laboratory in accordance with AS/NZS 2908.2. The results have been reviewed by BRANZ and found to be satisfactory.

19.3 Testing has been carried out by James Hardie New Zealand Limited to determine the modulus of rupture and inter-laminar bond strength of carbonated and non-carbonated Linea™ Weatherboard. The test methods and results have been reviewed by BRANZ and found to be satisfactory.

## Other Investigations

20.1 Weathertightness, structural, fire and durability opinions have been provided by BRANZ technical experts.

20.2 Site inspections have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.

20.3 The manufacturer's Technical Literature has been examined by BRANZ and found to be satisfactory.

## Quality

21.1 The manufacture of Linea™ Weatherboards has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

21.2 The quality of materials, components and accessories supplied by James Hardie New Zealand Limited is the responsibility of James Hardie New Zealand Limited. The quality control system of James Hardie New Zealand Limited has been assessed and registered as meeting the requirements of ISO 9001: 2015.

21.3 Quality on site is the responsibility of the installer.

21.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the building underlay, cavity battens, Linea™ Weatherboard and accessories in accordance with the instructions of James Hardie New Zealand Limited.

21.5 Building owners are responsible for the maintenance of Linea™ Weatherboard Cavity Cladding in accordance with the instructions of James Hardie New Zealand Limited.

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## Sources of Information

- AS 3730 Guide to the properties of paints for buildings.
- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2908.2: 2000 Cellulose-cement products - Flat sheet.
- AS/NZS 3837: 1998 Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter.
- AS/NZS 4534: 1998 Zinc and zinc/aluminium-alloy coatings on steel wire.
- AS/NZS 4680: 2006 Hot-dip galvanized [zinc] coatings on fabricated ferrous articles.
- NZS 3602: 2003 Timber and wood-based products for use in building.
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 1999 Timber framed buildings.
- NZS 4211: 2008 Specification for performance of windows.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

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BRANZ

In the opinion of BRANZ, Linea™ Weatherboard Cavity Cladding is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to James Hardie New Zealand Limited, and is valid until further notice, subject to the Conditions of Appraisal.

## Conditions of Appraisal

1. This Appraisal:
   a) relates only to the product as described herein;
   b) must be read, considered and used in full together with the Technical Literature;
   c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
   d) is copyright of BRANZ.
2. James Hardie New Zealand Limited:
   a) continues to have the product reviewed by BRANZ;
   b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
   c) abides by the BRANZ Appraisals Services Terms and Conditions;
   d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
   a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
   b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
   c) any guarantee or warranty offered by James Hardie New Zealand Limited.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to James Hardie New Zealand Limited or any third party.

**For BRANZ**

**Chelydra Percy**
Chief Executive

Date of Issue:
02 September 2020

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Linea™ WEATHERBOARD | JH™

jameshardie.co.nz

# Cavity Fix

## Technical Specification

**May 2020** New Zealand

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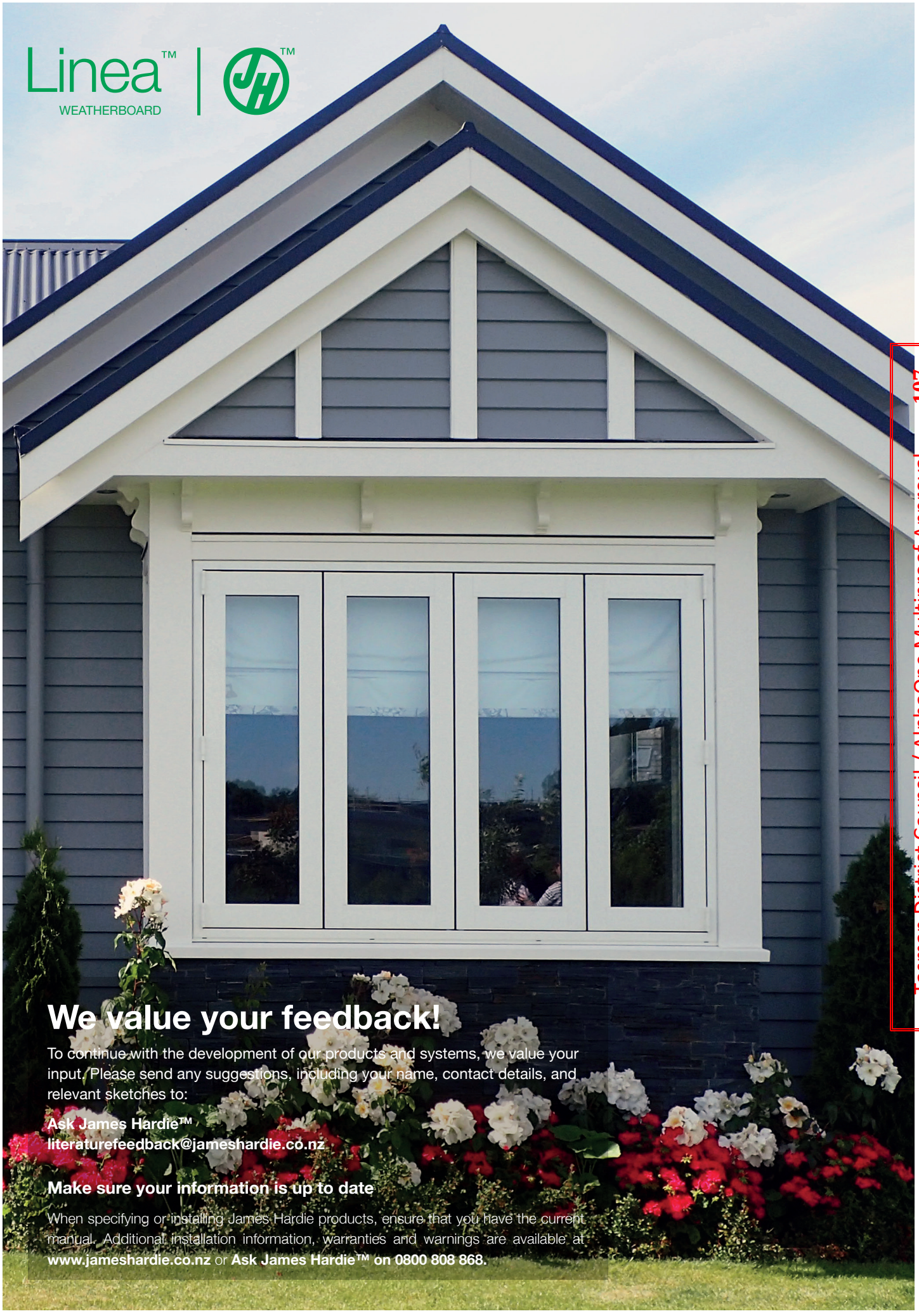


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# We value your feedback!

To continue with the development of our products and systems, we value your input. Please send any suggestions, including your name, contact details, and relevant sketches to:

**Ask James Hardie™**
**literaturefeedback@jameshardie.co.nz**

## Make sure your information is up to date

When specifying or installing James Hardie products, ensure that you have the current manual. Additional installation information, warranties and warnings are available at **www.jameshardie.co.nz** or **Ask James Hardie™ on 0800 808 868.**

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# 1 Product Overview

## 1.1 Product Information

Linea™ Weatherboard is an external cladding.

Linea Weatherboard is a 16mm thick, pre-primed bevel back fibre cement weatherboard. The bottom front edge of Linea Weatherboard is chamfered. It has tongue and groove ends for jointing and is classified as lightweight wall cladding for use in residential and light commercial buildings using timber or lightweight steel framed external walls. Linea Weatherboard is available in 135mm, 150mm and 180mm widths.

James Hardie also has available:

- Axent™ Fascia is a 16mm thick, pre-primed fibre cement product available in two widths. It's designed to accommodate James Hardie soffit linings.
- Axent™ Trim is a 16mm thick, pre-primed fibre cement product available in two widths. For use as decorative trims around openings and external corners.

For fixing to a steel frame. Ask James Hardie™ on 0800 808 868 for specific requirements. Or refer to the James Hardie cladding to steel framing technical supplement about the installation of Linea Weatherboard to steel frame.

**Table 1**

| Linea Weatherboard and Axent Trim sizes | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Coverage Information | | |
| Product | Code | Length (mm) | Width (mm) | Thickness (mm) | End details | Effective cover (mm) | No. of planks/ metre height (approx.) | Mass kg/lineal m (approx. at EMC) | Mass kg/m2 (approx. at EMC) |
| Linea Weatherboard 135 | 401844 | 4200 | 135 | 16 | T & G | 105 | 9.5 | 2.62 | 25.70 |
| Linea Weatherboard 150 | 402533 | 4200 | 150 | 16 | T & G | 120 | 8.3 | 3.1 | 24.93 |
| Linea Weatherboard 180 | 401847 | 4200 | 180 | 16 | T & G | 150 | 6.7 | 3.57 | 23.92 |
| Axent Trim 84mm | 401943 | 2600 | 84 | 16 | Square | N/A | N/A | 1.6 | N/A |
| Axent Trim 100mm | 401930 | 2600 | 100 | 16 | Square | N/A | N/A | 1.9 | N/A |

The effective thickness of finished Linea Weatherboard on the wall at the lap is approximately 33 to 35mm

All dimensions and masses provided are approximate only and are subject to manufacturing tolerances.

Linea Weatherboard is categorised as a Light Weight Wall Cladding as described in the NZS 3604.

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## 1.2 Manufacturing and Classification

The manufacturing process of Linea Weatherboard by James Hardie is ISO 9001 Certified.

Linea Weatherboard is an advanced lightweight cement composite cladding manufactured using a basic composition of Portland cement, ground sand, cellulose fibre and water. The product is easily identified by the name 'Linea' printed on the back.

Axent Trim is an advanced lightweight cement composite cladding manufactured using a basic composition of Portland cement, ground sand, cellulose fibre and water. The product is easily identified by the name 'Axent' printed on the back. The trims are factory sealed and primed.

Linea Weatherboard and Axent Trim products are manufactured to Australian/New Zealand Standard AS/NZS 2908.2 'Cellulose-Cement Products' (ISO 8336 'Fibre-Cement Flat Sheet').

Linea Weatherboard is classified Type A, Category 2 in accordance with AS/NZS 2908.2 "Cellulose-Cement Products".

For Safety Data Sheets (SDS) visit **www.jameshardie.co.nz** and view them in the technical literature section or Ask James Hardie on **0800 808 868**.

## 1.3 Components and Accessories

**Table 2**

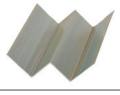
| Accessories/tools supplied by James Hardie | | | |
|---|---|---|---|
| **Accessories** | **Description** | **Size (mm)** | **Code** |
| | **External corner soaker 90º for Linea Weatherboards 180mm**<br>• Aluminium<br>• Copper<br>• Stainless Steel | 200 long | **301186**<br>**301188**<br>**301197** |
| | **External corner soaker 135º for Linea Weatherboards 180mm**<br>• Aluminium | 200 long | **301178** |
| | **External corner soaker 90º for Linea Weatherboards 150mm**<br>• Aluminium<br>• Stainless Steel | 170 long | **302820**<br>**302821** |
| | **External corner soaker 90º for Linea Weatherboards 135mm**<br>• Aluminium<br>• Stainless Steel | 155 long | **301185**<br>**301196** |
| | **External Slimline Box Corner Mould**<br>Etched primed aluminium extrusion used to create external corner | 2700 long<br>4000 long | **301195**<br>**305809** |
| | **Linea 35mm Cavity Closer** | 3000 long | **306035** |
|  | **Internal 'W' Mould 90º**<br>Etched primed aluminium extrustion used to create 900 internal corner | 2700 long<br>4000 long | **301184**<br>**305807** |
| | **Internal 'W' Mould 135º**<br>Etched primed aluminium extrustion used to create 135º internal corner | 2700 long | **301183** |

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**Table 2 contd.**

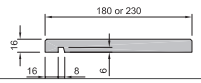
| Accessories/tools supplied by James Hardie | | | |
|---|---|---|---|
| **Accessories** | **Description** | **Size (mm)** | **Code** |
| | **JH Corner Under Flashing 50 x 50mm**<br>PVC moulding used as under fashing for internal and external corners | 3000 long | **303745** |
| | **Axent Trim 84mm** | 84 x 2600 long | **401943** |
| | **Axent Trim 100mm** | 100 x 2600 long | **401930** |
|  | **Axent Fascia** - 180mm<br>- 230mm | 4200 long | **401843**<br>**402230** |
| | **HardieFlex™ Galvanised nail - 5kg** | 60 x 3.15mm | **302782** |
| | **HardieFlex™ Stainless steel nail - 5kg** | 60 x 3.15mm | **302784** |
| | **HardieBlade™ Saw Blade**<br>Diamond tip fibre cement circular saw blade. Spacers not included | 4 tooth - 184mm | **300660** |
| | **HardieBlade™ Saw Blade**<br>Diamond tip fibre cement circular saw blade. Spacers not included | 6 tooth - 254mm | **303375** |
| | **Gecko Gauge**<br>This easy to use tool gauges and supports the weatherboard for a one person install. | | **305941** |

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**Table 3**

## Accessories not supplied by James Hardie

James Hardie recommends the following products for use in conjunction with its Linea Weatherboard and Axent Trim. James Hardie does not supply these products. There may also be some other accessories required depending upon the application. Please contact component manufacturer for information on their warranties and further information on their products.

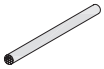
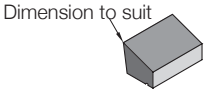
| Accessories | Description | Size (mm) | Material/ appearance |
|---|---|---|---|
| | **Flexible Underlay**<br>To comply with Table 23 of E2/AS1 | | |
| | **D head or RounDrive Nail**<br>Gun nail for concealed fixing Linea Weatherboard. | 60 x 2.87 | Hot Dip Galvanised/ Stainless Steel |
| | **HardieFlex™ Hot Dip Galv. Nails**<br>For concealed fixing by hand nail | 60 x 3.15mm<br>75 x 3.15mm | Hot Dip Galvanised/ Stainless Steel |
|  | **Jolt Head Nail** for face fixing Linea Weatherboard | 75 x 3.15mm<br>90 x 3.55mm | Hot Dip Galvanised/ Stainless Steel |
|  | **Titanium Coated High Speed Drill Bit.**<br>For pre-drilling prior to face fixing with jolt head. | 3.0mm<br>3.5mm | |
|  | **Brad Nail**<br>To tie boards together | 32mm | |
| | **Joint sealant**<br>Paintable flexible sealants are recommended for filling the joints. Refer to Section 7.2 for information. | Tube | Sika, Bostik or similar<br>Holdfast |
| | **CRC ADOS Builders Fill**<br>Two part exterior grade fill to finish over jolt head nails. | | |
|  | **PEF Rod** | Polyethylene foam | Sika or similar |
| | **Flexible tape**<br>A flexible self-adhesive tape used in preparation of a window. Refer to the Window installation section in this manual for more information. | Proprietary tape to adhere to flexible underlay | Tyvek, Marshall Innovations or similar |
| | **Flashing Material**<br>as per Table 20, 'E2/AS1' | | Flashing Fabricator |
|  | **Planted Sill** | | H3.1 minimum Treated Timber Timber Merchant or cut on site |

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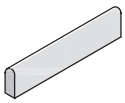
**Table 3 contd.**

| Accessories not supplied by James Hardie | | | |
|---|---|---|---|
| **Accessories** | **Description** | **Size (mm)** | **Material/ appearance** |
|  | **Timber Scriber**<br>To scribe beside window, site cut to suit. | As required | H3.1 minimum Treated Timber Timber Merchant or cut on site |
| | **Fibre Cement Cutting Blade**<br>Diamond tip 305mm diameter circular saw blade to fit drop saw. | 305mm | Diamond Tipped |
| | **Cavity Closer - aluminium**<br>Used in walls taller than 10m for inter-tenancy fire separation. | | |
| | Primers. Dulux 1-Step Prep, Resene Quick Dry etc. | | |

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# 2 Application and Scope

## 2.1 Application

This specification includes the installation of Linea Weatherboard cavity construction where risk matrix is 13 or more and must be read in conjunction with the current CodeMark Certificate and BRANZ Appraisal. This installation method can also be used for buildings where the risk matrix score is 0 - 12 if desired.

This document is intended for use by architects, designers, specifiers or builders who are involved in specifying Linea Weatherboard. The document also serves the purpose of an installation manual for this product.

For use of Linea Weatherboard outside this published scope, the architect, designer or engineer must undertake specific design. For advice on designs outside the scope of this specification, Ask James Hardie on 0800 808 868.

Refer to the Linea Weatherboard Direct Fixed Technical Specification when installing Linea Weatherboard without a cavity.

## 2.2 Scope

Linea Weatherboard cavity construction is suitable for use in timber framed buildings that fall within the scope limitations of the New Zealand Building Code (NZBC) Acceptable Solution E2/AS1, Paragraph 1.1.

Linea Weatherboard cavity construction is also suitable for use in specific engineering design projects (SED) subject to a wind pressure of 2.5kPa (ULS) maximum for building heights upto 25m.

## 2.3 Limitations

- Linea Weatherboard cladding must not be used on curved wall applications
- Linea Weatherboard cladding must not be installed vertically or angled
- The minimum ground clearances specified must be maintained
- Timber window joinery/recessed openings is subject to an alternative design by the designer
- Maximum SLS inter-story seismic deflections up to span/180 when used in specific design buildings (SED) buildings above 10m height. To accommodate higher inter-story drifts, a deflection should be used.

## 2.4 Details

Various typical Linea Weatherboard details are provided within this document. In addition to these, the construction details with HomeRAB™ Pre-Cladding/RAB™ Board have also been developed and are available on our website. These details are available in dwg, dxf, jpg and pdf file format and can be downloaded at **www.jameshardie.co.nz.**

All dimensions shown are in millimetres unless noted otherwise.

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# 3 Compliance

## 3.1 NZBC Compliance

When installed in accordance with the conditions of CodeMark number GM-CM30018 Linea Weatherboard complies with all relevant requirements of the NZBC.

CODEMARK™
30018

Please refer to www.building.govt.nz for a copy of the certificate.

Linea Weatherboard cavity fixed cladding also has a BRANZ Appraisal number 447 (2010) available at www.branz.co.nz or www.jameshardie.co.nz.

BRANZ Appraised
Appraisal No.447 [2010]

# 4 Design

## 4.1 Responsibility

The specifier or other party responsible for the project must ensure that the information and details in this specification are appropriate for the intended application and that additional detailing is performed for specific design or any areas that fall outside the scope of this technical specification.

All New Zealand Standards referenced in this manual are current edition and must be complied with.

### Specifier

If you are a specifier or other responsible party for a project ensure that the information in this document is appropriate for the application you are planning and that you undertake specific design and detailing for areas which fall outside the scope of these specifications.

### Installer

If you are an installer ensure that you follow the design, moisture management principles, associated figures and material selection provided by the designer and this James Hardie Technical Specification. All the details provided in this document must be read in conjunction with the project specification.

**James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets their aesthetic expectations before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation. James Hardie will only offer a replacement product if Linea Weatherboard or Axent Trim supplied are found to be out of its manufacturing specification.**

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## 4.2 Clearances

The clearance between the bottom edge of cladding and the paved/unpaved ground must comply with section 9.1.3 of E2/AS1. On the roofs and decks the minimum clearance must be 50mm. These clearances must be maintained throughout the life of the building.

Linea Weatherboard must overhang the bottom plate on a concrete slab by a minimum of 50mm as required by the NZBC Acceptable Solution, E2/AS1 Table 18.

The site on which the building is situated must comply with the NZBC Acceptable Solution E1/AS1 ‘Surface Water’.

Do not install cladding such that it may remain in contact with water or ground, refer to figures in section 9 of this manual.

## 4.3 Structure

### 4.3.1 Timber Framing

Timber framing must be in accordance with NZS 3604 (Timber-framed buildings) or designed as for specific engineering design (SED) in accordance with NZS 3603 and AS/NZS 1170 where specific engineering design is required, the framing stiffness must be equivalent to or more than the framing provisions of NZS 3604.

The stud spacing must not exceed 600mm centres maximum for buildings within the scope of NZS 3604 and 400mm centres maximum for wind pressures more than 1.5kPa (ULS).

For timber frame walls longer than 12m, it is best practice to allow for construction joints to accommodate movements generated due to timber shrinkage or deflections.

### 4.3.2 Durability

Timber framing must be treated to a minimum H1.2 treatment requirements and comply with Acceptable Solution B2/AS1 ‘Durability’ of the NZBC. For further timber treatment information refer to the NZS 3602 (Timber and Wood-Based Products for use in Buildings) for minimum timber treatment selection and treatment requirements. Framing must be protected from moisture at sites in accordance with the recommendations of framing manufacturers. Refer to the NZS 3602 for information about the allowable moisture content in timber framing.

## 4.4 Structural Bracing

Bracing can be achieved by using HomeRAB Pre-Cladding or RAB Board installed direct to framing instead of a flexible underlay or by using Villaboard™ Lining bracing system on the internal face.

## 4.5 Energy Efficiency

External walls constructed as per this technical specification, using Linea Weatherboard cladding must use suitable bulk insulation to meet the minimum thermal insulation requirements as per Clause H1/AS1 'Energy Efficiency' of the NZBC.

## 4.6 Fire Rated Walls

External walls with Linea Weatherboard cavity fix construction method can achieve fire ratings up to 60/60/60 when constructed in accordance with the James Hardie Fire and Acoustic Design Manual. Linea Weatherboard must be face fixed for fire rated applications.

Refer to the Fire and Acoustic Design Manual for further information about fire rated systems.

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## 4.7 Control of External Fire Spread

External spread of fire (clause C3.5 and C3.7) apply where:

- Building height is greater than 10m and upper floors have sleeping uses or are different property (C3.5), and
- Where the building is located within 1m of a relevant boundary (C3.7)

Refer to Table 5.1 of Section 5.4 of C/AS1 for group SH or table 5.5 of Section 5.8.1 of C/AS2 for the other risk groups to identify the external fire spread requirement applicable to the external cladding material and surface finish.

For the other situations where 'no requirement' is listed, Linea Weatherboard installed as per the details published in this specification complies.

For buildings that are >10m high and contain tenancies above as per Table 5.5. of C/AS2, Linea Weatherboard installed over timber cavity battens in conjunction with RAB Board with R2.2 fibreglass/James Hardie mineral insulation complies. Refer to Figure 38 and 39 for RAB Board and cavity batten layout. For the complete set of suitable Linea Weatherboard cavity construction details with RAB Board for this application, refer to www. jameshardie.co.nz.

## 4.8 Alpine regions

In regions subject to freeze/thaw conditions, Linea Weatherboard must not be in direct contact with snow or ice build up for extended periods, e.g. external walls in alpine regions subject to snow drifts over winter.

The Linea Weatherboard has been tested in accordance with AS/NZS 2908.2 Clause 8.2.3.

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# 5 Safe Working Practices

**WARNING - DO NOT BREATHE DUST AND CUT ONLY IN WELL VENTILATED AREA**

**James Hardie products contain sand, a source of respirable crystalline silica may cause cancer if dust from product is inhaled. Causes damage to lungs and respiratory system through prolonged or repeated inhalation of dust from product.**

Intact fibre cement products are not expected to result in any adverse toxic effects. The hazard associated with fibre cement arises from the respirable crystalline silica present in dust generated by activities such as cutting, rebating, drilling, routing, sawing, crushing, or otherwise abrading fibre cement, and when cleaning up, disposing of or moving dust.

When doing any of these activities in a manner that generates dust, follow James Hardie instructions and best practices to reduce or limit the release of dust.

If using a dust mask or respirator, use an AS/NZS1716 P1 filter and refer to Australian/New Zealand Standard 1715:2009 Selection, Use and Maintenance of Respiratory Protective Equipment for more extensive guidance and more options for selecting respirators for workplaces. For further information, refer to our installation instructions and Safety Data Sheets available at www.jameshardie.co.nz.

**FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.**

### Crystalline Silica is

- Commonly known as sand or quartz
- Found in many building products e.g. concrete, bricks, grout, wallboard, ceramic tiles, and all fibre cement materials

### Why is Crystalline Silica a health hazard?

- Silica can be breathed deep into the lungs when present in the air as a very fine (respirable) dust
- Exposure to silica dust without taking the appropriate safety measures to minimise the amount being breathed in, can lead to a potentially fatal lung disease – silicosis – and has also been linked with other diseases including cancer. Some studies suggest that smoking may increase these risks
- The most hazardous dust is the dust you cannot see!

### When is Crystalline Silica a health hazard?

- It's dangerous to health if safety protocols to control dust are not followed when cutting, drilling or rebating a product containing crystalline silica and when cleaning up
- Products containing silica are harmless if intact (e.g. an un-cut sheet of wall board)

### Avoid breathing in crystalline silica dust

### Safe working practices

✕ NEVER use a power saw indoors or in a poorly ventilated area

✕ NEVER dry sweep

✓ ALWAYS use M Class or higher vacuum or damp down dust before sweeping up

✕ NEVER use grinders

✓ ALWAYS use a dust reducing circular saw equipped with a sawblade specifically designed to minimise dust creation when cutting fibre cement – preferably a sawblade that carries the HardieBlade™ logo or one with at least equivalent

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performance – connected to an M Class or higher vacuum

- ✓ Before cutting warn others in the area to avoid dust
- ✓ ALWAYS follow tool manufacturers' safety recommendations
- ✓ ALWAYS expose only the minimum required depth of blade for the thickness of fibre cement to be cut
- ✓ ALWAYS wear a properly-fitted, approved dust mask or respirator P1 or higher in accordance with applicable government regulations and manufacturer instructions
- ✓ Consider rotating personnel across cutting tasks to further limit respirable silica exposures.

### When cutting

- ✓ Work outdoors only
- ✓ Make sure you work in a well ventilated area
- ✓ Position cutting station so wind will blow dust away from yourself and others in the working area
- ✓ Rotate employees across cutting task over duration of shift
- ✓ Cut products with a HardieBlade Saw Blade (or equivalent) and a dust reducing circular saw connected to a M Class or higher vacuum
- ✓ When sawing, sanding, rebating, drilling or machining fibre cement products, always:
  - Wear your P1 or higher (correctly fitted in accordance with manufacturers' instructions), ask others to do the same.
  - Keep persons on site at least 2 metres and as far as practicable away from the cutting station while the saw is in operation
  - If you are not clean shaven, then use a powered air respirator with a loose fitting head top
  - Wear safety glasses
  - Wear hearing protection
- ✓ Make sure you clean up BUT never dry sweep. Always hose down with water/wet wipe or use an M Class or higher vacuum

**If concern still exists about exposure levels or you do not comply with the above practices, you should always consult a qualified industrial hygienist or contact James Hardie for further information.**

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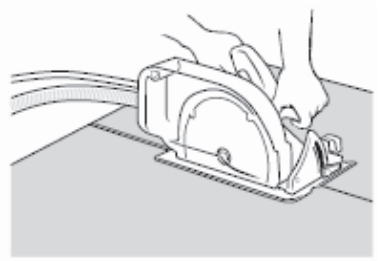
### Working Instructions

#### HardieBlade™ Saw Blade



The HardieBlade Saw Blade used with a dust-reducing saw is ideal for fast, clean cutting of James Hardie fibre cement products. A dust-reducing saw uses a dust collector connected to a M Class or higher vacuum. When sawing, clamp a straight edge to the sheet as a guide and run the saw base plate along the straight edge when making the cut.

#### Hole-Forming

**For smooth clean cut circular holes:**

- Mark the centre of the hole on the sheet
- Pre-drill a 'pilot' hole
- Using the pilot hole as a guide, cut the hole to the appropriate diameter with a hole saw fitted to a heavy duty electric drill

**For irregular holes:**

- Small rectangular or circular holes can be cut by drilling a series of small holes around the perimeter of the hole then tapping out the waste piece from the sheet face
- Tap carefully to avoid damage to sheets, ensuring that the sheet edges are properly supported

## 5.1 Storage and delivery

Keeping products and people safe

### Off loading

✓ James Hardie products should be off-loaded carefully by hand or by forklift

✓ James Hardie products should not be rolled or dumped off a truck during the delivery to the jobsite

### Storage

James Hardie products should be stored:

✓ In their original packaging

✓ Under cover where possible or otherwise protected with a waterproof covering to keep products dry

✓ Off the ground – either on a pallet or adequately supported on timber or other spacers

✓ Flat so as to minimise bending

James Hardie products must not be stored:

✗ Directly on the ground

✗ In the open air exposed to the elements

**James Hardie is not responsible for damage due to improper storage and handling.**

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## 5.2 Tips for safe and easy handling of weatherboard products

**Weatherboard products**

- ✕ Do not lift planked products flat and in the middle
- ✓ Carry the products on the edge
- ✓ If only one person is carrying the product, hold it in the middle and spread arms apart to better support the product
- ✓ If two people are carrying the plank, hold it near each end and on edge
- ✓ Exercise care when handling weatherboard products to avoid damaging the edges/corners

# 6 Installation

The horizontal lap between the two Linea Weatherboard must be 30mm minimum. In certain scenarios you may require to creep up the lap, this must not exceed 33mm.

Linea Weatherboard must be kept dry whilst in storage prior to and during fixing. Site cut ends that are exposed such as slimline box corners, internal corners etc. and any sanded patches on the boards surface must be primed prior to installation. Dust and loose material must be removed before priming.

## 6.1 Fastener

### 6.1.1 Fastener – Size and Method

Linea Weatherboard and Axent Trim must be fixed to timber with the types of nails specified in Tables 4 and 5, in accordance with the following requirements:

- Linea Weatherboard can either be face/exposed fixed or concealed fixed
- Linea Weatherboard must be fixed into studs at maximum 600mm centres. Fixing centres to coincide with stud spacing, refer to figures in section 9 of this manual
- All concealed nails must be driven flush with the board surface
- When concealed fixing Linea Weatherboard, nails must be driven under the lap of boards, except at all corners and vertical edges of openings where Linea Weatherboard must be face fixed, refer to figures in section 9 of this manual
- Nails must be fixed 25mm from the end of the board when hand nailing. For gun nailing refer to Section 6.1.2
- When using concealed fixing method, any gaps that may appear under the lap due to site conditions can be minimised by fixing a jolt head nail through the lap as per the exposed nailing method. Refer to figures in section 9 of this manual
- When using concealed fixing method, Linea Weatherboard may be tied together by face fixing through the lap using a 32mm brad nail if desired.
- When face fixing Linea Weatherboard, the upper board must be pre-drilled before fixing with a jolt head nail

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**Table 4**

| Wind pressure (kPa) | Underlay | Fixing method | Fixing type | Instructions |
|---|---|---|---|---|
| Up to 1.5 (up to and including VH Wind Zone) | Flexible underlay | Concealed nailing | 60 x 3.15mm HardieFlex™ nail or a 60 x 2.87mm D/round head gun nail | Finish flush with the board surface. |
| | | Face nailing | 75 x 3.15mm jolt head nails | Hot-dipped galvanised/stainless steel jolt head nail with pre-drilling through the top weatherboard. Use a 3mm drill bit. |
| | Rigid air barrier | Concealed nailing | 75 x 3.15mm HardieFlex™ nail or a 75 x 3.06mm D/round head gun nail | Finish flush with the board surface. |
| | | Face nailing | 90 x 3.55mm jolt head nails | Hot-dipped galvanised/stainless steel jolt head nail with pre-drilling through the top weatherboard. Use a 3.5mm drill bit. |
| 1.5 to 2.5 (EH Wind Zone and SED projects) | RAB Board | Face nailing | 90 x 3.55mm jolt head nail | Hot-dipped galvanised/stainless steel jolt head nail with pre-drilling through the top weatherboard. Use a 3.5mm drill bit. |

**Table 5**

| Nail requirements for Axent Trim | |
|---|---|
| Single thickness | 60mm jolt head nails.<br><br>If fixing over Linea Weatherboard use 75 x 3.15mm jolt head nails through a pre-drilled hole, using a 3mm drill bit. |
| Single thickness plus packer | If fixing over Linea Weatherboard use 75 x 3.15mm jolt head nails through a pre-drilled hole, using a 3mm drill bit.<br><br>When fixing to timber support use 60mm jolt head nails. |

For fire rated wall applications the Linea Weatherboards must be face fixed. For more information Ask James Hardie on 0800 808 868.

### 6.1.2 Gun Nailing

Linea Weatherboard can be gun nailed with a D-Head or RounDrive nail when concealed fixing method is used.

- Nails must be no closer than 50mm from the ends of boards when gun nailing is used, double studs will be required.
- Be minimum length and nearest gauge as per Table 4.
- Be finished flush with surface of board.

### 6.1.3 Fastener Durability

Fasteners must meet the minimum durability requirements of the NZBC. Refer to Table 6 for fixing materials requirements to be used in relation to the exposure conditions.

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**Table 6**

| Exposure conditions and nail selection prescribed by NZS 3604 | | |
|---|---|---|
| **Zone** | **Application** | |
| D (sea spray) and geothermal hot spots | General | Stainless steel 304/316 |
| | Fire | |
| *C and B | General | Hot dip galvanised** |
| | Fire | |

* Zone C areas where local knowledge dictates that increased durability is required, appropriate selection shall be made Microclimatic conditions as detailed in NZS 3604, Paragraph 4.2.4 require SED.

**Hot dip galvanised must comply with AS/NZS 4680.

Also refer to the NZBC Acceptable Solution E2/AS1 Table 20 and 21 for information regarding the selection of suitable fixing materials and their compatibility with other materials.

## 6.2 Framing

Framing to be in accordance with the NZS 3604. The following must be provided for fixing Linea Weatherboard:

- Studs at 600mm centres maximum for all wind speed zones up to and including very high (VH)
- Studs at 400mm centres maximum for wind pressures more than 1.5 kPa (ULS)
- Double studs are required at internal corners
- Extra packers may be required at external corners
- Extra studs are required for aluminium internal corner sections

### 6.2.1 Specific Engineering Design (SED)

For EH wind zone and specific engineering design projects the timber framing is required to be designed in accordance with NZS 3603 and AS/NZS 1170. The minimum framing sizes and layout must comply with this specification:

- Stud spacing 400mm centres maximum
- Nog spacing 1200mm centres maximum
- Double studs are required at internal corners
- Extra packers may be required at external corners
- Extra studs are required for aluminium internal corner sections

### 6.2.2 Gable Ends

In case of gable end trusses sitting on top plates of the external wall frame, the frame size must be in accordance with truss design and specification supplied by the frame and truss manufacturer/supplier supported by independent design producer statement.

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### 6.2.3 Tolerances

In order to achieve an acceptable wall finish, it is imperative that framing is straight and true. Framing tolerances must comply with the requirements of NZS 3604 and the manufacturer's specifications. All framing must be made flush. The visual aspects of the finished cladding can differ between two different sites or the builders installing the product. It is recommended that you also refer to a building guidance document published by MBIE to understand an acceptable level of tolerances allowed in building materials and workmanship. www.building.govt.nz Guide to tolerances, materials and workmanship in new residential construction 2015

## 6.3 Flexible Underlay or HomeRAB Pre-Cladding

Flexible underlay or HomeRAB Pre-Cladding must be provided to comply with the requirements of E2/AS1 up to and including very high wind zone.

Walls which are not lined on the inside face (e.g. garage walls or gable ends) must include a rigid sheathing or an air barrier behind the cladding. HomeRAB Pre-Cladding is suitable for use as an air barrier and must be installed in accordance with James Hardie Rigid Air Barriers Installation Manual.

## 6.4 Intermediate Support

Where studs are at 600mm centres an intermediate means of restraining the flexible underlay and insulation from bulging into the cavity must be installed. An acceptable method to achieve this is using one of the following:

- Intermediate cavity batten between the studs; or
- 75mm galvanised mesh; or
- Polypropylene tape at 300mm centres fixed horizontally and drawn taut.

No intermediate supports are required:

- Where studs are at maximum 400mm centres; or,
- When rigid sheathings instead of flexible underlays are used.

## 6.5 Rigid Air Barrier

In EH wind zone or for specific design wind zone, a rigid air barrier i.e. RAB Board, must be used instead of flexible underlay.

For buildings more than 10m, RAB Board must be used. To achieve the temporary weathertightness using James Hardie rigid air barriers, windows/doors need to be installed with required flashing tapes and seals etc. Refer to James Hardie Rigid Air Barriers Installation Manual for information regarding its installation and to achieve temporary weathertightness.

## 6.6 Vent Strip

Linea 35mm cavity closer vent strip (uPVC) must be installed at the bottom of all walls constructed using the drained and ventilated for cavity construction method. James Hardie Linea 35mm cavity closer vent strip has an opening area of 1000mm$^2$/m length. It is important that the openings in the vent strip are kept clear and unobstructed to allow free drainage and ventilation of cavities. Alternate cavity closer can be used ensuring compliance of E2 and may need to be used with a cant strip.

## 6.7 Cavity Battens

The cavity battens provide airspace between the frame and cladding and are considered a "packer" only in this specification.

The timber battens must be minimum H3.1 treated to comply with the durability requirements of B2/AS1.

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Cavity battens must comply with E2/AS1 and:

- Be minimum 18mm thick
- Be minimum 45mm wide
- Until claddings are fixed the battens need only to be tacked to framing with 40 x 2.8mm nails at 800mm centres maximum (batten fixing is required temporarily to keep them straight on the wall during construction)

## 6.8 Joints

### 6.8.1 Jointing

The ends of Linea Weatherboard are jointed off-stud by means of a tongue and groove joint. Tongue and groove joints may be located centrally between studs but no closer than 100mm from the edge of a stud. The joints must be staggered by 600mm minimum. Flexible sealant must be applied to the front of tongue before pushing into the groove at the time of installation. From a visual perspective, the joint line will be visible and must not be hard filled.

### 6.8.2 Drainage Joint

After every two floors a horizontal drainage joint flashing is required, refer to figures Figure 29 in section 9 of this manual.

### 6.8.3 External Corner Joint

There are a number of options to select from when detailing external corners:

- 90º corner soaker in aluminium, copper or stainless steel
- 135º corner soaker 180mm aluminium
- Aluminium boxed corners
- Box corners using Axent Trim
- Mitred corners to weatherboards

Refer to figures in section 9 of this manual.

### 6.8.4 Internal Corner Joint

There are a number of options to select from when detailing internal corners:

- 90º or 135º Aluminium W-mould
- Scribed corner

Refer to figures in section 9 of this manual.

## 6.9 Junctions and Penetrations

All windows and doors must be detailed as per the requirements of this specification. James Hardie has developed the window details for Linea Weatherboard which meet the performance requirements of E2 ‘External Moisture’, an approved document of the NZBC, refer to figures in section 9 of this manual.

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# 7 Finishes

Protective coating of Linea Weatherboard and Axent Trim is required in order to meet the durability requirements of the NZBC.

## 7.1 Preparation and Priming

The Linea Weatherboard and Axent Trim must be dry before painting. Punch and fill all exposed nails a maximum of 2mm below the surface. Fill the hole with an exterior grade 2 part builders fill, eg CRC ADOS Builders Fill, allow to cure and using 60 grit sand paper smooth ready for painting. Prime any sanded patch on board surface or the site cut edges that will be exposed.

It is not recommended to seal gap under the lap of weatherboards as it helps in circulation of air behind the weatherboard cladding. However if sealing of the gap is undertaken, the product warranty still applies.

## 7.2 Sealants

All sealants must demonstrate the ability to meet the relevant requirements of the NZBC. Application and use of sealants must comply with manufacturer's instructions. Sealants, if coated, must be compatible with the paint system.

## 7.3 Painting

All Linea Weatherboards are pre-primed on their face and bottom edge with a factory applied acrylic base coat.

Linea Weatherboard and Axent Trim must be painted within 90 days of installation. Dark coloured paints can be used, i.e. there is no restriction on the Light Reflectance Value (LRV) of paint to be applied. All exposed faces, including the top edges under the sills and bottom edges of Linea Weatherboard, Axent Trim and accessories must be finished with an exterior paint system.

For best aesthetic results a low sheen paint is recommended.

The dark colours in certain environments may fade over a period of time. Special paints/coatings are required in certain harsh environments.

Stainless steel soakers are generally left natural. For painting over stainless steel soakers, refer to paint manufacturer as special preparation and paints are required.

Paint selection and the preparation required is dependent on paint chosen. Refer to the paint manufacturer for information before starting painting.

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# 8 Care and Maintenance

The extent and nature of maintenance will depend on the geographical location and exposure of the building. It is the responsibility of the specifier to determine normal maintenance requirements to comply with the NZBC Acceptable Solution B2/AS1. As a guide, it is recommended that basic normal maintenance tasks shall include but not be limited to:

- Washing down exterior surfaces every 6-12 months* using low pressure water and a brush, and every 3-4 months in extreme coastal conditions or sea spray zones
- Re-coating exterior protective finishes. Always refer to your paint manufacturer for re-coating requirements
- Maintaining the exterior envelope and connections including junctions, penetrations, flashings and sealants
- Cleaning out gutters, blocked pipes and overflow pipes as required
- Pruning back vegetation close to or touching the building as well as ensuring the NZBC ground clearance requirements are maintained especially where gardens are concerned
- The clearances between the bottom edge of Linea Weatherboard and the finished/unfinished ground must always be maintained
- Stainless steel soakers used in extreme coastal conditions or in sea spray zones may show some signs of 'tea staining'. It is an aesthetic issue and to minimise staining soaker must be washed/polished frequently

*Do not use a water blaster to wash down the cladding. Refer to your paint manufacturer for washing down requirements.

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For all meter box details please visit our website at **www.jameshardie.co.nz** or Ask James Hardie on **0800 808 868**.

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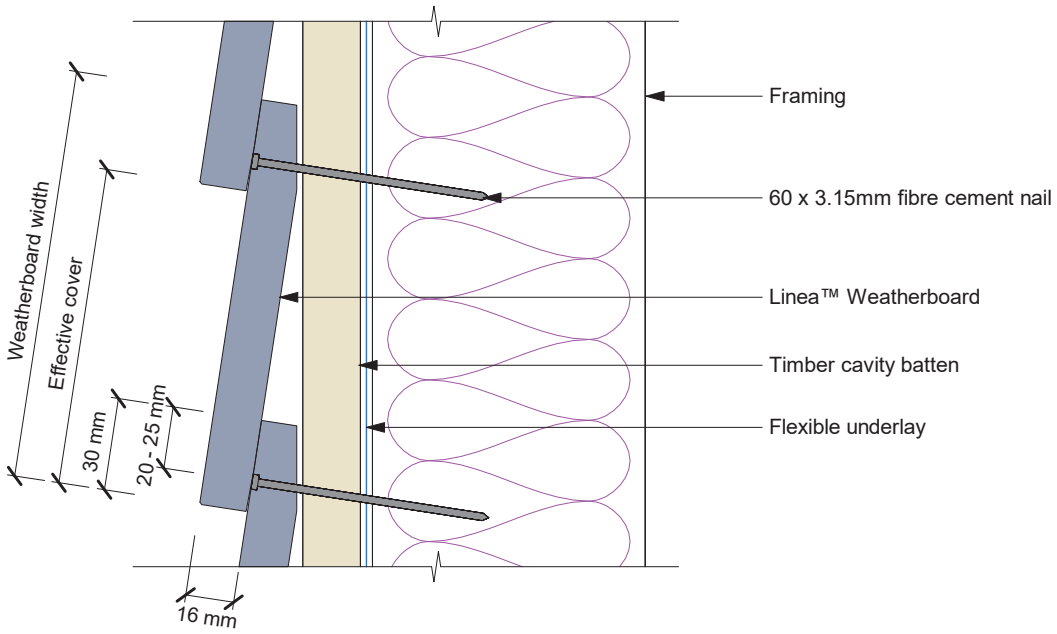
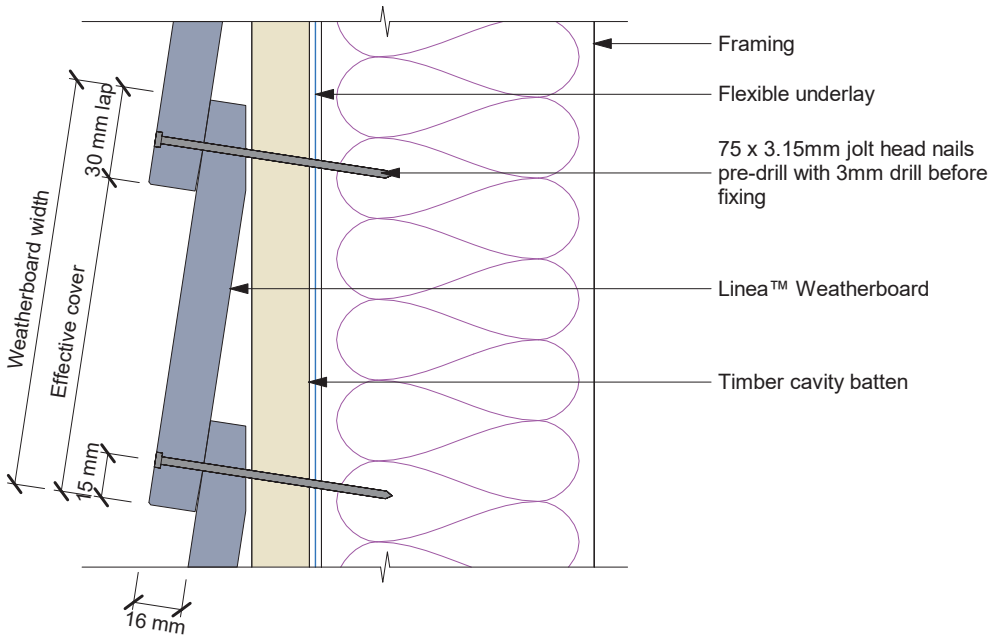
## Figure 1: Weatherboard fixing




### Concealed Nailing

Linea™ Weatherboards to be face fixed at corners and down window and door openings using jolt head nails at 90° to face, punch 2mm below surface and fill. Refer to fixing table 4




### Exposed Nailing

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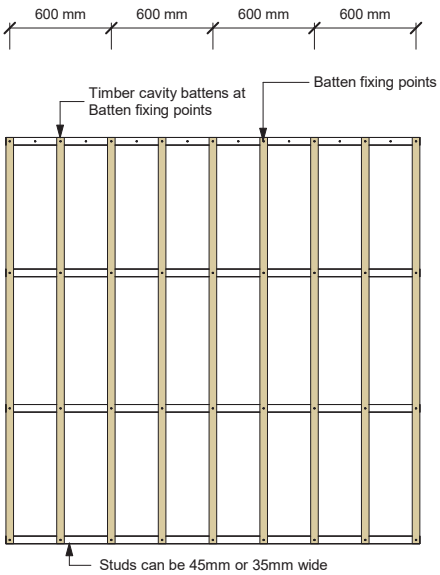
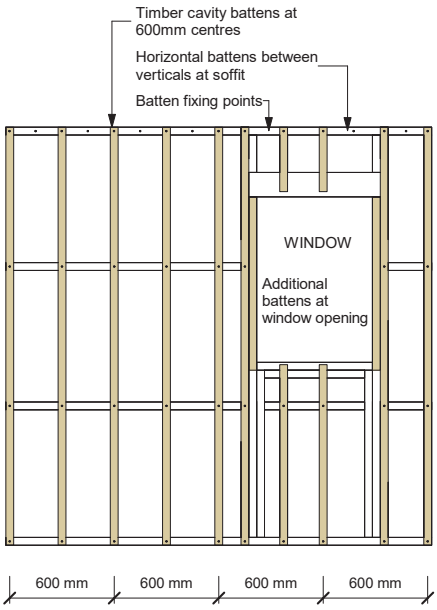
## Figure 2: Batten fixing




The intermediate support for insulation between the studs could be a timber cavity batten, polypropylene tape or 75 mm galvanised wire mesh. Refer to E2/AS1 Paragraph 9.1.8.5 Polypropylene tape must be fixed horizontally and drawn taut at 300 mm centres.

## Figure 3: Batten layout at window opening




- Studs can be 45mm or 35mm wide

-The intermediate support for insulation between the studs could be a timber cavity batten, polypropylene tape or 75 mm galvanised wire mesh. Refer to E2/AS1 Paragraph 9.1.8.5 Polypropylene tape must be fixed horizontally and drawn taut at 300 mm centres.

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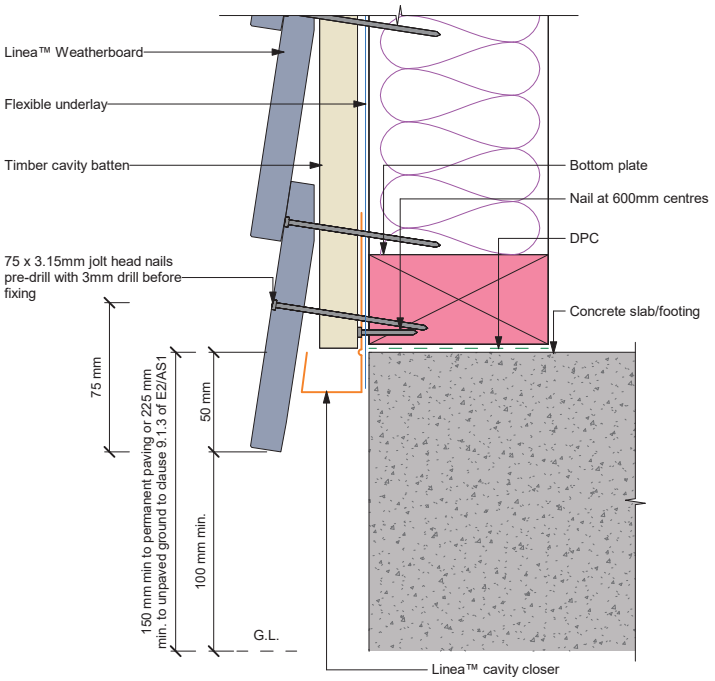
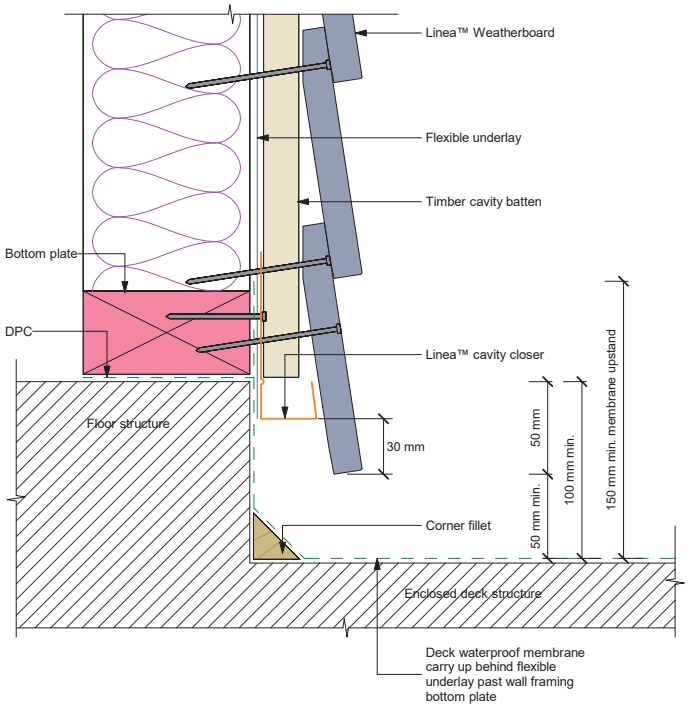
## Figure 4: Foundation detail




Note:
Drain holes in James Hardie uPVC vent strip are sufficient to achieve ventilation openings of 1000mm² per lineal metre

## Figure 5: Enclosed Deck

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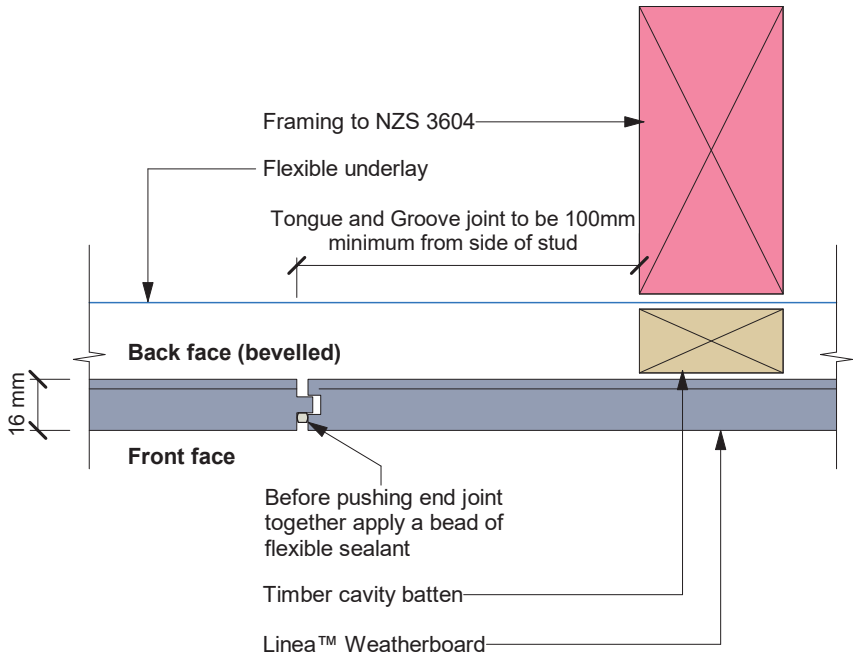
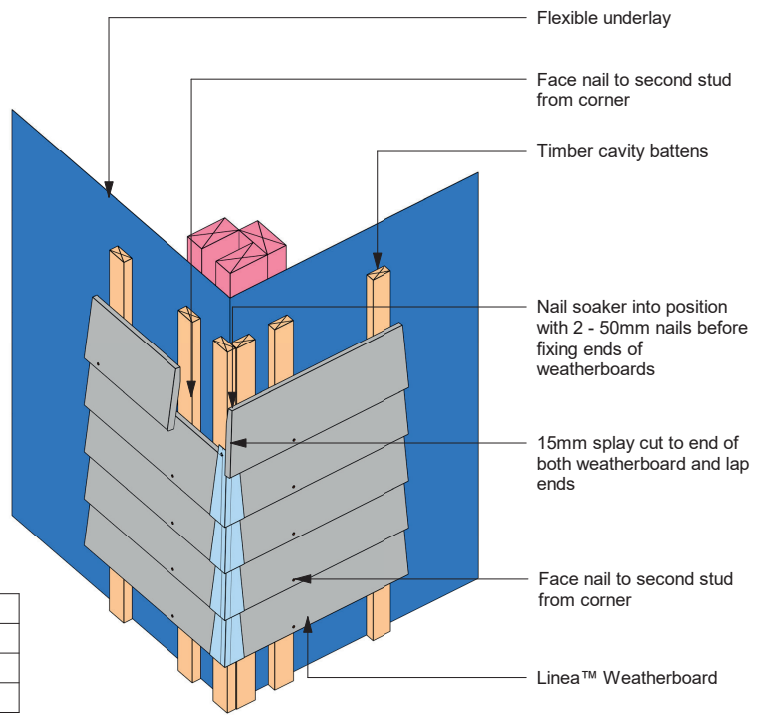
## Figure 6: Jointing off stud




## Figure 7: External corner soaker




| Soaker material | Nail material |
|---|---|
| Copper | Copper or phosphor bronze |
| Aluminium | Hot dip galvanised |
| Stainless steel | Stainless steel |

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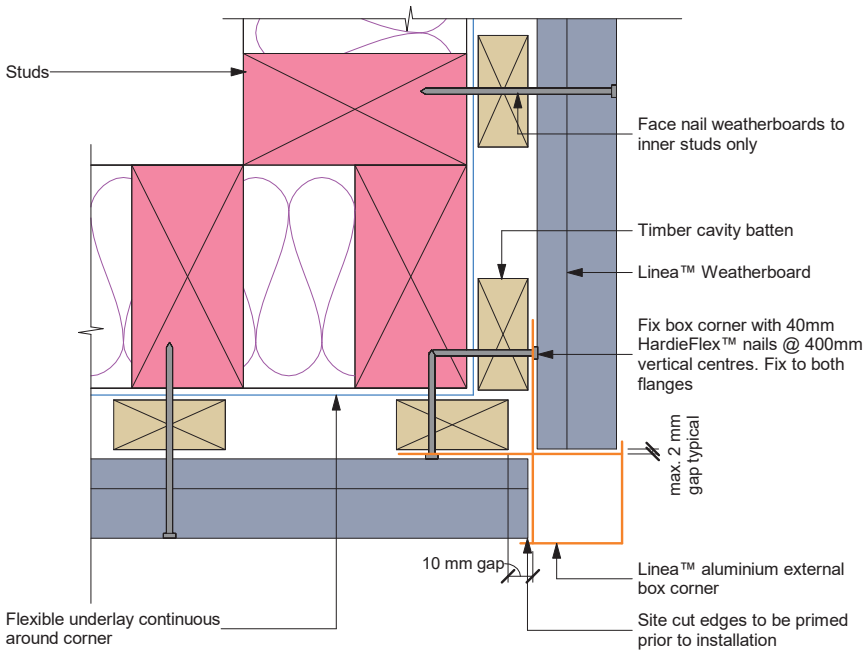
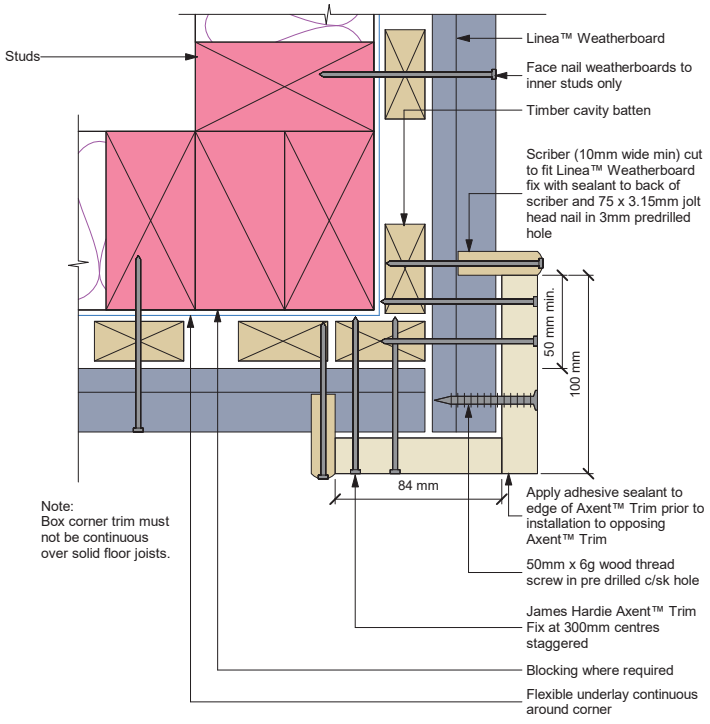
## Figure 8: Aluminium box corner




Note: Site cut edges to be primed

## Figure 9: Boxed corner




Note:
Box corner trim must not be continuous over solid floor joists.

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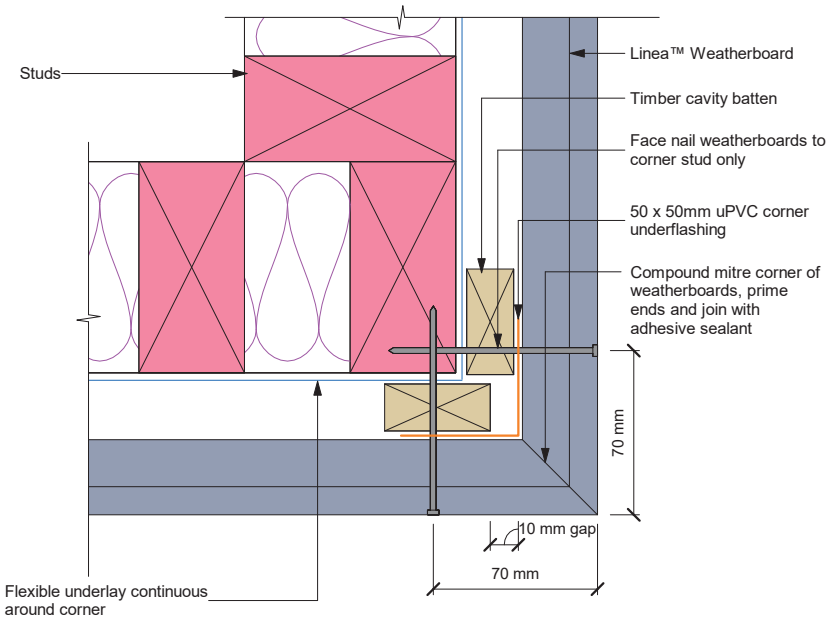
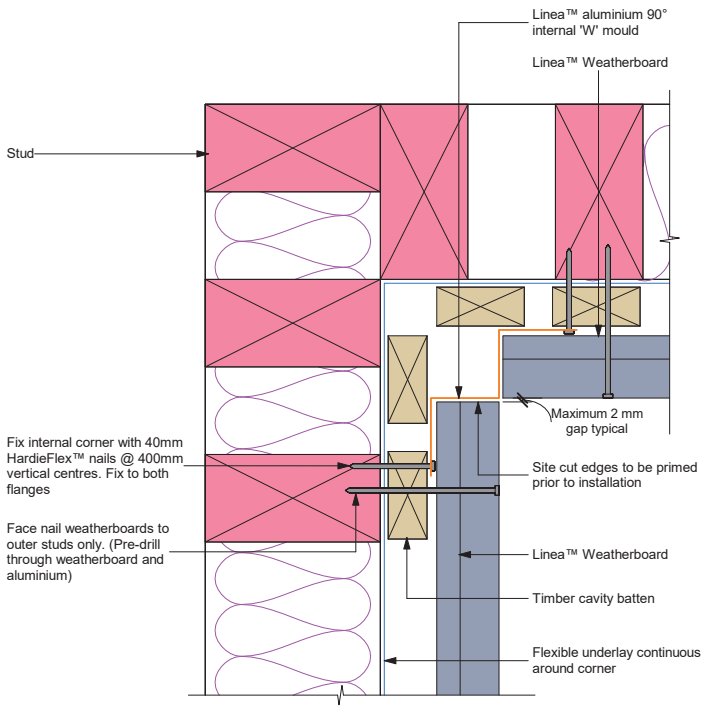
## Figure 10: Mitre corner




Note: Adhesive sealant must be used on the full end face of both weatherboards. Push lightly together

## Figure 11: Internal 90 ° aluminium 'W' mould corner

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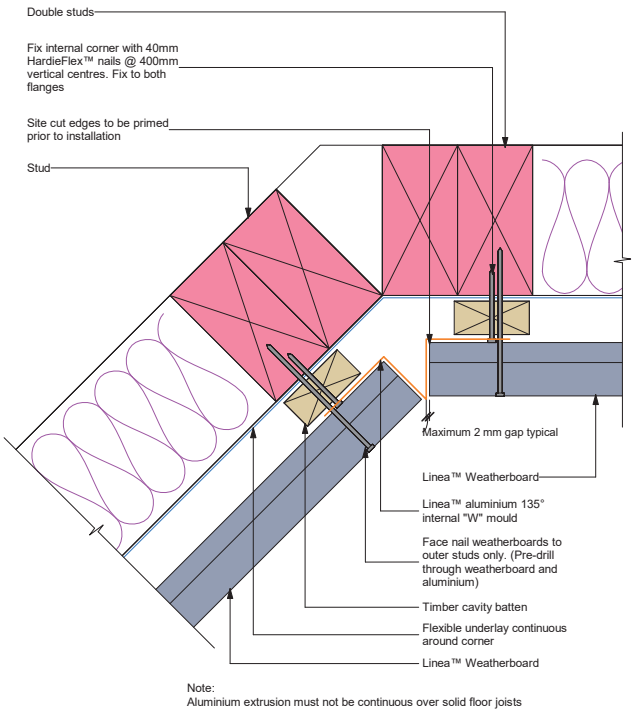
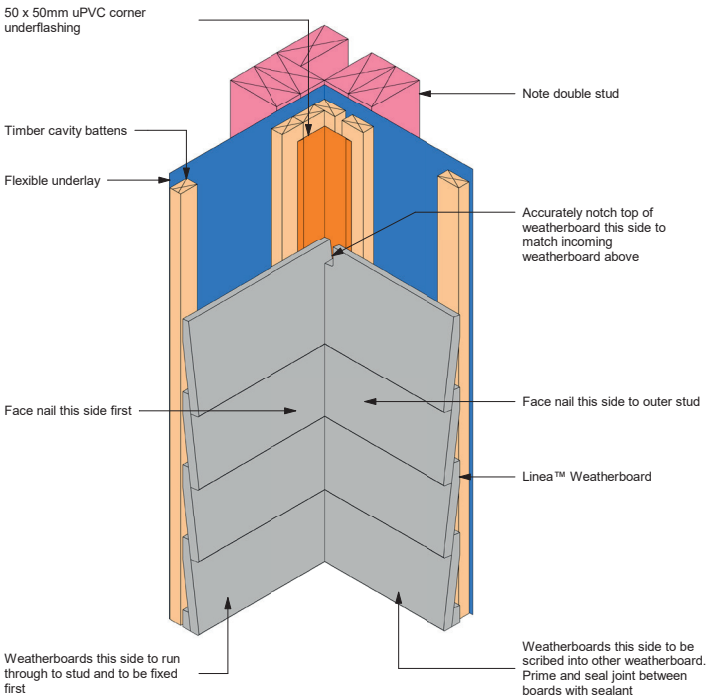
## Figure 12: Internal 135 º aluminium 'W' mould corner




Note:
Aluminium extrusion must not be continuous over solid floor joists

## Figure 13: Internal corner joint flashing

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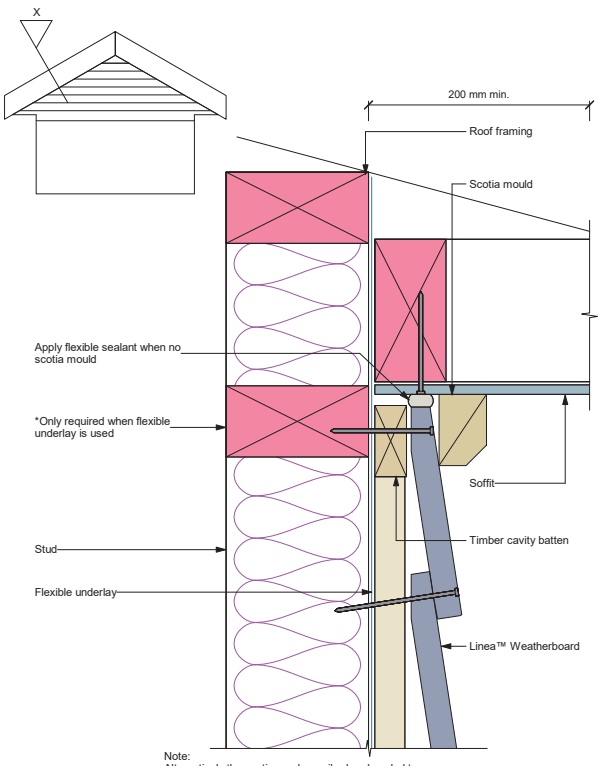
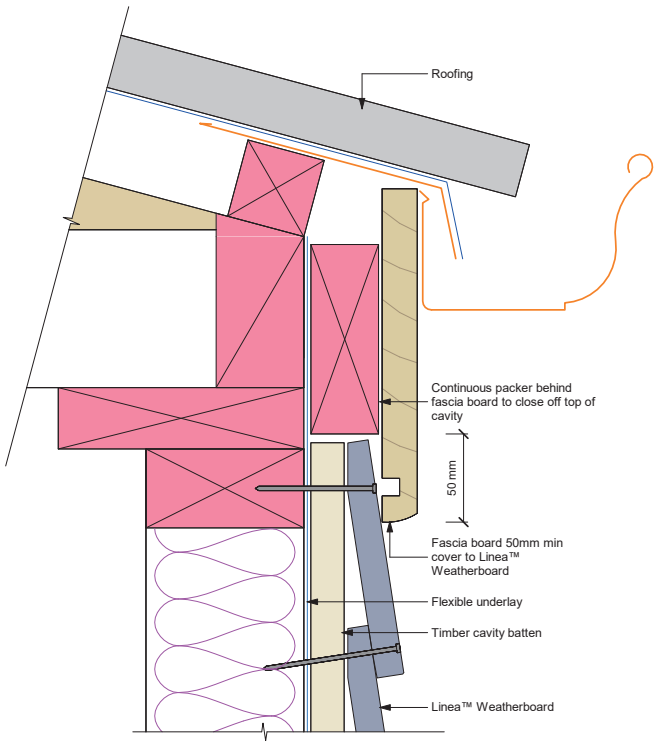
## Figure 14: Wall to soffit junction 'X'




Note:
Alternatively the scotia can be scribed and sealed to Linea™ Weatherboard and the soffit lining

For soffits more than 200mm the Linea™ Weatherboard can be neat cut and silicone sealed to angle of soffit

## Figure 15: Nil soffit detail

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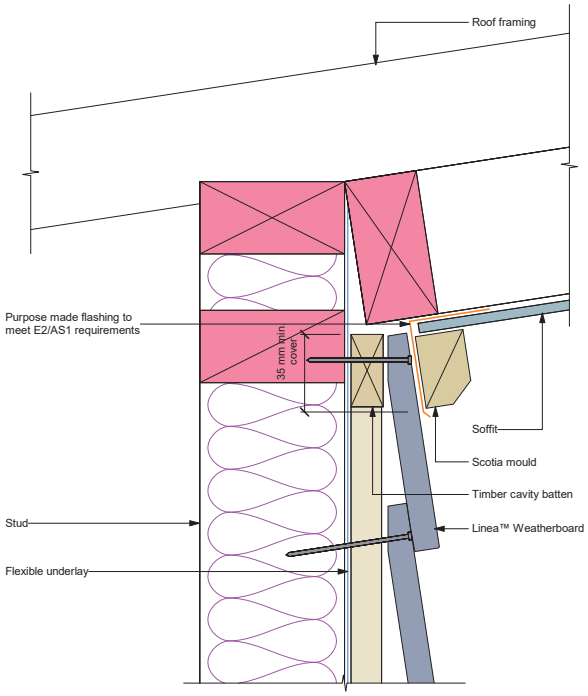
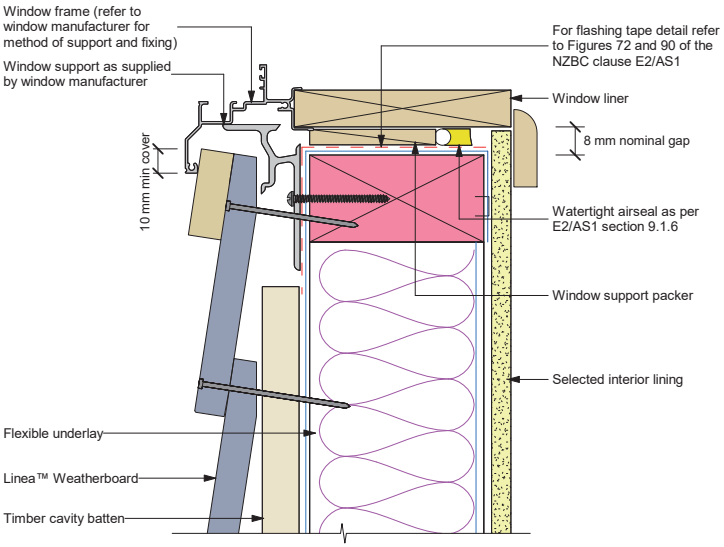
## Figure 16: Sloping soffit and wall junction




Note: Site cut edges to be primed

## Figure 17: Window and door sill




General notes for materials selection
1. Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of NZBC E2/AS1
2. Flexible underlay must comply with acceptable solution E2/AS1
3. Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact

Refer to the manufacturer or supplier for technical information for these materials

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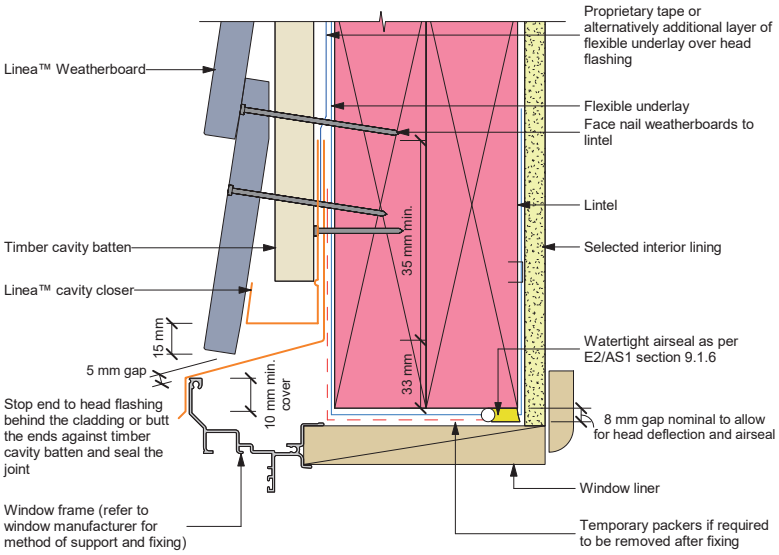
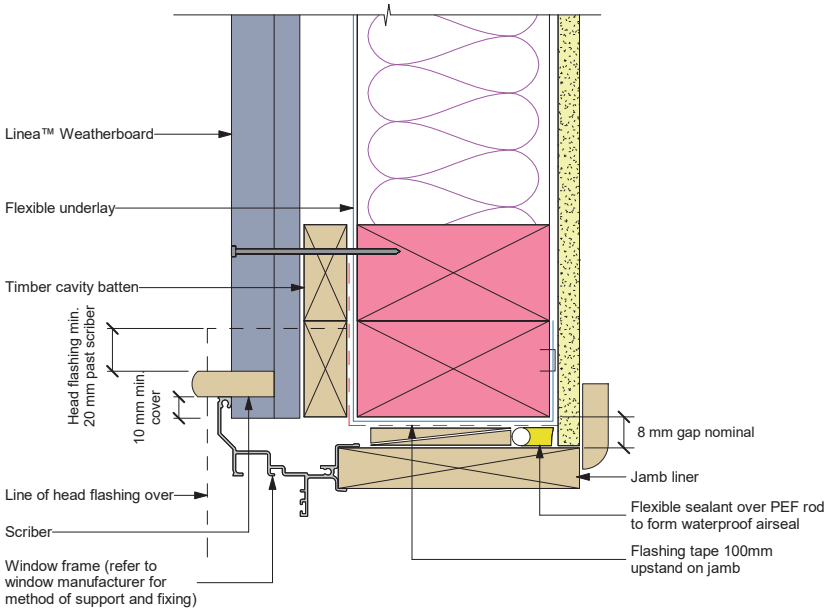
## Figure 18: Window head




Note:
- Sealant must be installed between head flashing and window flange in VH and EH wind zones and SED pressures
- Alternatively, the head flashings can be formed with stop ends as per E2/AS1
- Refer to Figure 22 for sealing end battens to head flashing
- Site cut edges to be primed

## Figure 19: Window jamb

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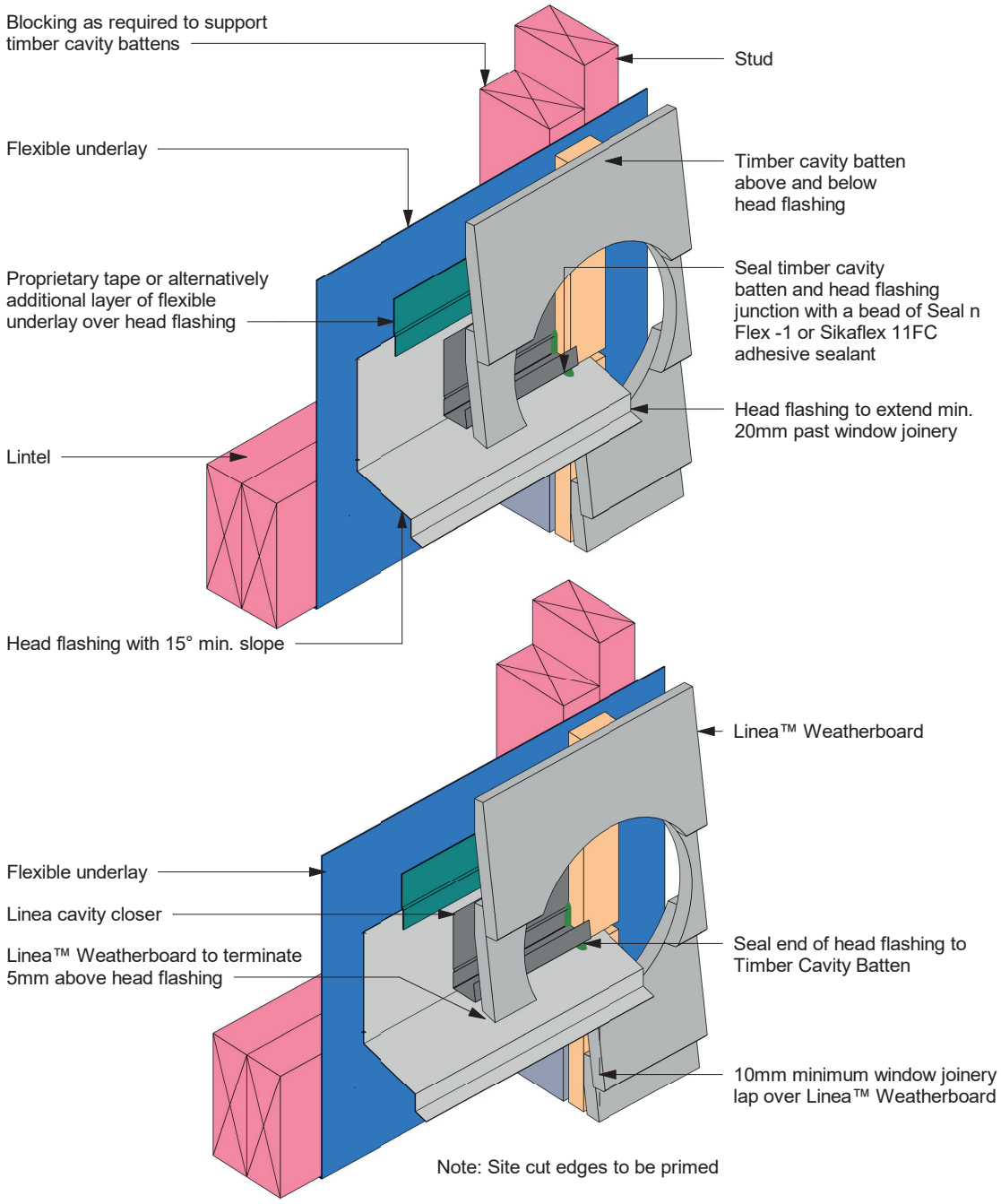
## Figure 20: Window head stop end

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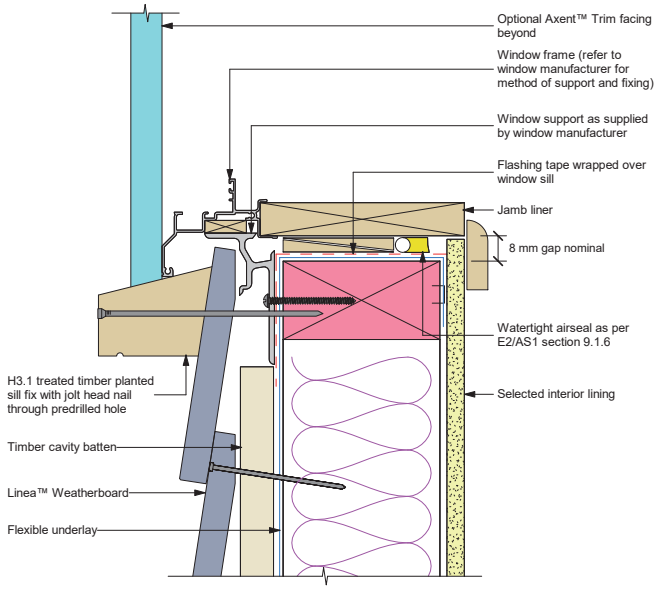
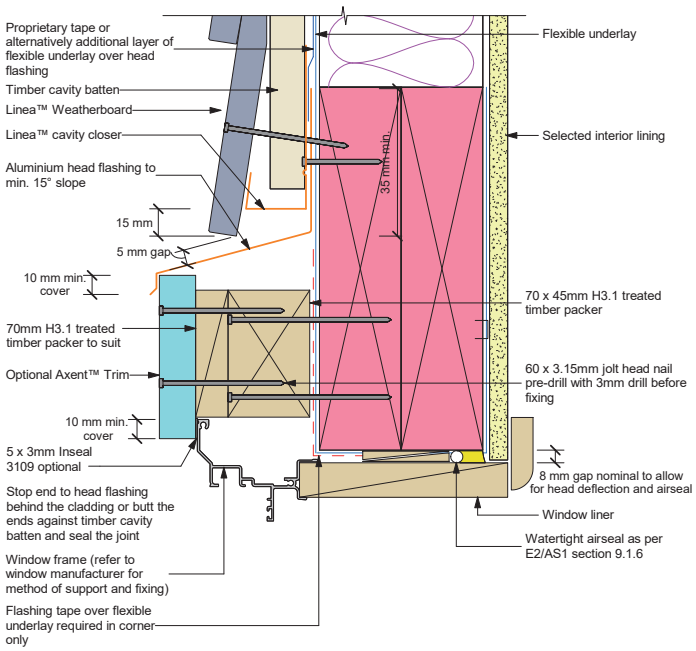
## Figure 21: Window sill with facing




General notes for materials selection
1. Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of NZBC E2/AS1
2. Flexible underlay must comply with acceptable solution E2/AS1
3. Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact

Refer to the manufacturer or supplier for technical information for these materials

## Figure 22: Window head with facings




Note:
- Sealant must be installed between head flashing and window flange in VH and EH wind zones and SED pressures
- Alternatively, the head flashings can be formed with stop ends as per E2/AS1
- Refer to Figure 22 for sealing end battens to head flashing

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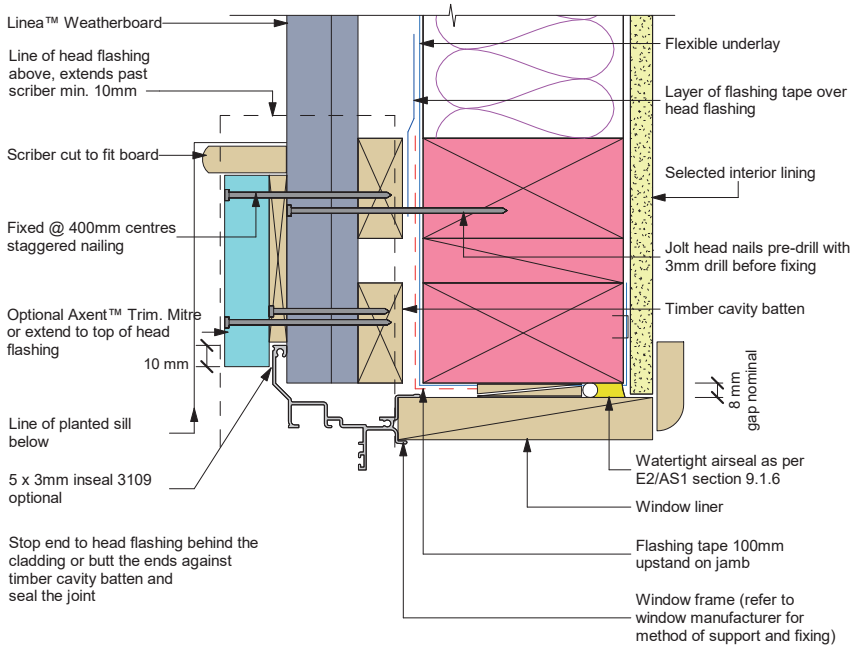
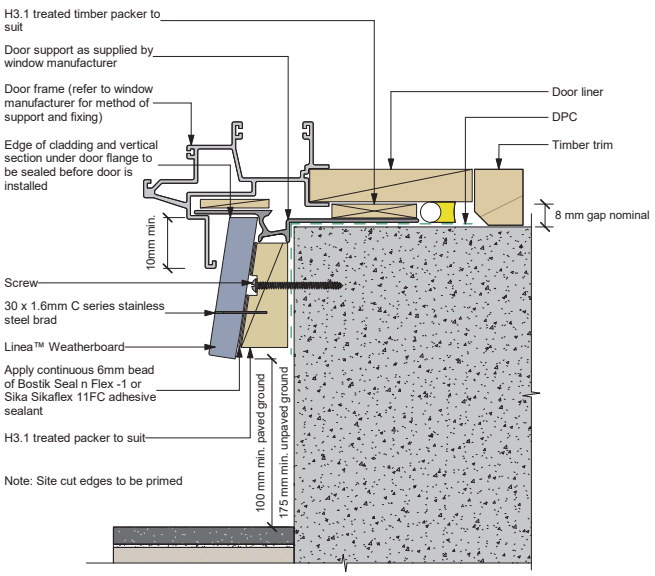
## Figure 23: Window jamb with facings




Note:
- Site cut edges to be primed

## Figure 24: Door sill support detail




Refer to the manufacturer or supplier for technical information for these materials

General notes for materials selection
1. Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of the NZBC E2/AS1
2. Flexible underlay must comply with acceptable solution E2/AS1
3. Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact
4. Linea™ Weatherboard to have sealed butt joint over batten at each corner of opening

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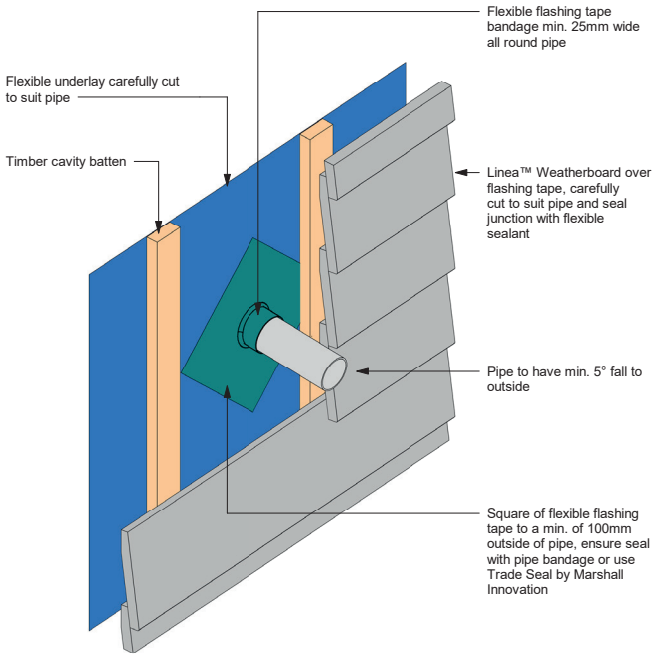
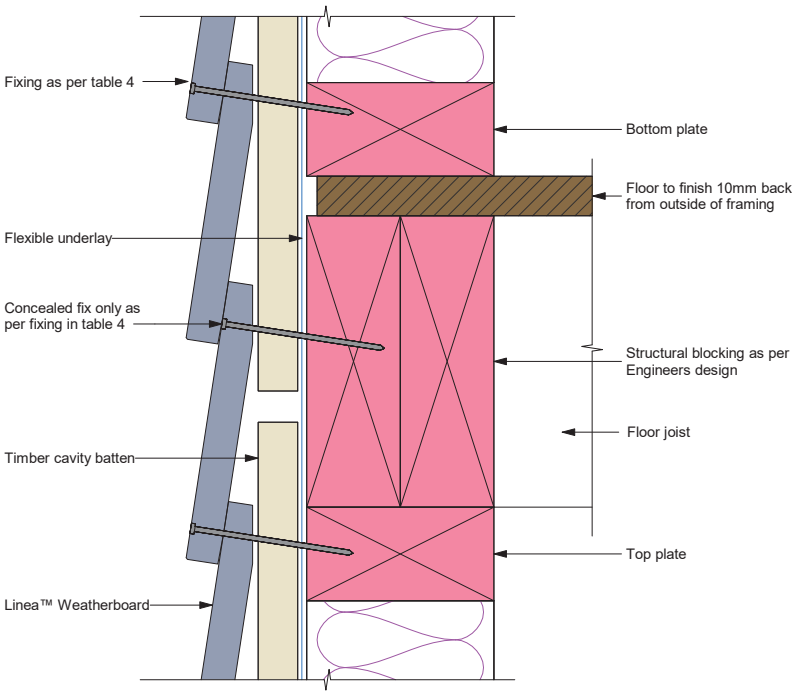
## Figure 25: Pipe penetration




Note: Site cut edges to be primed

## Figure 26: Continous cladding over joist

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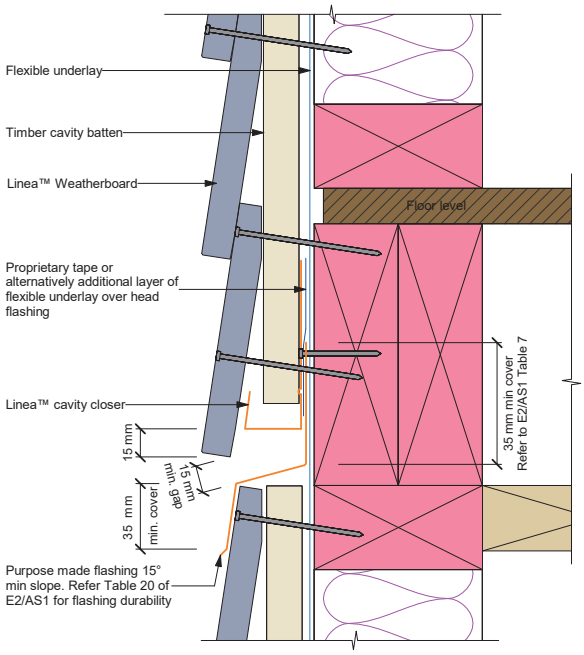
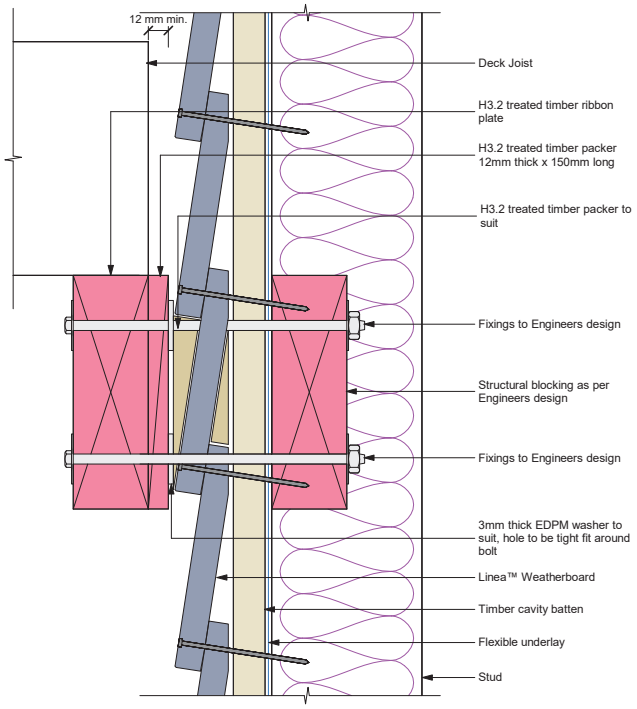
## Figure 27: Drained flashing joint at floor level




Note:
This detail is required to limit cavities to a maximum of 2 stories or 7 metres. Refer E2/AS1 clause 9.1.9.4.

## Figure 28: Timber deck junction

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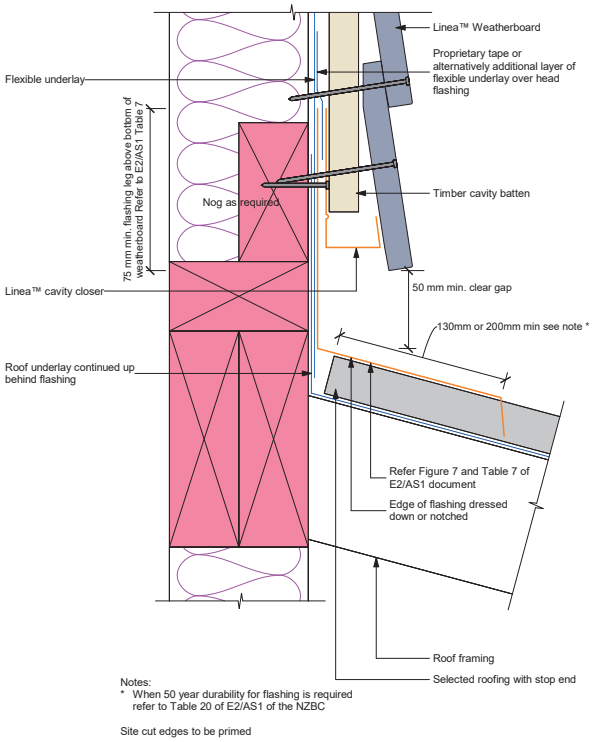
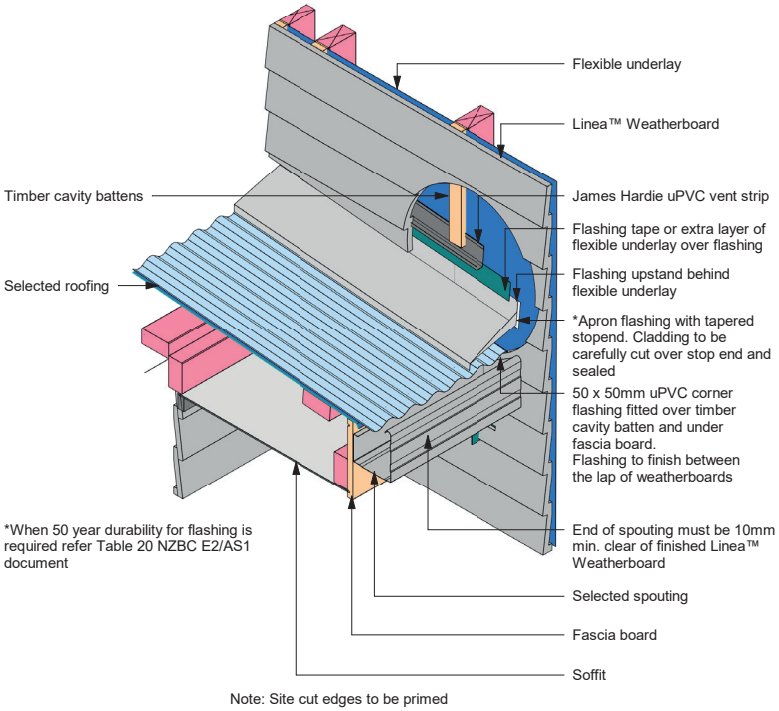
## Figure 29: One piece apron flashing joint




## Figure 30: Roof to wall junction detail

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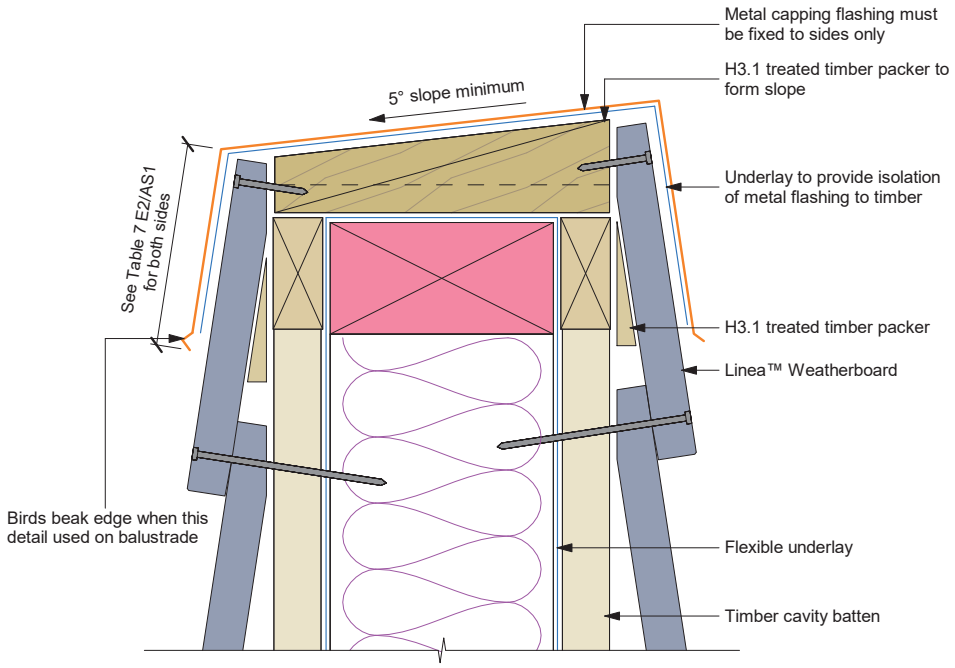
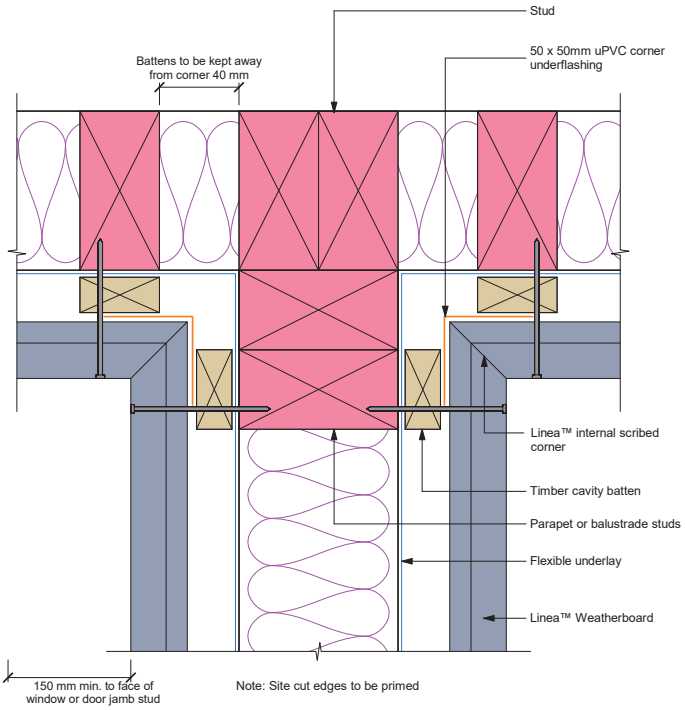
## Figure 31: Parapet flashing




## Figure 32: Enclosed deck balustrade to wall

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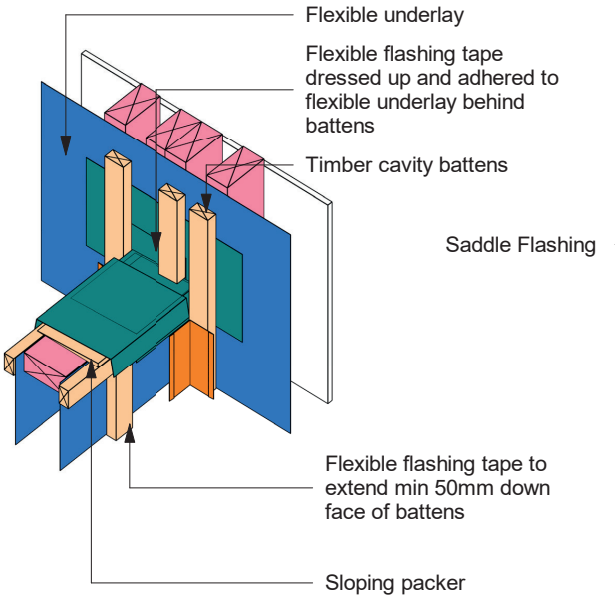
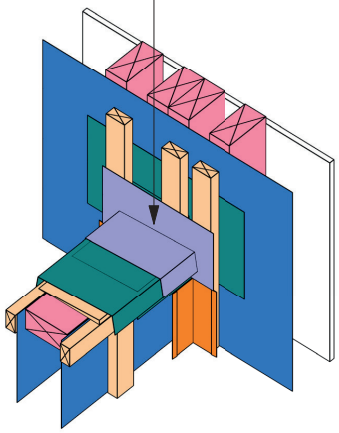
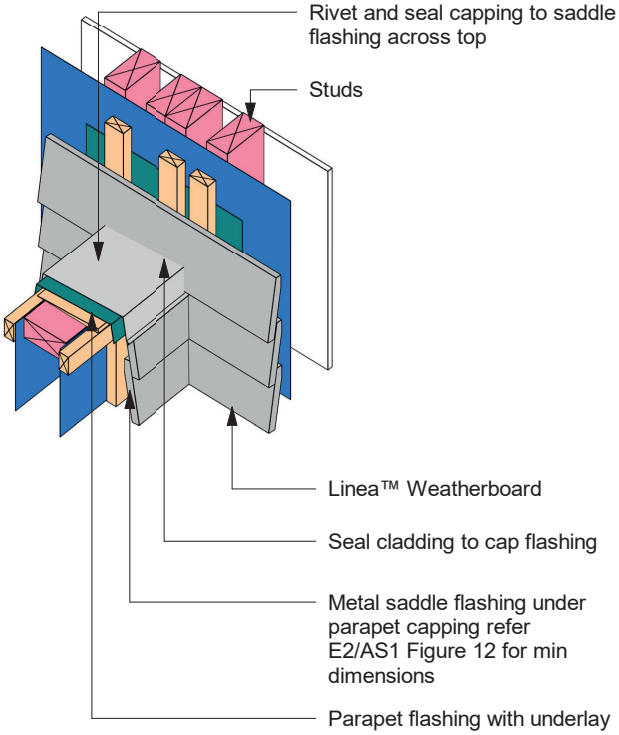
## Figure 33: Enclosed balustrade to wall




Batten and Flashing Tape Application Prior to Metal Flashing Fixing




Saddle Flashing Application Prior to Cladding and Cap Flashing Fixing

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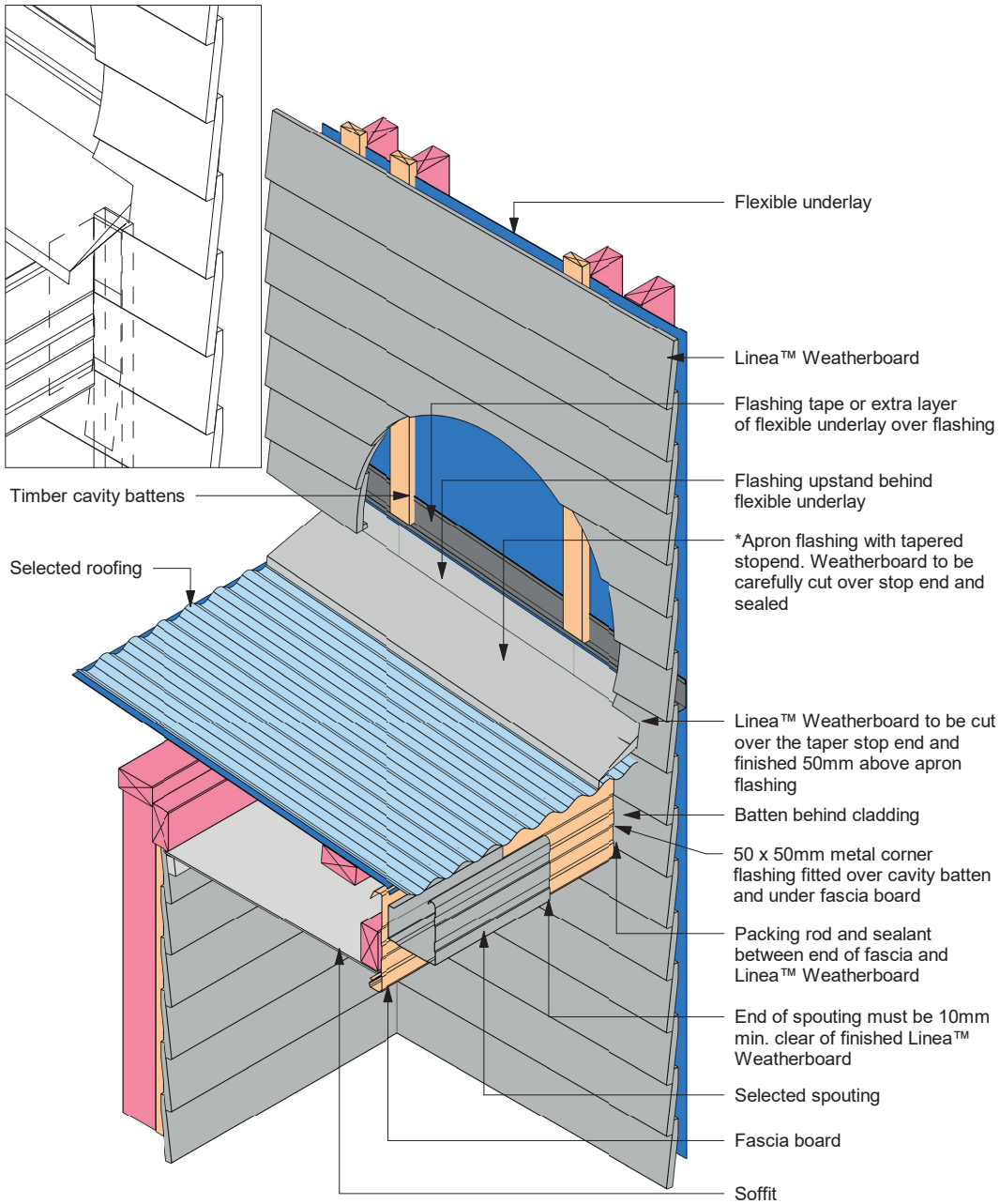
## Figure 34: Junction Linea™ Weatherboard and fascia board




*When 50 year durability for flashing is required refer Table 20 NZBC E2/AS1 document

Note: Site cut edges to be primed

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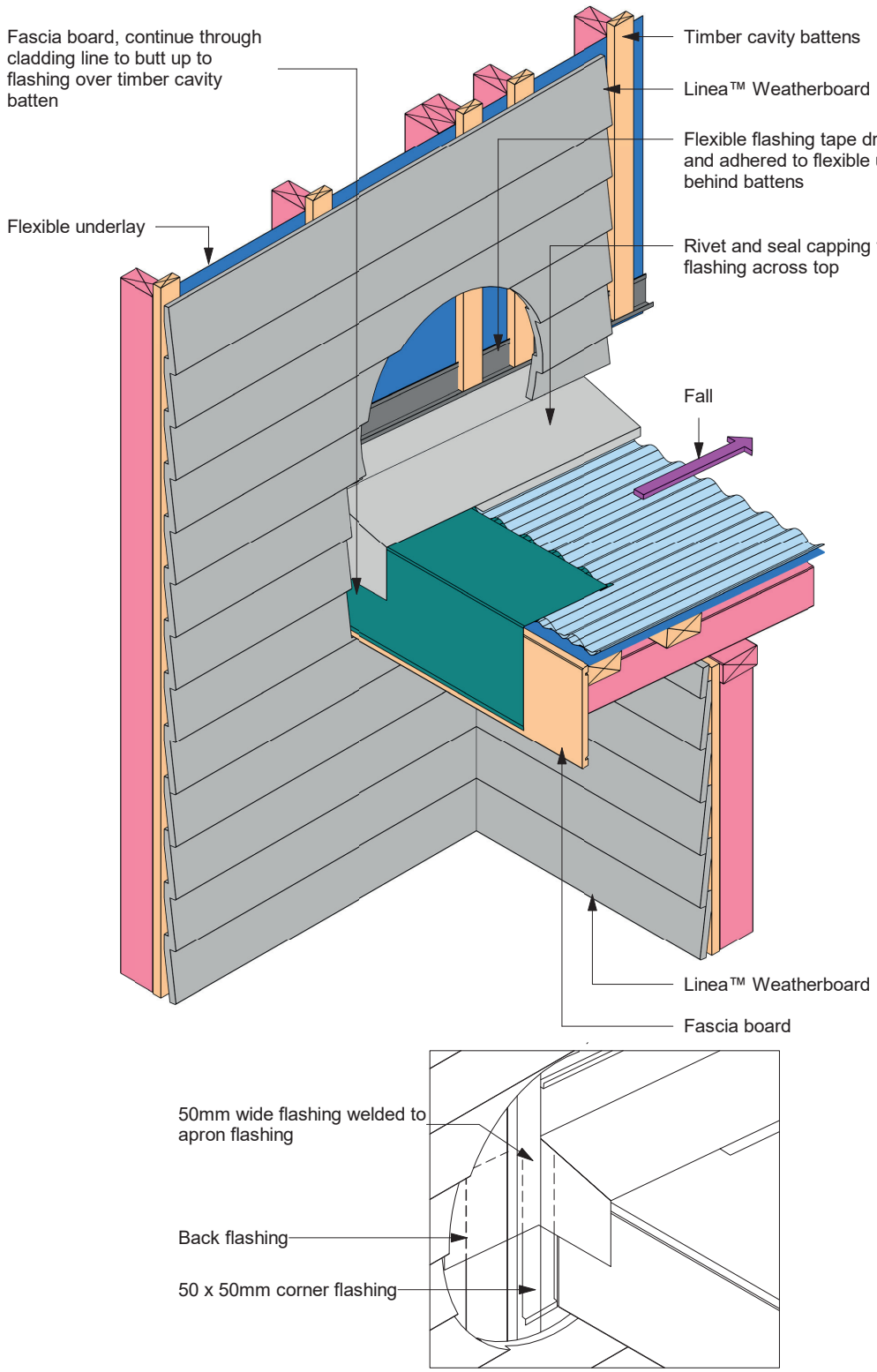
## Figure 35: Enclosed roof to wall intersection

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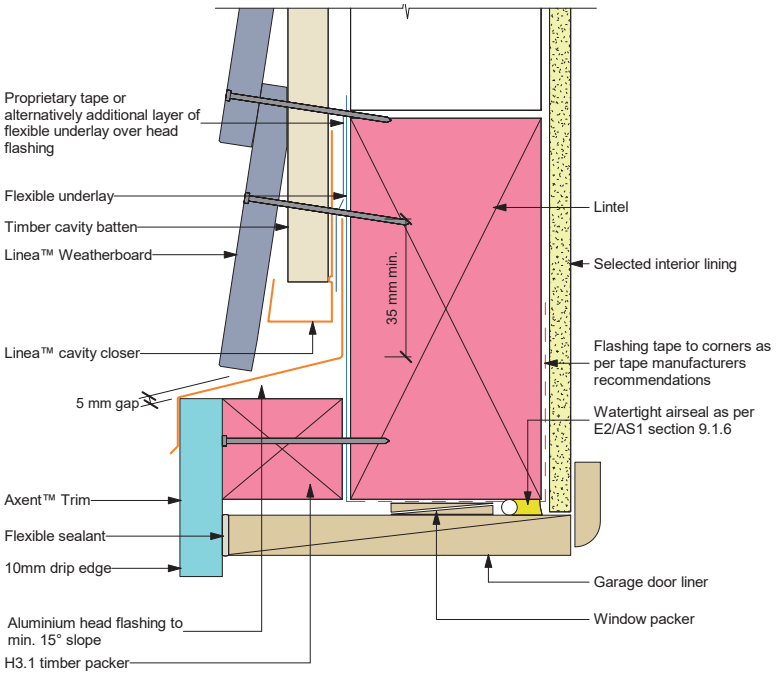
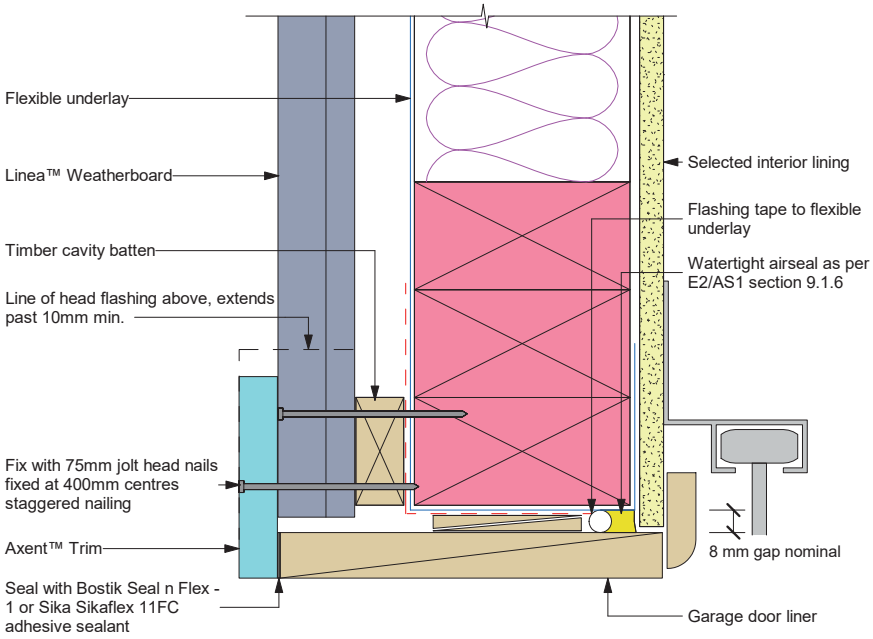
## Figure 36: Garage door head




Note:
- Sealant must be applied between head flashing and liner in VH and EH wind zones and SED wind pressures
- Site cut edges to be primed

## Figure 37: Garage door jamb




Note: Site cut edges to be primed

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## Figure 38: Framing setout building height over 10m

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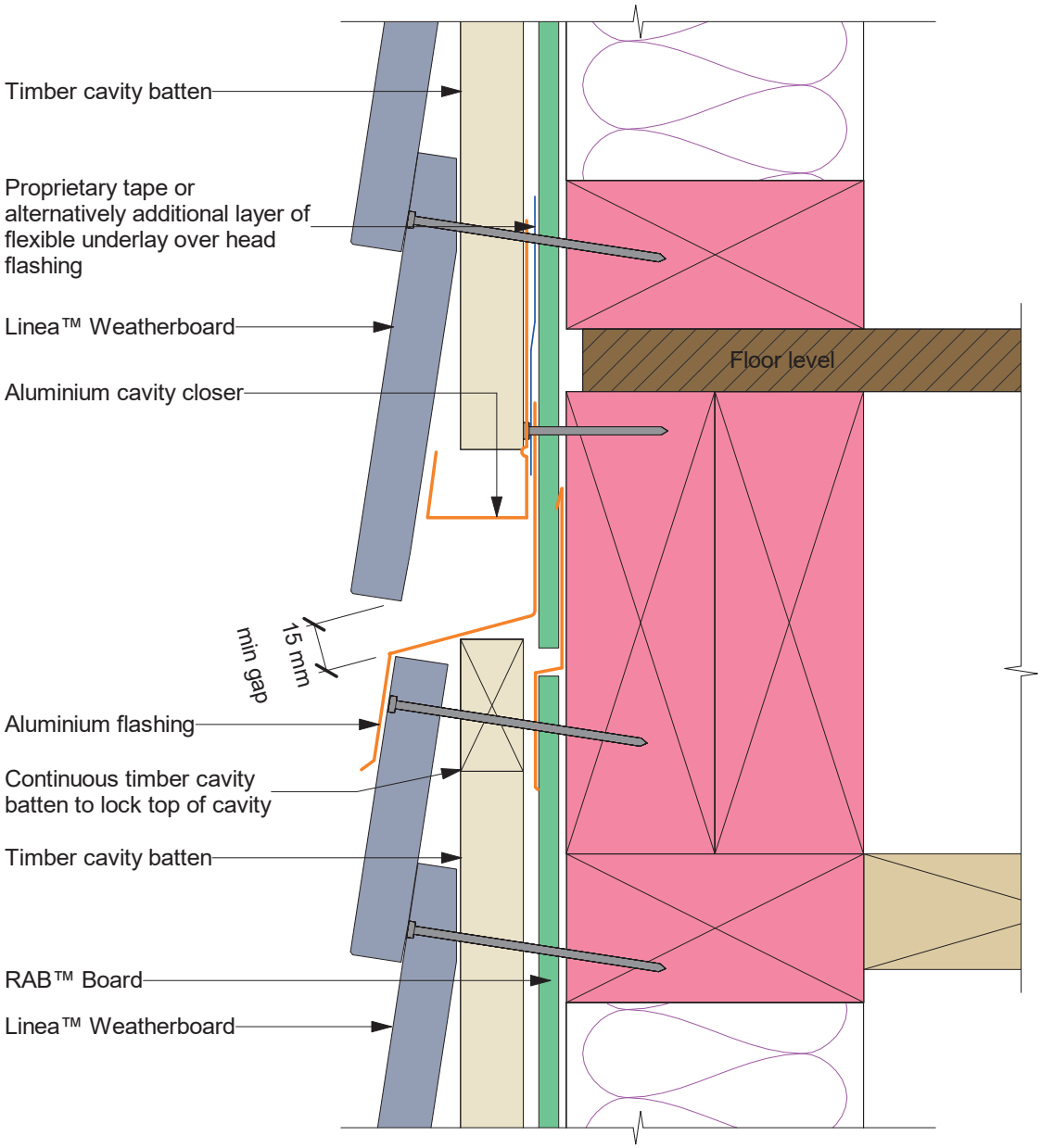
## Figure 39: Intertenancy vertical fire separation

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## Notes

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Linea™ WEATHERBOARD

# Product Warranty

James Hardie New Zealand Limited ("James Hardie") warrants for a period of 25 years from the date of purchase that the Linea™ Weatherboard (the "Product"), will be free from defects due to defective factory workmanship or materials and, subject to compliance with the conditions below, will be resistant to cracking, rotting, fire and damage from termite attacks to the extent set out in James Hardie's relevant published literature current at the time of installation. James Hardie warrants for a period of 15 years from the date of purchase that the Axent™ Trim and accessories supplied by James Hardie will be free from defects due to defective factory workmanship or materials.

Nothing in this document shall exclude or modify any legal rights a customer may have under the Consumer Guarantees Act or otherwise which cannot be excluded or modified at law.

CONDITIONS OF WARRANTY:

The warranty is strictly subject to the following conditions:

a) James Hardie will not be liable for breach of warranty unless the claimant provides proof of purchase and makes a written claim either within 30 days after the defect would have become reasonably apparent or, if the defect was reasonably apparent prior to installation, then the claim must be made prior to installation.

b) This warranty is not transferable.

c) The Product must be installed and maintained strictly in accordance with the relevant James Hardie literature current at the time of installation and must be installed in conjunction with the components or products specified in the literature. Further, all other products, including coating and jointing systems, applied to or used in conjunction with the Product must be applied or installed and maintained strictly in accordance with the relevant manufacturer's instructions and good trade practice.

d) The project must be designed and constructed in strict compliance with all relevant provisions of the current New Zealand Building Code ("The NZBC"), regulations and standards.

e) The claimant's sole remedy for breach of warranty is (at James Hardie's option) that James Hardie will either supply replacement product, rectify the affected product or pay for the cost of the replacement or rectification of the affected product.

f) James Hardie will not be liable for any losses or damages (whether direct or indirect) including property damage or personal injury, consequential loss, economic loss or loss of profits, arising in contract or negligence or howsoever arising. Without limiting the foregoing James Hardie will not be liable for any claims, damages or defects arising from or in any way attributable to poor workmanship, poor design or detailing, settlement or structural movement and/or movement of materials to which the Product is attached, incorrect design of the structure, acts of God including but not limited to earthquakes, cyclones, floods or other severe weather conditions or unusual climatic conditions, efflorescence or performance of paint/coatings applied to the Product, normal wear and tear, growth of mould, mildew, fungi, bacteria, or any organism on any Product surface or Product (whether on the exposed or unexposed surfaces).

g) All warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed by law.

h) If meeting a claim under this warranty involves re-coating of Products, there may be slight colour differences between the original and replacement Products due to the effects of weathering and variations in materials over time.

**Disclaimer:** The recommendations in James Hardie's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to conditions (c), (d), (f) and (g) above. James Hardie has tested the performance of Linea™ Weatherboard when installed in accordance with the appropriate Linea Weatherboard (cavity or direct fixed) technical specifications, in accordance with the standards and verification methods required by the NZBC and those test results demonstrate the product complies with the performance criteria established by the NZBC. However, as the successful performance of the relevant system depends on numerous factors outside the control of James Hardie (e.g. quality of workmanship and design) James Hardie shall not be liable for the recommendations made in its literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the NZBC, regulations and standards, as it is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant James Hardie installation manual are suitable for the intended project and that specific design is conducted where appropriate.

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**BRANZ Appraised**
Appraisal No. 633 [2018]

# INSULATED FAÇADE SYSTEM

**Appraisal No. 633 (2018)**

Amended 16 March 2020

This Appraisal replaces BRANZ Appraisal No. 633 (2009) and Appraisal No. 476 (2013)

**BRANZ Appraisals**

Technical Assessments of products for building and construction.

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WFTAO
WORLD FEDERATION OF TECHNICAL ASSESSMENT ORGANISATIONS

## Product

1.1 Insulated Façade System is a cavity-based Exterior Insulation and Finishing System (EIFS) wall cladding. It is an external wall cladding system for residential and light commercial type buildings where domestic construction techniques are used.

1.2 The system consists of Graphex (Neopor®), expanded polystyrene (EPS), extruded polystyrene (XPS) or polyisocyanurate (PIR) sheets fixed over battens to form the cavity. The plaster coating system consists of 5 mm thickness of fibreglass mesh reinforced, polymer-modified, cement-based plaster, which is finished with a cement-based finishing plaster that is then painted with a 100% acrylic-based paint system. The chosen finishing plaster is applied to give a range of different appearances, such as a sponge, patterned, adobe or spray textured finish.

1.3 The system incorporates Resene Construction Systems EdgeSeal joinery flashings. It also incorporates a primary and secondary means of weather resistance (first and second line of defence) against water penetration by separating the cladding from the external wall framing with a nominal 20 mm drained cavity.

## Scope

2.1 Insulated Façade System has been appraised as an external wall cladding system for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- situated in NZS 3604 Wind Zones up to, and including Extra High.

2.2 Insulated Façade System has also been appraised for weathertightness and structural wind loading when used as an external wall cladding system for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- constructed with timber and steel framing subject to specific engineering design; and,
- situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5 kPa.

2.3 Insulated Façade System must only be installed on vertical surfaces (except for tops of parapets, sills and balustrades, which must have a minimum 10° slope and be waterproofed in accordance with the Technical Literature).

2.4 The system is appraised for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. *(Note: The Appraisal of Insulated Façade System relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone or wind pressure.)*

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2.2 Installation of components and accessories supplied by Resene Construction Systems and its approved applicators must be carried out only by Resene Construction Systems approved applicators.

## Building Regulations

**New Zealand Building Code (NZBC)**

3.1 **In the opinion of BRANZ, Insulated Façade System if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:**

**Clause B1 STRUCTURE:** Performance B1.3.1, B1.3.2 and B1.3.4. Insulated Façade System meets the requirements for loads arising from self-weight, wind, impact and creep [i.e. B1.3.3 (a), (h), (j) and (q)]. See Paragraphs 10.1 - 10.4.

**Clause B2 DURABILITY:** Performance B2.3.1 (b), 15 years, B2.3.1 (c), 5 years and B2.3.2. Insulated Façade System meets these requirements. See Paragraphs 11.1 and 11.3.

**Clause E2 EXTERNAL MOISTURE:** Performance E2.3.2. Insulated Façade System meets this requirement. See Paragraphs 16.1 - 16.5.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. Insulated Façade System meets this requirement and will not present a health hazard to people.

## Technical Specification

4.1 System components and accessories supplied by Resene Construction Systems are as follows:

**Cavity Battens**

- **Graphex peel 'n' stick battens** –manufactured to meet the requirements of AS 1366 Part 3 with an approximate density of 18 kg/m$^3$. The battens are 45 mm wide by 21 mm thick, are supplied in 1200 mm lengths and are coated on the back face with an acrylic adhesive, which is protected prior to installation by a removable film.
- **Standard EPS cavity battens** – manufactured from high density (Class H) expanded polystyrene (EPS) with an approximate density of 24 kg/m$^3$. The battens are 40 mm wide by 22 mm thick and are supplied in 2400 mm lengths.
- **Timber cavity battens** – nominal 50 mm wide by 25 mm thick (minimum finished size of 45 mm wide by 18 mm thick) timber treated to minimum Hazard Class H3.1.

**Graphex**

- **Graphex sheets** are 50 - 100 mm thick with an approximate density of 18 kg/m$^3$. The sheets are supplied in lengths ranging from 2.4 to 3.6 m x 1.2 m wide and are manufactured to meet the requirements of AS 1366 Part 3.

**EPS Sheets**

- **EPS sheets** are 40-100 mm thick Class H with an approximate density of 24 kg/m$^3$, or 50 or 60 mm minimum thickness if using Class S with an approximate density of 16 kg/m$^3$. The sheets are supplied in lengths ranging from 2.4 to 3.6 m x 1.2 m wide and are manufactured to meet the requirements of AS 1366 Part 3.

**XPS Sheets (XTherm Blue)**

- **XPS sheets** are 50mm – 100 mm thick with an approximate density of 34kg/m3. The sheets are supplied in lengths ranging from 1.2,m and 2.2m x 0.6m wide and are manufactured to meet the requirements of AS 1366 Part 3.

**PIR Sheets (XTherm PIR)**

- **PIR sheets** are 50 mm thick with an approximate density of 35kg/m3. The sheets are supplied in lengths ranging from 1.2m and 2.2m x 0.6 m wide and are manufactured to meet the requirements of AS 1366 Part 3.

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**Base, Levelling and Waterproofing Plasters**

- A base [mesh] coat is applied using one of the following renders, followed by a subsequent coat of the same render to level the surface.
- **Coarse Mesh Render** is a polymer-modified, Portland cement-based plaster supplied in 20 kg bags and mixed on site with clean drinking water. It is applied as the base coat in a minimum 2 mm layer followed by the embedment of fibreglass mesh reinforcement in the outer surface.
- **Rockcote PM100 Quick Render** is a dry mix, cement-based, polymer-modified plaster supplied in 20 kg bags and mixed on site with clean water. It is used as a base coat for bonding and bedding the fibreglass mesh and is trowel-applied to an approximate thickness of 4-5 mm.
- **Resene Construction Systems RMaxx** is a high-yielding, cement-free dispersion based basecoat plaster supplied in 20 kg pails. It is applied as the base coat in a minimum 1.5 mm layer followed by the embedment of fibreglass mesh reinforcement in the outer surface. An additional 1.0-1.5 mm is applied to fully encase the mesh.
- **HydroPlast** is an acrylic dry powder with cement activator, that when mixed with water creates a flexible waterproofing render for use over plastered balustrade and fixing blocks. It is supplied in 10 kg bags and is applied over the levelling render with a trowel in a 1 mm layer followed by the embedment of fibreglass mesh reinforcement in the outer surface.

**Primer**

- **Rockcote Render Prime** is a water-borne acrylic, polymer dispersion, tintable coating supplied in 15 litre pails. It is brush or roller-applied as a primer between the selected base coat and acrylic texture.
- **Resene Limelock** is a water-borne acrylic, polymer dispersion, tintable coating supplied in 10 litre pails. It is brush or roller applied as a primer between the mineral textures and the finishing system.

**Mineral Texture Coating**

- **Resene Construction Systems Mineral Textures** are dry mix, cement-based, polymer-modified plasters, supplied in 20 kg bags and mixed on site with clean water. They are trowel or spray applied to an approximate thickness of 1.0-3.0 mm.

**Acrylic Texture Coating**

- Resene Construction Systems acrylic texture coatings are ready mixed, tintable, mineral-filled, polymer-based, elastomeric high-build coating with in pail and dry film preservatives, supplied in 15 litre pails. They are spray or trowel applied to an approximate thickness of 0.5 – 2.0 mm. The selected Resene Construction Systems texture colour must have a minimum light reflectance value [LRV] of 25%.

**uPVC Primer, Plaster Modifier, Waterproofing Plaster and Finishes**

- **Multistop bedding compound** – used as a uPVC primer when mixed with diluted Acrylbond resin or water.
- **Acrylbond** is a water-based co-polymer resin supplied in 4 and 15 litre pails used as a plaster modifier.
- **Resene Lumbersider** is a water-borne 100% acrylic-based protective finish for use over mineral and acrylic textures. It is supplied in 4 and 10 litre pails and is brush or roller applied. The protective finish coat must have a minimum LRV of 25%.
- **Resene X200** is an acrylic waterproofing membrane for use as a protective finish over mineral and acrylic textures. It is supplied in 4 and 10 litre pails and is brush, roller or spray applied. The protective finish coat must have a minimum LRV of 25%.

**Accessories**

- **Reinforcing mesh** - alkali-resistant fibreglass mesh with a nominal mesh size of approximately 5 x 4 mm square and a weight of 160 g/m² for use in domestic and light commercial situations.
- **uPVC components** – starter strip flashing, standard corner flashing, vertical control joint, horizontal control joint, EdgeSeal sill, jamb and head flashings, and 40, 50, 60 mm and universal ventilated starter strips.

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- **3M All Weather Flashing Tape 8067** – flexible flashing tape with a proprietary backing and an acrylic pressure sensitive adhesive to seal the EdgeSeal head flashing to the building underlay. The tape is available 76 mm wide in rolls 22.8 m long.
- **Graphex/EPS/XPS/PIR sheet nail fixings (timber frame)** – hot-dip galvanised steel flat head nails with 40 mm diameter washers. Refer to Table 1 for fixing length requirements. *[Note: Hot-dip galvanising must comply with AS/NZS 4680.]*
- **Sticky Mesh** - alkali-resistant fibreglass, 150 mm wide corner pieces

**Table 1: Graphex/EPS/XPS/PIR sheet fixing lengths (timber frame)**

| Sheet Thickness | Nail Size (mm) |
|---|---|
| 40 | 90 x 3.55 |
| 50 | 100 x 3.75 |
| 60 | 110 x 4.0 |
| 70 | 125 x 5.3 |
| 80 | 150 x 6.0 |
| 90 | 150 x 6.0 |
| 100 | 150 x 6.0 |

- **Graphex/EPS/XPS/PIR sheet screw fixings (timber frame)** – 8 gauge AS 3566 Corrosion Class 4 hot-dip galvanised wood screws with 40 mm diameter washers in NZS 3604 defined Exposure Zones B, C and D. Refer to Table 2 for fixing length requirements.

**Table 2: Neopor® board and EPS sheet fixing lengths (timber frame)**

| Sheet Thickness | Minimum Screw Length (mm) |
|---|---|
| 40 | 80 |
| 50 | 100 |
| 60 | 110 |
| 70 | 120 |
| 80 | 130 |
| 90 | 140 |
| 100 | 150 |

- **Graphex/EPS/XPS/PIR sheet screw fixings (steel frame)** – 8 gauge self-drilling AS 3566 Corrosion Class 4 hot-dip galvanised screws with 40 mm diameter washers in NZS 3604 defined Exposure Zones B, C and D. Refer to Table 3 for fixing length requirements.

**Table 3: Graphex/EPS/XPS/PIR sheet fixing lengths (steel frame)**

| Sheet Thickness | Minimum Screw Length (mm) |
|---|---|
| 40 | 80 |
| 50 | 95 |
| 60 | 95 |
| 70 | 105 |
| 80 | 115 |
| 90 | 125 |
| 100 | 135 |

- **Washers** - 40 mm diameter polypropylene washers.

4.2 Accessories used with the system which are supplied by the approved applicator are:

- **Waterproof membrane tapes** - tapes covered by a valid BRANZ Appraisal for use as waterproofing membranes over tops of plastered parapets, balustrades, fixing blocks and the like.
- **Flexible sealant** - sealant complying with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid BRANZ Appraisal for use as a weather sealing sealant for exterior use.
- **Adhesive** - Compatible adhesive for gluing uPVC components to the Graphex EPS/XPS/PIR sheets as and where required.

4.3 Accessories used with the system which are supplied by the building contractor are:

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- **Flexible wall underlay** - building paper complying with NZBC Acceptable Solution E2/AS1, Table 23, or breather-type membranes covered by a valid BRANZ Appraisal for use as wall underlays.
- **Flexible wall underlay support** - polypropylene strap, 75 mm galvanised mesh, galvanised wire, or additional vertical battens for securing the flexible building underlay in place and preventing bulging of the bulk insulation into the drainage cavity. [Note: mesh and wire galvanising must comply with AS/NZS 4534.]
- **Rigid wall underlay** - Plywood or fibre cement sheet complying with NZBC Acceptable Solution E2/AS1, Table 23, or rigid sheathing covered by a valid BRANZ Appraisal for use as rigid air barrier systems.
- **Flexible sill and jamb flashing tapes** - flexible flashing tapes complying with NZBC Acceptable Solution E2/AS1, Paragraph 4.3.11, or flexible flashing tapes covered by a valid BRANZ Appraisal for use around window and door joinery openings.
- **Window and door trim cavity airseal** - air seals complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.6, or self-expanding, moisture cure polyurethane foam air seals covered by a valid BRANZ Appraisal for use around window, door and other wall penetration openings.

## Handling and Storage

5.1 Handling and storage of all materials supplied by Resene Construction Systems or the approved installer, whether on or off site, are under the control of Resene Construction Systems approved installers. Dry storage must be provided on site for the fibreglass mesh and bags of plaster. Graphex /EPS/XPS/PIR sheets, battens, uPVC flashings and profiles must be protected from direct sunlight and physical damage, and should be stored flat and under cover. Liquid components must be stored in frost-free conditions.

5.2 Handling and storage of all materials supplied by the building contractor, whether on or off site, are under the control of the building contractor. Materials must be handled and stored in accordance with the relevant manufacturer's instructions.

## Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Insulated Façade System. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed. Insulated Façade System listing on the BRANZ website excludes specific details. These details are outside the scope of this Appraisal.

## Design Information

### Framing

**Timber Treatment**

7.1 Timber wall framing behind Insulated Façade System must be treated as required by NZBC Acceptable Solution B2/AS1.

**Timber Framing**

7.2 Timber framing must comply with NZS 3604 for buildings or parts of buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170. Where specific design is required, the framing must be of at least equivalent stiffness to the framing provisions of NZS 3604. In all cases studs must be at maximum 600 mm centres for buildings designed to NZS 3604 in Wind Zones up to and including Very High and at maximum 400 mm centres for buildings situated in NZS 3604 Wind Zone Extra High and specifically designed buildings situated in Wind Zones above NZS 3604 defined Extra High. Dwangs must be fitted flush between the studs at maximum 800 mm centres.

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7.3 Timber framing must have a maximum moisture content of 24% at the time of the cladding application. [Note: If sheets are fixed to framing with a moisture content of greater than 24% problems may occur at a later date due to excessive timber shrinkage.]

**Steel Framing**

7.4 Steel framing must be to a specific design meeting the requirements of the NZBC.

7.5 The minimum framing specification is 'C' section studs and nogs of overall section size of 75 mm web and 32 mm flange. Steel thickness must be minimum 0.55 mm.

7.6 For steel framed buildings situated within NZS 3604 defined Wind Zones up to, and including, Very High, studs must be at maximum 600 mm centres. For all other buildings studs must be at maximum 400 mm centres. Dwangs must be fitted flush between the studs at maximum 800 mm centres.

**Graphex/EPS/XPS/PIR Sheet Setout**

7.7 All vertical Neopor® board or EPS sheet edges must be supported and fixed through the cavity battens to the framing. Horizontal board edges must be supported at fixing locations with cavity spacers in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.2 (f). At the base of the wall, the Neopor® boards or EPS sheets must hang 50 mm below the supporting framing.

7.8 Additional framing will be required at soffits, internal and external corners and window and door openings for the support and fixing of sheet edges.

## General

8.1 When Insulated Façade System is used for specifically designed buildings up to 2.5 kPa design differential ULS wind pressure, only the weathertightness aspects of the cladding and maximum framing centres and sheet fixing centres are within the scope of this Appraisal. All other aspects of the building need to be specifically designed and are outside the scope of this Appraisal.

8.2 Openings in the cavity vent strip provide a minimum ventilation opening area of 1000 mm² per lineal metre of wall in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3 (b).

8.3 The ground clearance to finished floor levels as set out in NZS 3604 must be adhered to at all times. At ground level, paved surfaces, such as footpaths, must be kept clear of the bottom edge of the cladding system by a minimum of 100 mm, and unpaved surfaces by 175 mm in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Table 18.

8.4 At balcony, deck or roof/wall junctions, the bottom edge of Insulated Façade System must be kept clear of any adjacent surface, or above the top surface of any adjacent roof flashing by a minimum of 35 mm in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.

8.5 All external walls of buildings must have barriers to airflow in the form of interior linings with all joints stopped for wind zones up to and including Very High, and rigid underlays for buildings in the Extra High wind zone and specifically designed buildings up to 2.5 kPa design differential ULS wind pressure. Unlined gables and walls must incorporate a rigid sheathing or an air barrier which meets the requirements of NZBC Acceptable Solution E2/AS1, Table 23. For attached garages, wall underlays must be selected in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. Where rigid underlays are used, the fixing lengths must be increased by a minimum of the thickness of the underlay.

8.6 Where penetrations through the system are wider than the cavity batten spacing, allowance must be made for airflow between adjacent cavities. A minimum 10 mm gap must be left between the bottom of the vertical cavity batten and the flashing to the opening.

8.7 Where the system abuts other cladding systems, designers must detail the junction to meet their own requirements and the performance requirements of the NZBC. The Technical Literature provides some guidance. Details not included within the Technical Literature have not been assessed and are outside the scope of this Appraisal.

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**Electrical Cables**

8.2 PVC sheathed electrical cables must be prevented from direct contact with the sheets. When cables must penetrate the sheets for exterior electrical connections, the cable must be directly supported by passing through an electrical conduit.

## Control Joints

9.1 Control joints must be constructed in accordance with the Technical Literature, and be provided as follows:

- Horizontal control joints - at maximum 6 m centres.
- Vertical control joints - at maximum 8 m centres; aligned with any control joint in the structural framing; where the system abuts different cladding types, or where the system covers different structural materials.

*[Note: Horizontal and Vertical Control joints must be located over structural supports. The design of vertical control joints where the system abuts different cladding types is outside the scope of this Appraisal and is the responsibility of the designer - see Paragraph 8.7.]*

**Inter-storey Junctions**

9.2 Inter-storey drained joints must be constructed in accordance with the Technical Literature. Inter-storey joints must be provided to limit continuous cavities to the lesser of 2-storeys or 7 metres in height, in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.9.4 (b). (Note: Refer to Paragraph 14.2 for the requirements for barriers to vertical fire spread at inter-storey junctions for buildings of three or more floors.)

## Structure

**Mass**

10.1 The mass of Insulated Façade System is approximately 7 kg/m$^2$, therefore it is considered a light wall cladding in terms of NZS 3604.

**Impact Resistance**

10.2 The system has adequate resistance to hard body impacts likely to be encountered in normal residential use. Where a greater level of impact protection is required a heavier grade of reinforcing mesh may be used. The heavy-grade fibreglass reinforcing mesh (360 g/m$^2$) embedded in 5 mm thick plaster provides approximately 4 times the hard body impact strength of the standard grade mesh in 3 mm thick plaster. The likelihood of impact damage to the system when used in light commercial situations should be considered at the design stage, and appropriate protection such as the installation of bollards and barriers should be considered for vulnerable areas.

**Wind Zones**

10.3 Insulated Façade System is suitable for use in all Wind Zones of NZS 3604, up to, and including Extra High where buildings are designed to meet the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, or up to 2.5 kPa design differential ULS wind pressure where buildings are specifically designed.

**Graphex/EPS/XPS/PIR Sheet Fixing**

10.4 Sheets must be fixed through the cavity battens and cavity spacers to the wall framing at maximum centres specified in Table 4.

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**Table 4: Sheet Fixing Centres for Edges and Body of the Sheet**

| NZS 3604 Wind Zone | Maximum Fixing Centres (mm) |
|---|---|
| Low[1] | 300 |
| Medium[1] | 300 |
| High[1] | 300 |
| Very High[2] | 200 |

1. One fixing is also required into each dwang and top and bottom plates at mid length.
2. Fixings are also required to each dwang at 200 mm centres and top and bottom plates at mid dwang length.

| **NZS 3604 Wind Zone Extra High and specifically designed buildings up to 2.5 kPa design differential ULS wind pressure with studs at maximum 400 mm centres.** | | |
|---|---|---|
| Maximum vertical fixing centres (mm) along studs | Maximum horizontal fixing centres (mm) along top and bottom plates | Maximum horizontal fixing centres (mm) along dwangs |
| 150 | 200 | 150 |

## Durability

11.1 Insulated Façade System meets code compliance with NZBC Clause B2.3.1 (b), 15 years for the cavity system and plaster finish, and code compliance with NZBC Clause B2.3.1 (c), 5 years for the exterior paint system.

**Serviceable Life**

11.2 Insulated Façade System is expected to have a serviceable life of at least 30 years provided the system is maintained in accordance with this Appraisal, and the sheets, fixings and plaster are continuously protected by a weathertight coating and remain dry in service.

11.3 Microclimatic conditions, including geothermal hot spots, industrial contamination and corrosive atmospheres, and contamination from agricultural chemicals or fertilisers can convert mildly corrosive atmosphere into aggressive environments for fasteners. The fixing of sheets in areas subject to microclimatic conditions requires specific design in accordance with NZS 3604, Paragraph 4.2.4, and is outside the scope of this Appraisal.

## Maintenance

12.1 Regular maintenance is essential to ensure the performance requirements of the NZBC are continually met and to ensure the maximum serviceability of the system.

12.2 Regular cleaning (at least annually) of the paint coating is required to remove grime, dirt and organic growth and to maximise the life and appearance of the coating. Grime may be removed by brushing with a soft brush, warm water and detergent. Paint systems must be recoated at approximately 5-10 yearly intervals in accordance with the paint manufacturer's instructions.

12.3 Annual inspections must be made to ensure that all aspects of the cladding system, including the coating system, plaster, flashings and any sealed joints remain in a weatherproof condition. Any cracks, damaged areas or areas showing signs of deterioration which would allow water ingress, must be repaired immediately. Sealant, coatings and the like must be repaired in accordance with the instructions of Resene Construction Systems.

12.4 Minimum ground clearances as set out in this Appraisal and the Technical Literature must be maintained at all times during the life of the system. (Note: Failing to adhere to the minimum ground clearances given in this Appraisal and the Technical Literature will adversely affect the long term durability of Insulated Façade System.)

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## Control of Internal Fire and Smoke Spread

13.1 The Graphex/EPS/XPS/PIR sheets used with the system meets the flame propagation criteria of AS 1366 as specified in NZBC Acceptable Solution C/AS1, Paragraph 4.2.2 or NZBC Acceptable Solutions C/AS2, Paragraph 4.17.2. The completed wall system, including the surface lining product enclosing the Graphex/EPS/XPS/PIR sheet from the adjacent occupied space, must achieve the Group Number for internal surface finish requirements as specified in the relevant NZBC Acceptable Solutions C/AS1 and C/AS2.

## Control of External Fire Spread

14.1 Insulated Façade System using Graphex or EPS sheet, Rockcote PM100 Quick Render base coat with mineral texture finish, Rockcote Render Prime and Resene Construction Systems Premium Armour protective finishing coat has a peak heat release rate of less than 100 kw/m2 and a total heat released of less than 25 MJ/m2. Testing was carried out as per Paragraph 5.4 of NZBC Acceptable Solution C/AS1 and Paragraph 5.8.1 of NZBC Acceptable Solution C/AS2, achieving a Type A performance. The Insulated Facade System can therefore be used within 1m of the relevant boundary.

14.2 Insulated Façade System using any other substrate, Rockcote texture or surface finish has not been assessed for a peak heat release or total heat released rating.

14.3 For buildings in risk groups other than SH and VP Insulated Façade System is Appraised for use where the cladding extends over no more than 2 floors continuously.

14.4 Refer to NZBC Acceptable Solutions C/AS1 and C/AS2 and Verification Method C/VM2 for fire resistance rating and control of external fire spread requirements for external walls.

## Prevention of Fire Occurring

15.1 Separation or protection must be provided to Insulated Façade System from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/ AS1, C/AS2 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

## External Moisture

16.1 Insulated Façade System, when installed in accordance with this Appraisal and the Technical Literature, prevents the penetration of moisture that could cause undue dampness or damage to building elements.

16.2 The cavity must be sealed off from the roof and sub-floor space to meet code compliance with Clause E2.3.5.

16.3 Insulated Façade System allows excess moisture present at the completion of construction to be dissipated without permanent damage to building elements to meet code compliance with Clause E2.3.6.

16.4 The details given in the Technical Literature for weather sealing are based on the design principle of having a first and second line of defence against moisture entry for all joints, penetrations and junctions. The ingress of moisture must be excluded by detailing joinery and wall interfaces as shown in the Technical Literature. Weathertightness details that are developed by the designer are outside the scope of this Appraisal and are the responsibility of the designer for compliance with the NZBC.

16.5 The use of Insulated Façade System where there is a designed cavity drainage path for moisture that penetrates the cladding, does not reduce the requirement for junctions, penetrations, etc to remain weather resistant.

## Internal Moisture

17.1 Insulated Façade System alone does not meet NZBC Acceptable Solution E3/AS1, Paragraph 1.1.1 (a). Buildings must be constructed with an adequate combination of thermal resistance and ventilation, and space temperature must be provided to all habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or may accumulate.

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**Water Vapour**

17.2 Insulated Façade System is not a barrier to the passage of water vapour, and when correctly installed will not create or increase the risk of moisture damage resulting from condensation.

17.3 When Insulated Façade System is installed over a steel frame, the battens and insulated drainage cavity will act as a thermal break to the steel frame in accordance with NZBC Acceptable Solution E3/AS1.

## Energy Efficiency

**Building Thermal Envelope**

18.1 NZBC Acceptable Solution H1/AS1 or NZBC Verification Method H1/VM1 can be used for housing, communal residential, communal non-residential and commercial buildings.

**Determining Thermal Resistance**

18.2 The thermal resistance (R-values) of building elements may be verified by using NZS 4214. The BRANZ 'House Insulation Guide' Fifth Edition provides thermal resistances of common building elements and is based on calculations from NZS 4214. Calculations in accordance with NZS 4214 require that the ventilated air gap and the thermal resistance of each layer between the ventilated air gap and outside air be de-rated by a factor of 0.45. Therefore, in Insulated Façade System, unless better information is available for a specific case, the R-value of the Graphex layer must be taken as R0.69 (40 mm thick), R0.86 (50 mm thick), R1.03 (60 mm thick), R1.20 (70 mm thick), R1.38 (80 mm thick), R1.55 (90 mm thick) and R1.72 (100 mm thick) based on a thermal conductivity (k value) of 0.032 W/m °C; the R-value of Class H EPS must be taken as R0.58 (40 mm thick), R0.72 (50 mm thick), R0.87 (60 mm thick), R1.01 (70 mm thick), R1.16 (80 mm thick), R1.30 (90 mm thick) and R1.44 (100 mm thick) based on a k value of 0.038 W/m°C. R-values for XPS and PIR sheets have not been assessed and are outside the scope of this Appraisal.

# Installation Information

## Installation Skill Level Requirements

19.1 Installation and finishing of components and accessories supplied by Resene Construction Systems and its approved installers must be completed by trained applicators, approved by Resene Construction Systems.

19.2 Installation of the accessories supplied by the building contractor must be carried out in accordance with Insulated Façade System Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant Licence Class.

## System Installation

**Wall Underlay and Flexible Sill and Jamb Tape Installation**

20.1 The selected wall underlay and flexible sill and jamb tape system must be installed by the building contractor in accordance with the underlay and tape manufacturer's instructions prior to the installation of the cavity battens and the rest of Insulated Façade System. Flexible wall underlay must be installed horizontally and be continuous around corners. Underlay must be lapped 75mm minimum at horizontal joints and 150mm minimum over studs at vertical joints. Generic rigid wall underlay materials must be installed in accordance with NZBC Acceptable Solution E2/AS1 and be overlaid with a flexible wall underlay. Proprietary systems shall be installed in accordance with the manufacturer's instructions. Particular attention must be paid to the installation of the wall underlay and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed wall framing in the opening is protected.

20.2 Where studs are at greater than 450 mm centres and a flexible wall underlay is being used, a wall underlay support must be installed over the underlay at maximum 300 mm centres horizontally.

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**Aluminium Joinery Installation**

20.3 Aluminium joinery and associated head flashings must be installed by the building contractor in accordance with the Technical Literature. A 7.5-10 mm nominal gap must be left between the joinery reveal and the wall framing so a PEF rod and air seal can be installed after the joinery has been secured in place.

**Insulated Façade System**

20.4 The system must be installed in accordance with the Technical Literature by Resene Construction Systems approved installers.

20.5 The plaster system must only be applied when the air and substrate temperature is within the range of +5°C to +30°C.

**Inspections**

20.6 The Technical Literature must be referred to during the inspection of Insulated Façade System installations.

**Finishing**

20.7 The paint manufacturers' instructions must be followed at all times for application of the paint finish. The plaster must be cured for a minimum of 2-3 days and must be dry before commencing painting.

## Health and Safety

21.1 Safe use and handling procedures for the components that make up Insulated Façade System are provided in the relevant manufacturer's Technical Literature.

## Basis of Appraisal

The following is a summary of the technical investigations carried out:

### Tests

22.1 The following testing has been completed by BRANZ:

- BRANZ expert opinion on NZBC E2 code compliance for Insulated Façade System was based on evaluation of all details within the scope and as stated within this Appraisal and testing of the Resene Construction Systems Insulated Facade System to E2/VM1. The testing assessed the performance of the foundation detail, window head, jamb and sill details, meter box head, jamb and sill details, vertical and horizontal control joints, internal and external corners and balustrade to wall junction with a plastered cap. In addition to the weathertightness test, the details contained within the Technical Literature have been reviewed, and an opinion has been given by BRANZ technical experts that the system will meet the performance levels of Acceptable Solution E2/AS1 for drained cavity claddings.
- Wind face load and fastener pull through testing for EIFS cladding systems. BRANZ determined design wind suction pressures, and by comparing these pressures with AS/NZS 1170 pressure coefficients, the fixing requirements were determined for timber and steel framed walls.
- Cone Calorimeter testing of the Insulated Façade plaster system over 40 mm EPS. The testing was carried out in accordance with AS/NZS 3837.

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## Other Investigations

23.1 Structural and durability opinions have been given by BRANZ technical experts.

23.2 Site visits have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.

23.2 The manufacturer's Technical Literature has been examined by BRANZ and found to be satisfactory.

## Quality

24.1 The manufacture of the plasters and finishes has been examined by BRANZ, including methods adopted for quality control. Details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

24.2 The quality of materials, components and accessories supplied by Resene Construction Systems is the responsibility of Resene Construction Systems.

24.3 Quality on site is the responsibility of the Resene Construction Systems approved installers.

24.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and joinery, wall underlays, flashing tapes, air seals and joinery head flashings in accordance with the instructions of Resene Construction Systems.

24.5 Building owners are responsible for the maintenance of Insulated Façade System in accordance with the instructions of Resene Construction Systems.

## Sources of Information

- AS 1366.3: 1992 Rigid cellular plastic sheets for thermal insulation - Rigid cellular polystyrene - Moulded [RC/PS-M]
- AS 3566: 2002 Self-drilling screws for the building and construction industries.
- AS/NZS 1170: 2002 Structural design action – General principles.
- AS/NZS 3837: 1998 Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter.
- NZS 3602: 2003 Timber and wood-based products for use in building.
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4211: 2008 Specification for performance of windows.
- NZS 4214: 2006 Methods of determining the total thermal resistance of parts of buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

# Amendments

## Amendment No. 1, 16 March 2020

This Appraisal has been amended to update the system name, include Polyisocyanurate [PIR] and Extruded Polystyrene [XPS] sheets within the technical specification and update references to C/AS2.

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BRANZ

In the opinion of BRANZ, Insulated Façade System is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to Rockcote Resene Ltd T/A Resene Construction Systems, and is valid until further notice, subject to the Conditions of Appraisal.

## Conditions of Appraisal

1. This Appraisal:
   a) relates only to the product as described herein;
   b) must be read, considered and used in full together with the Technical Literature;
   c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
   d) is copyright of BRANZ.
2. Rockcote Resene Ltd T/A Resene Construction Systems:
   a) continues to have the product reviewed by BRANZ;
   b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
   c) abides by the BRANZ Appraisals Services Terms and Conditions;
   d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
   a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
   b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
   c) any guarantee or warranty offered by Rockcote Resene Ltd T/A Resene Construction Systems.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to Rockcote Resene Ltd T/A Resene Construction Systems or any third party.

**For BRANZ**

**Chelydra Percy**
Chief Executive

Date of Issue:
22 November 2018

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System
Insulated Facade System

Scale
1 : 2 @ A4

Substrate
EPS Panel 50mm (20mm Cavity)

Date
1 November 2017

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System
Insulated Facade System

Scale
1 : 2 @ A4

Substrate
EPS Panel 50mm (20mm Cavity)

Date
1 November 2017

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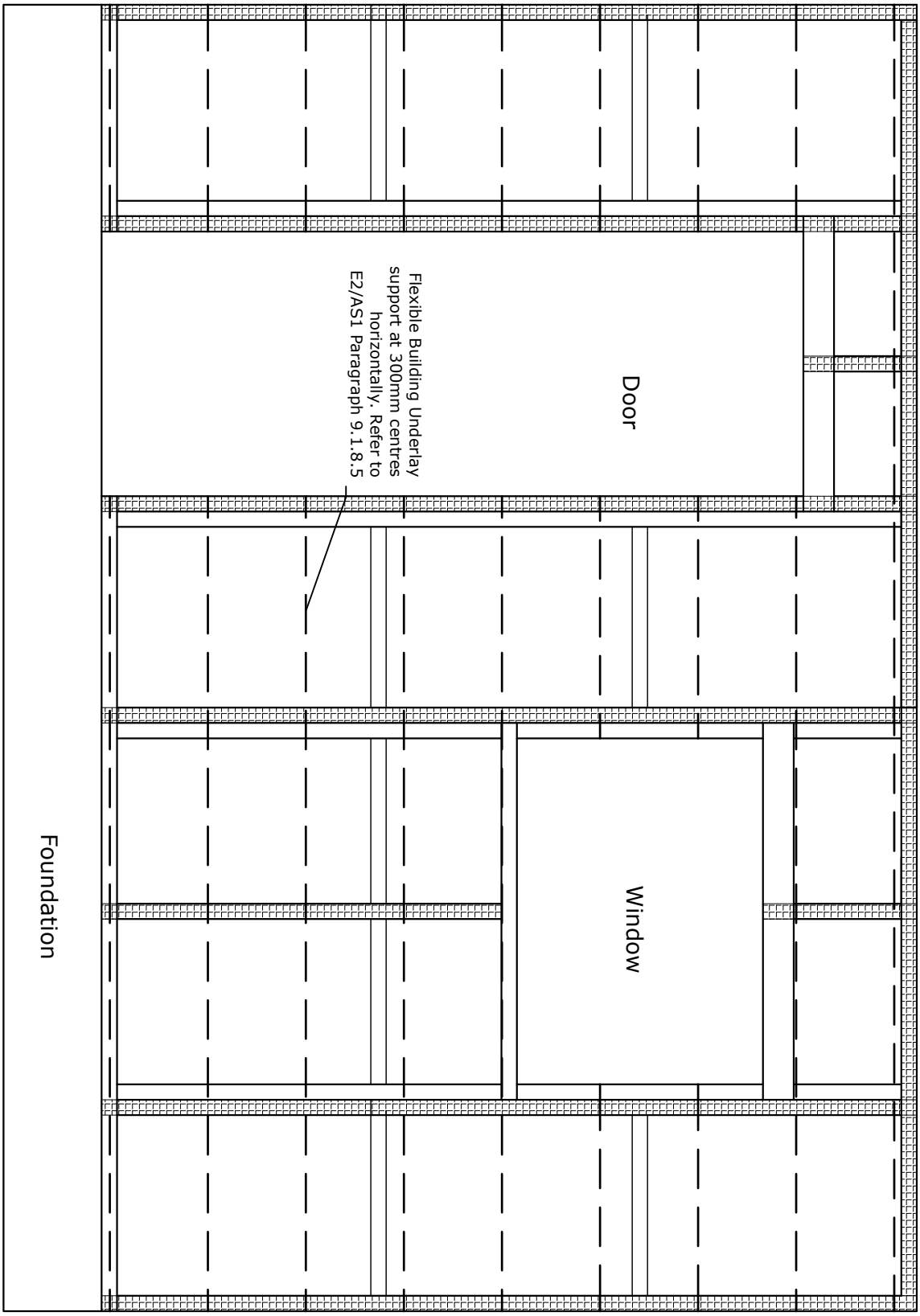
Drawing Register (Page 2)

Sheet
71.00.00

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System
Insulated Facade System

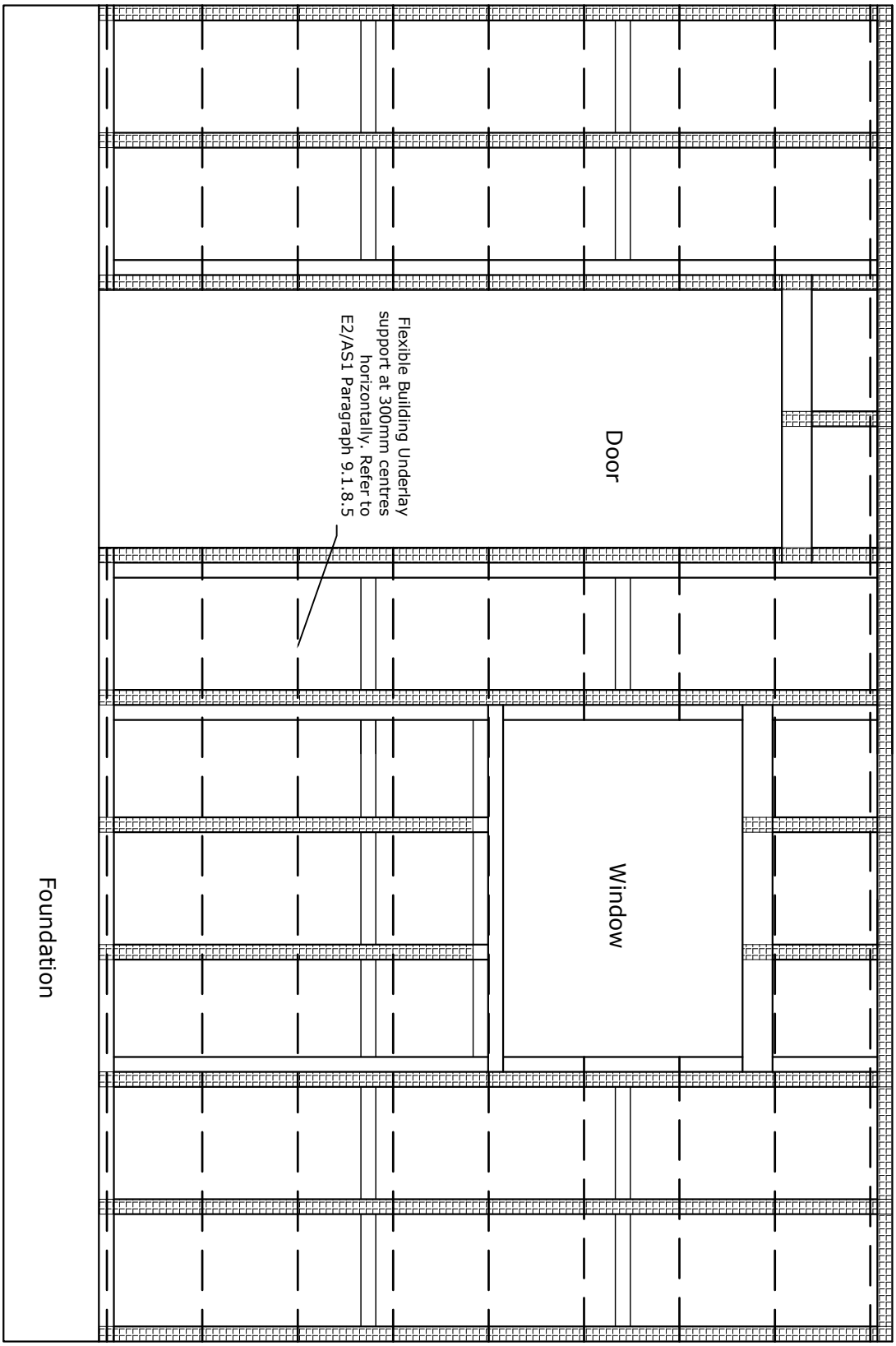
Substrate
EPS Panel 50mm (20mm Cavity)

Drawing Name
Batten Layout (600mm Centres)

Scale
1 : 2 @ A4

Date
1 November 2017

Sheet
71.01.00

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System
Insulated Facade System

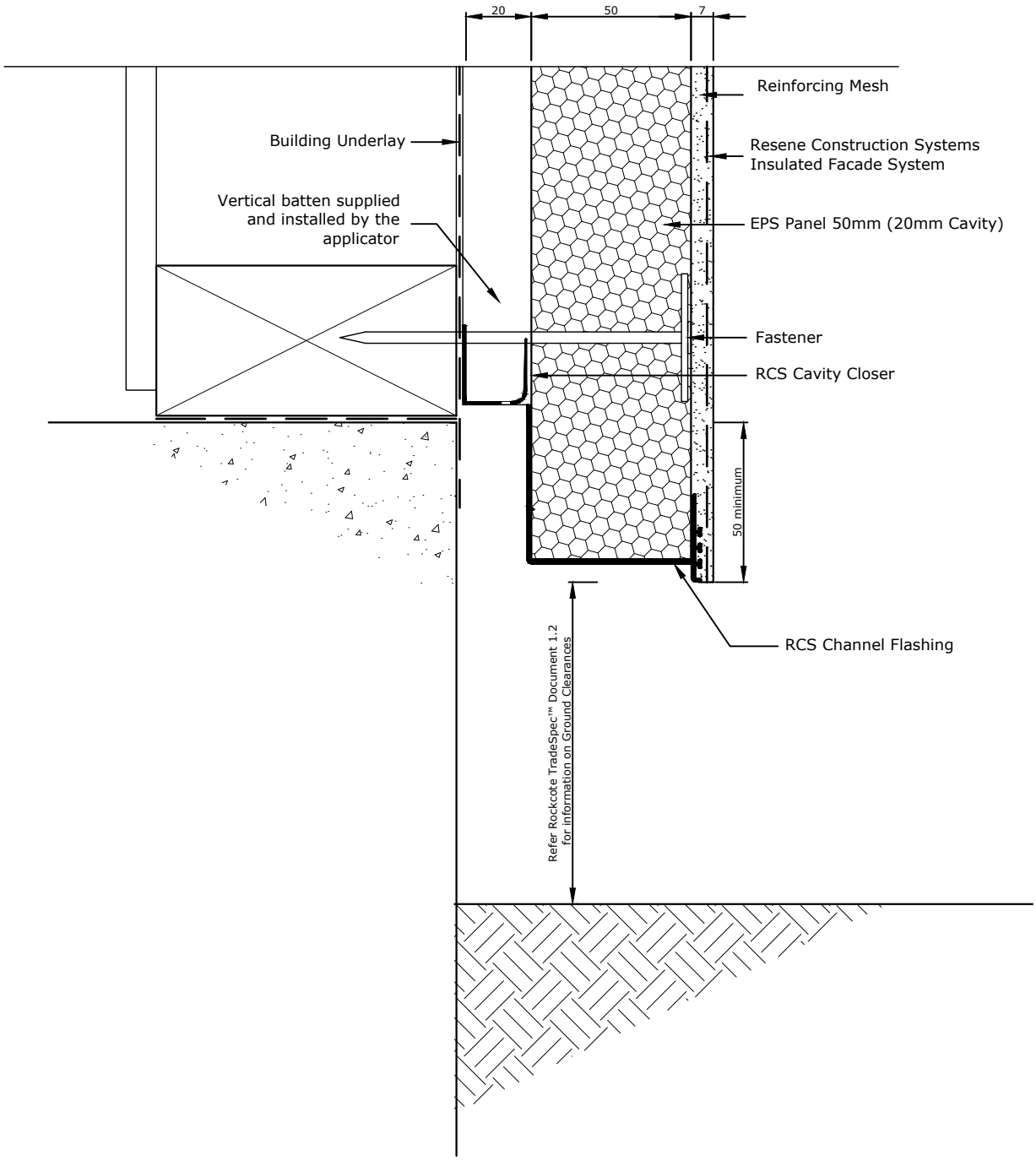
Substrate
EPS Panel 50mm (20mm Cavity)

Drawing Name
Batten Layout (400mm Centres)

Scale
1 : 2 @ A4

Date
1 November 2017

Sheet
71.01.01




Refer TradeSpec™ Document 1.2 for information on Ground Clearances

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System
Insulated Facade System

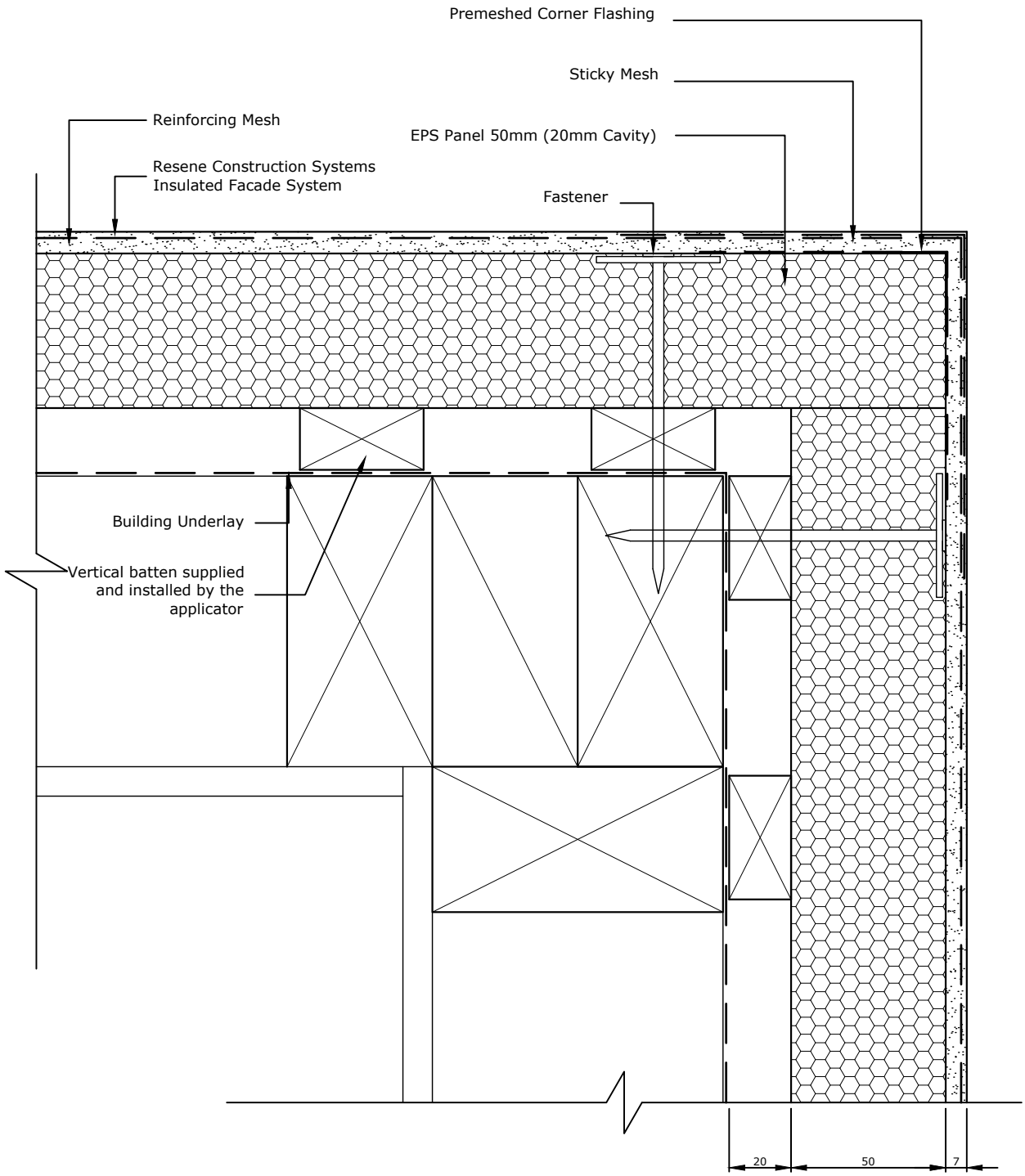
Scale
1 : 2 @ A4

Substrate
EPS Panel 50mm (20mm Cavity)

Date
1 November 2017

Drawing Name
Foundation

Sheet
71.02.00

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System
Insulated Facade System

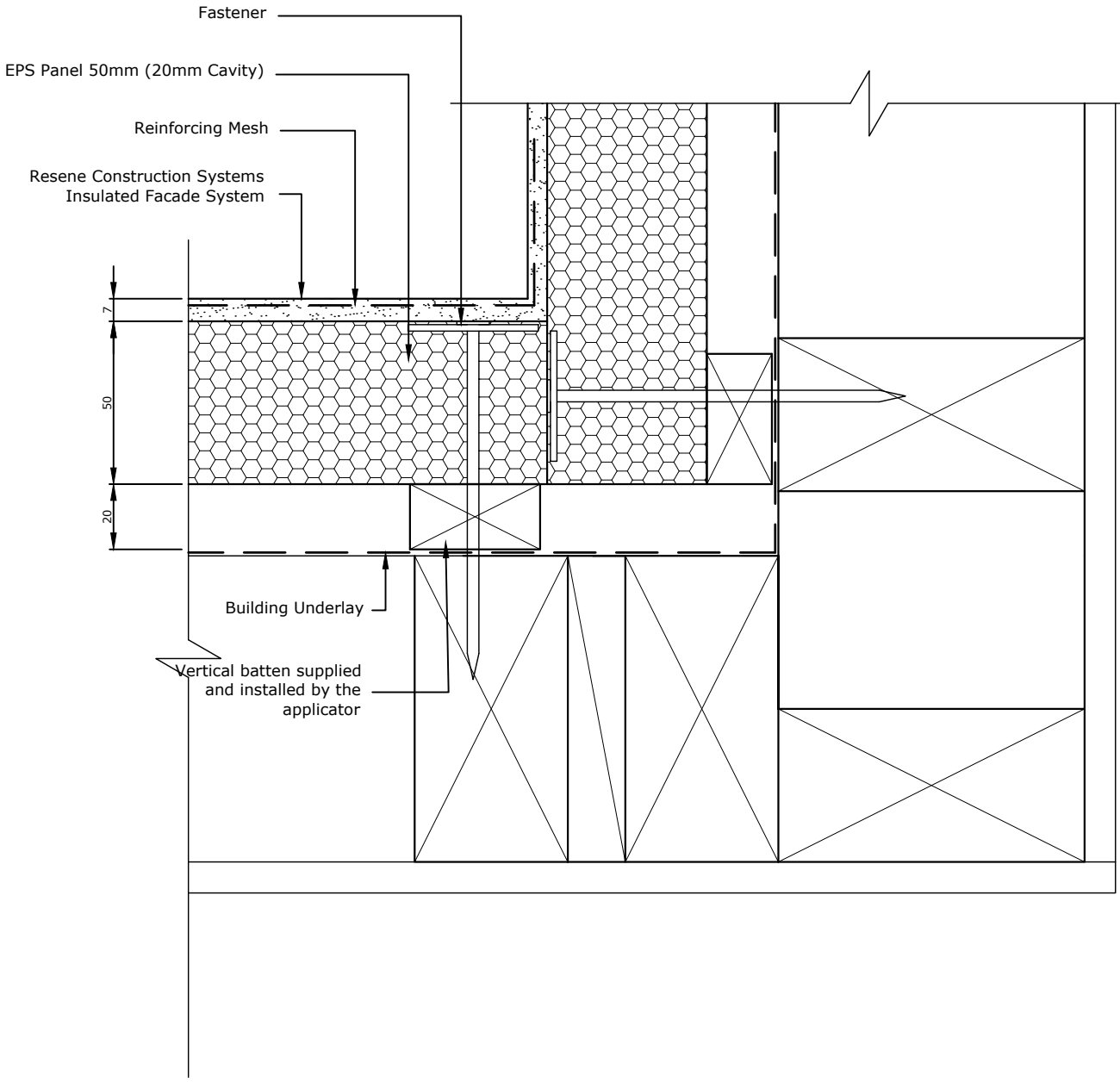
Substrate
EPS Panel 50mm (20mm Cavity)

Drawing Name
External Corner

Scale
1 : 2 @ A4

Date
1 November 2017

Sheet
71.03.00

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System
Insulated Facade System

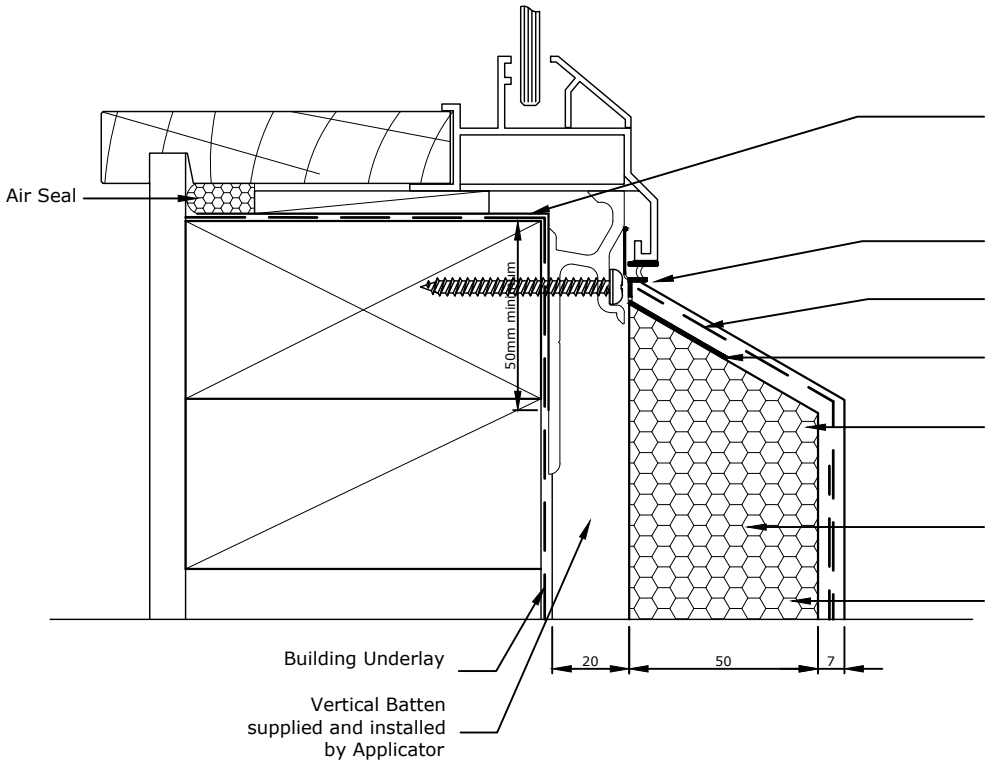
Scale
1 : 2 @ A4

Substrate
EPS Panel 50mm (20mm Cavity)

Date
1 November 2017

Drawing Name
Internal Corner

Sheet
71.04.00




Allow a 25mm Gap between the back of the joinery and external facing timber framing to allow the sill flashing to fit.

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System
Insulated Facade System

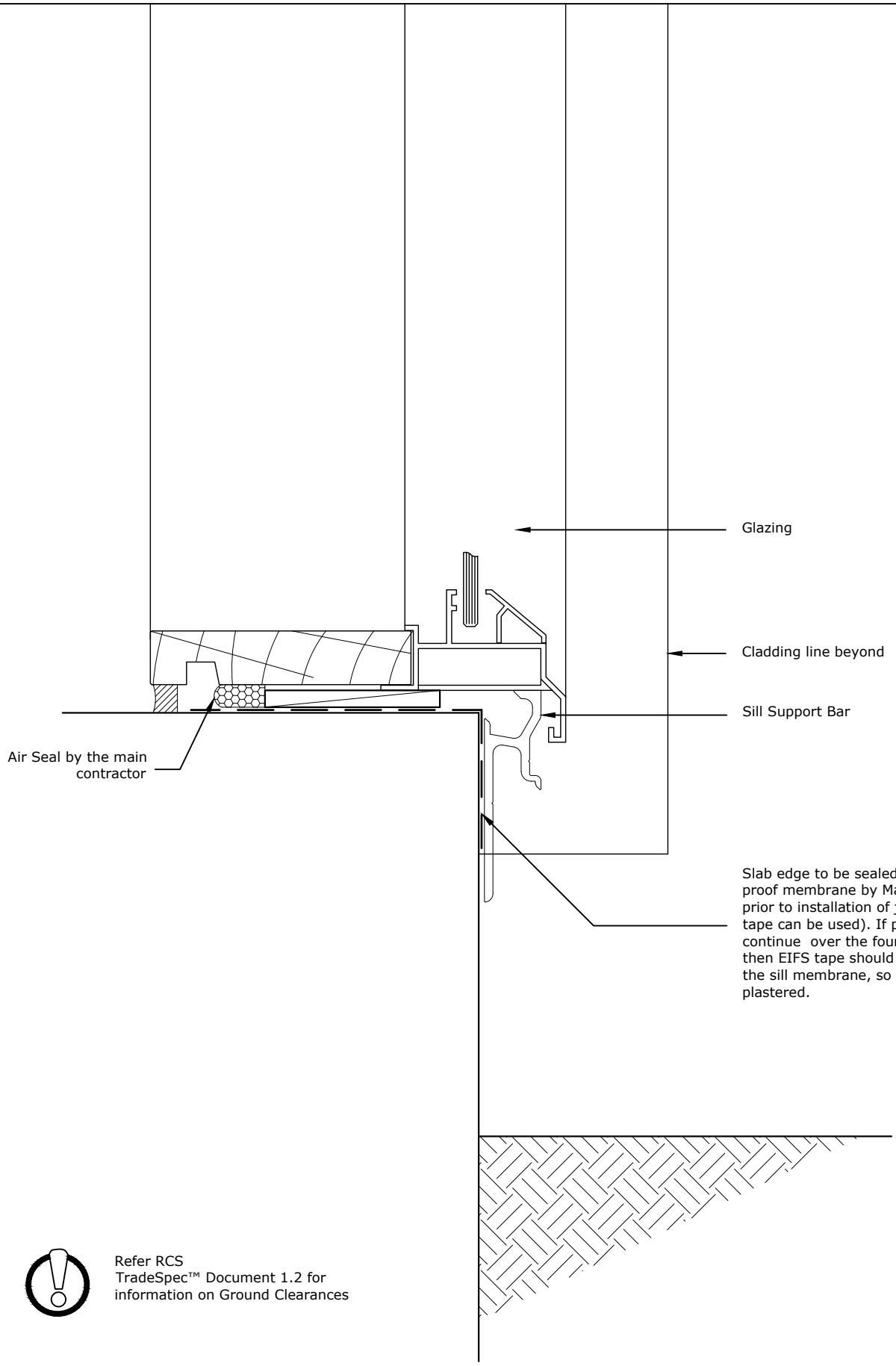
Substrate
EPS Panel 50mm (20mm Cavity)

Drawing Name
Window Sill

Scale
1 : 2 @ A4

Date
1 November 2017

Sheet
71.05.00




Refer RCS TradeSpec™ Document 1.2 for information on Ground Clearances

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System
Insulated Facade System

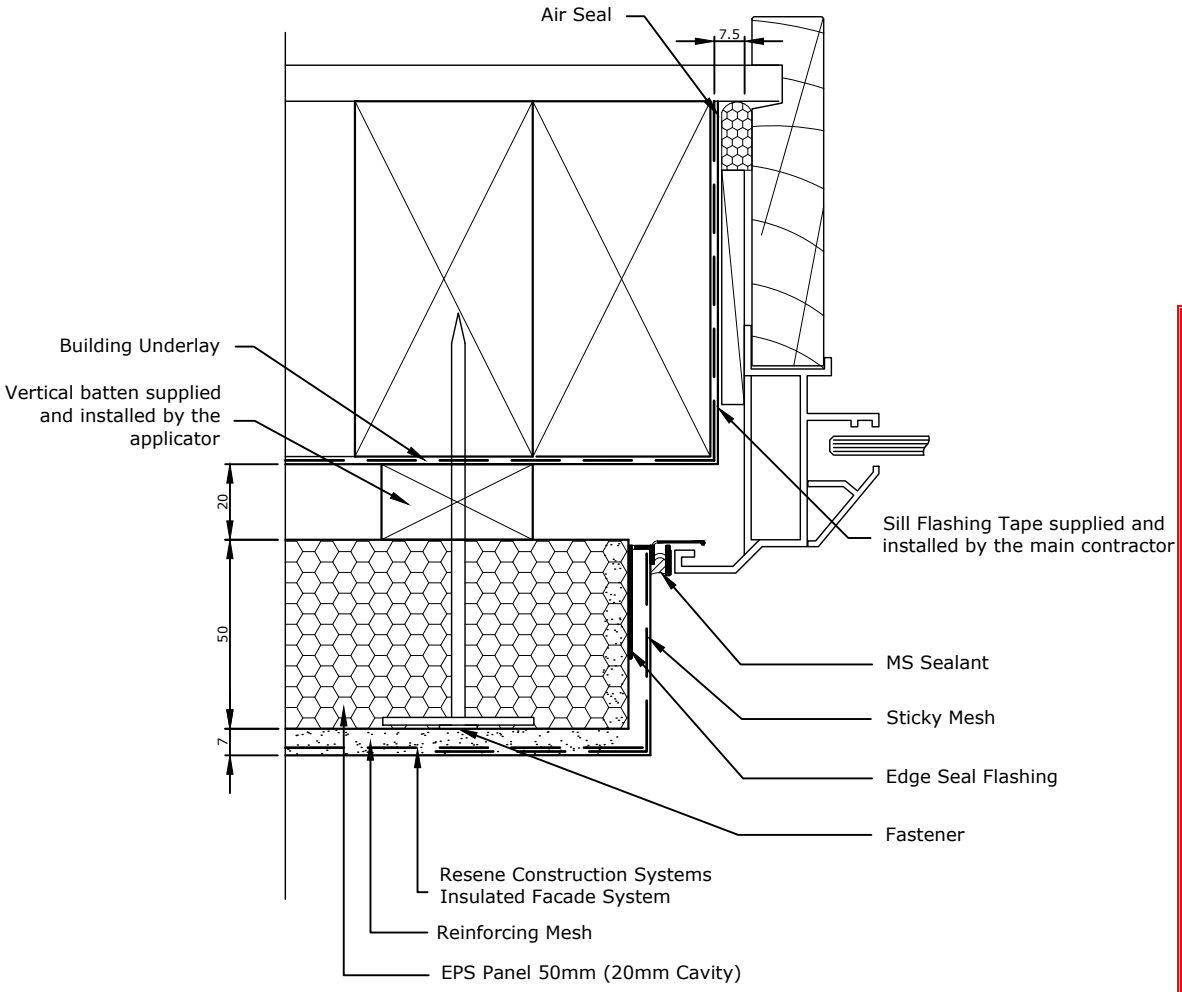
Scale
1 : 2 @ A4

Substrate
EPS Panel 50mm (20mm Cavity)

Date
1 November 2017

Drawing Name
Door Sill - Option 1

Sheet
71.05.60

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Allow a 25mm Gap between the back of the joinery and external facing timber framing to allow the jamb flashing to fit.

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System
Insulated Facade System

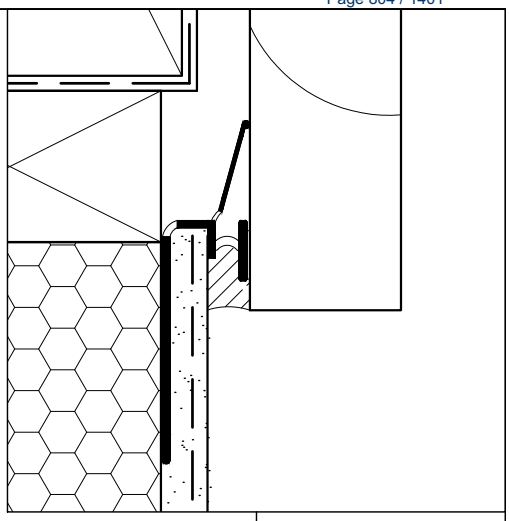
Scale
1 : 2 @ A4

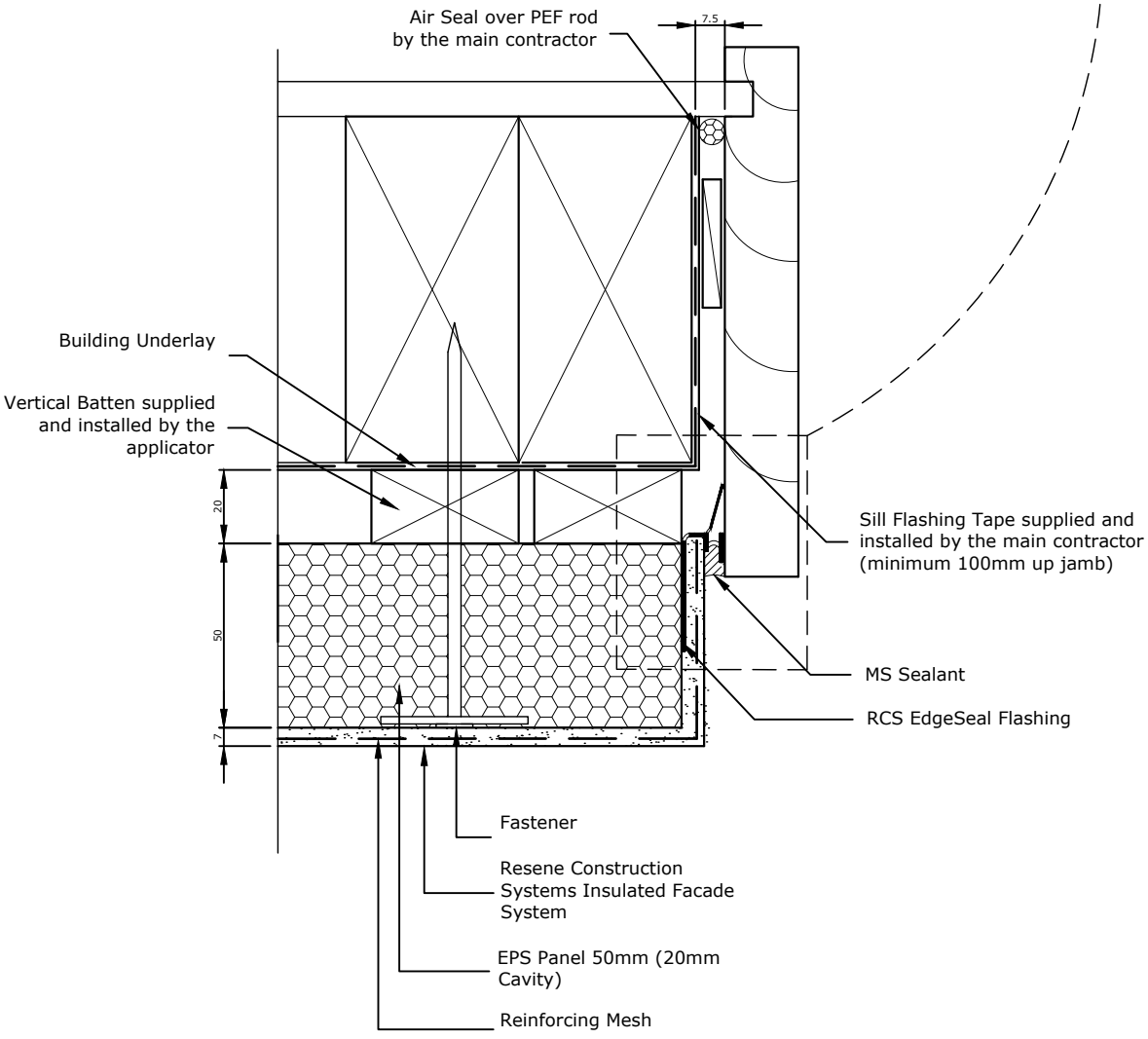
Substrate
EPS Panel 50mm (20mm Cavity)

Date
1 November 2017

Drawing Name
Window Jamb

Sheet
71.06.00



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System
Insulated Facade System

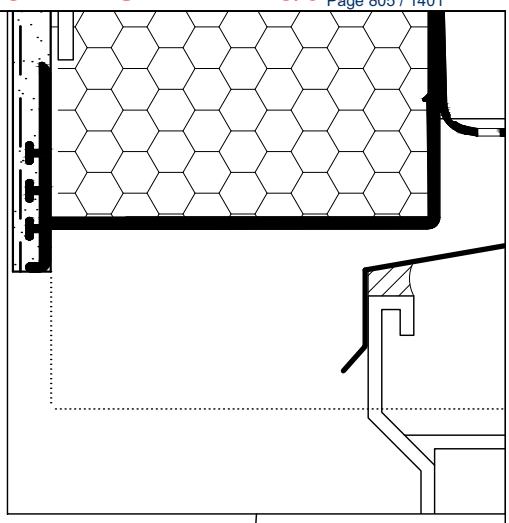
Scale
1 : 2 @ A4

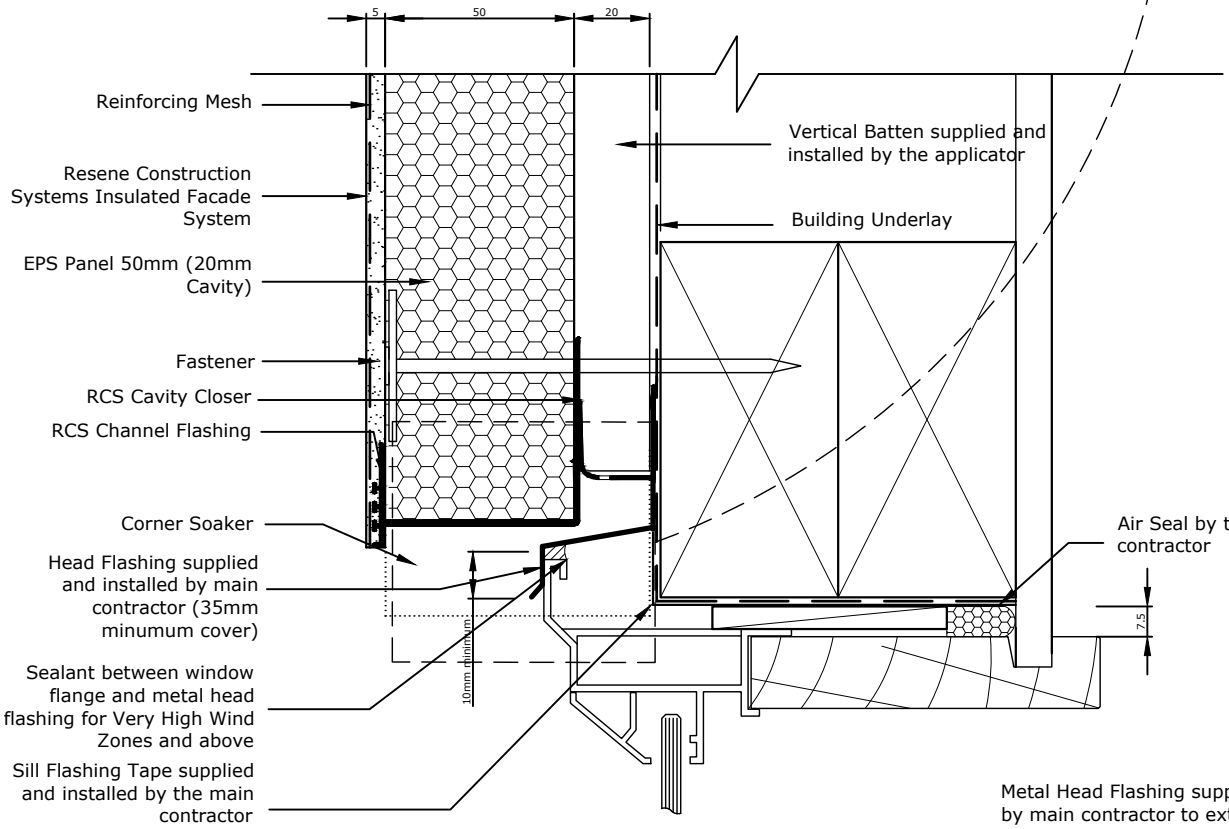
Substrate
EPS Panel 50mm (20mm Cavity)

Date
1 November 2017

Drawing Name
Garage Door Jamb - Option 1

Sheet
71.06.50






Metal Head Flashing supplied and installed by main contractor to extend past the line of the aluminium jamb by 10mm and be turned up at the ends by a minimum 20mm, this is an alternative to using a Head Soaker

Head flashing must be taped to the Building Underlay by the main contractor/window installer

5mm clearance must be maintained between the starter strip and the head flashing

Head Flashing to have a minimum 15° fall

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System
Insulated Facade System

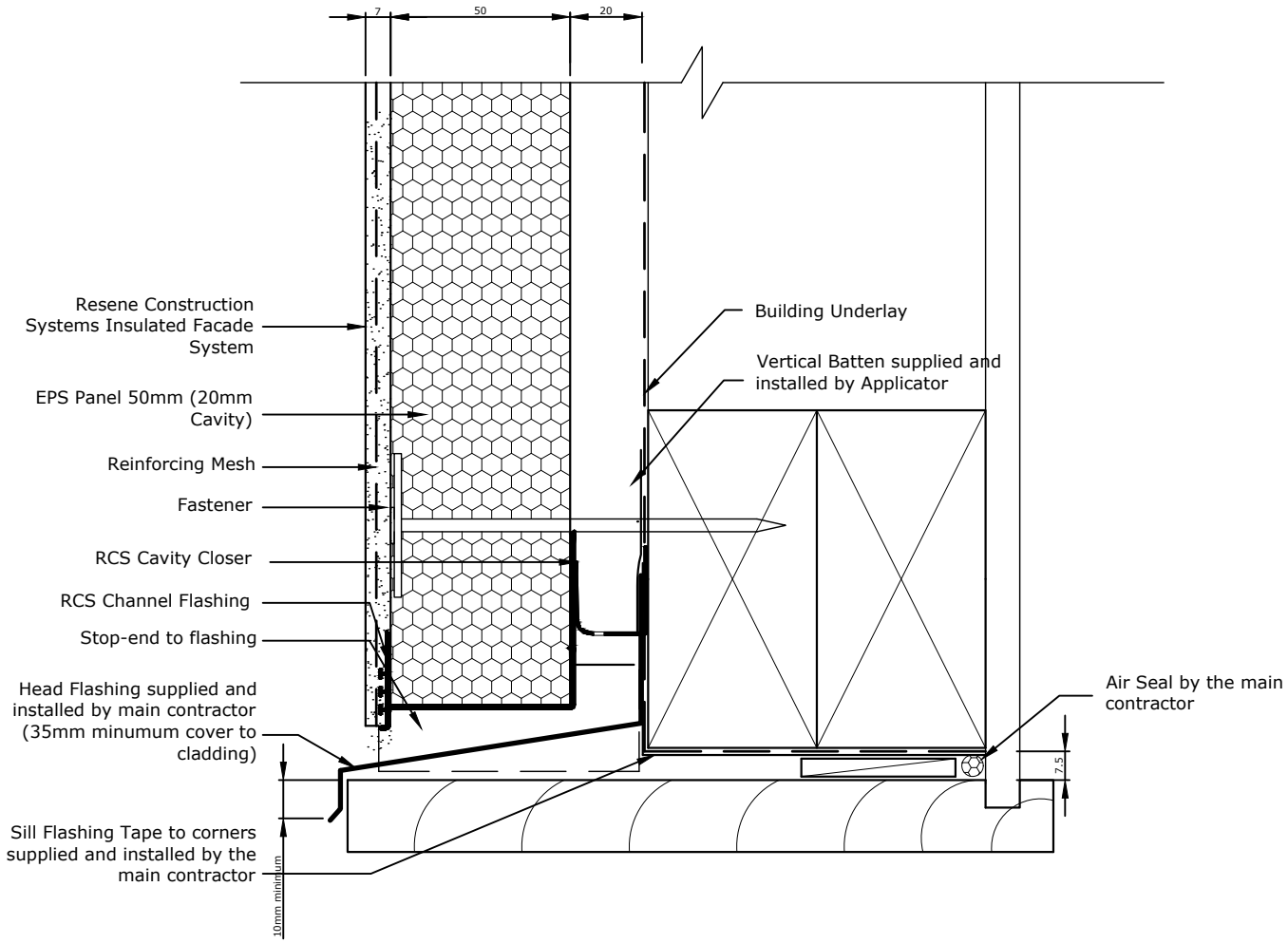
Substrate
EPS Panel 50mm (20mm Cavity)

Drawing Name
Window Head - Option 3

Scale
1 : 2 @ A4

Date
1 November 2017

Sheet
71.07.02




Metal Head Flashing supplied and installed by main contractor to extend past the line of the aluminium jamb by 5mm and be turned up at the ends by a minimum 20mm, this is an alternative to using a Head Soaker

Head flashing must be taped to the Building Underlay by the main contractor/window installer

5mm clearance must be maintained between the starter strip and the head flashing

Head Flashing to have a minimum 15° fall

Head Flashing to extend bast the jamb by 10mm

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System
Insulated Facade System

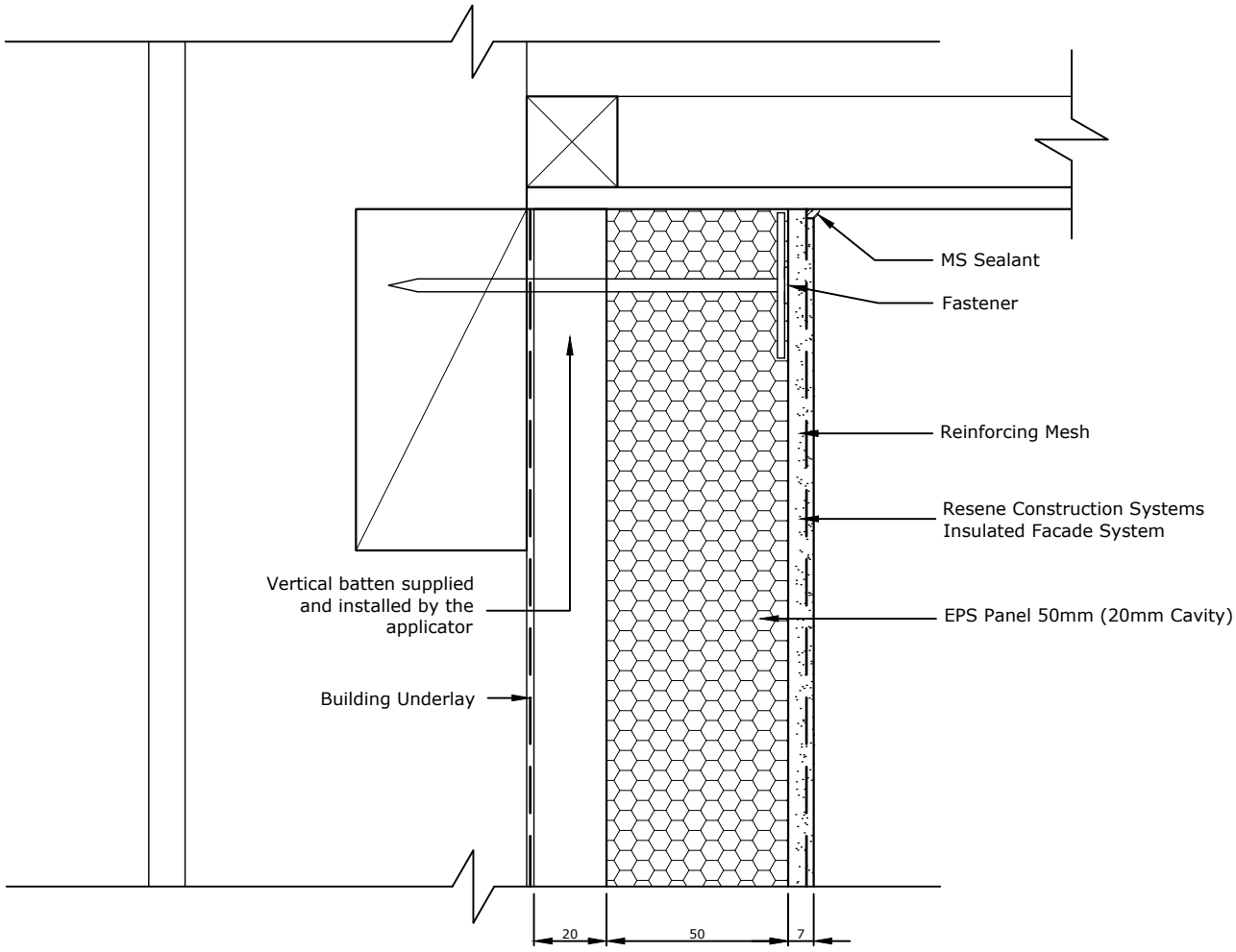
Substrate
EPS Panel 50mm (20mm Cavity)

Drawing Name
Garage Door Head - Option 2

Scale
1 : 2 @ A4

Date
1 November 2017

Sheet
71.07.51

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System
Insulated Facade System

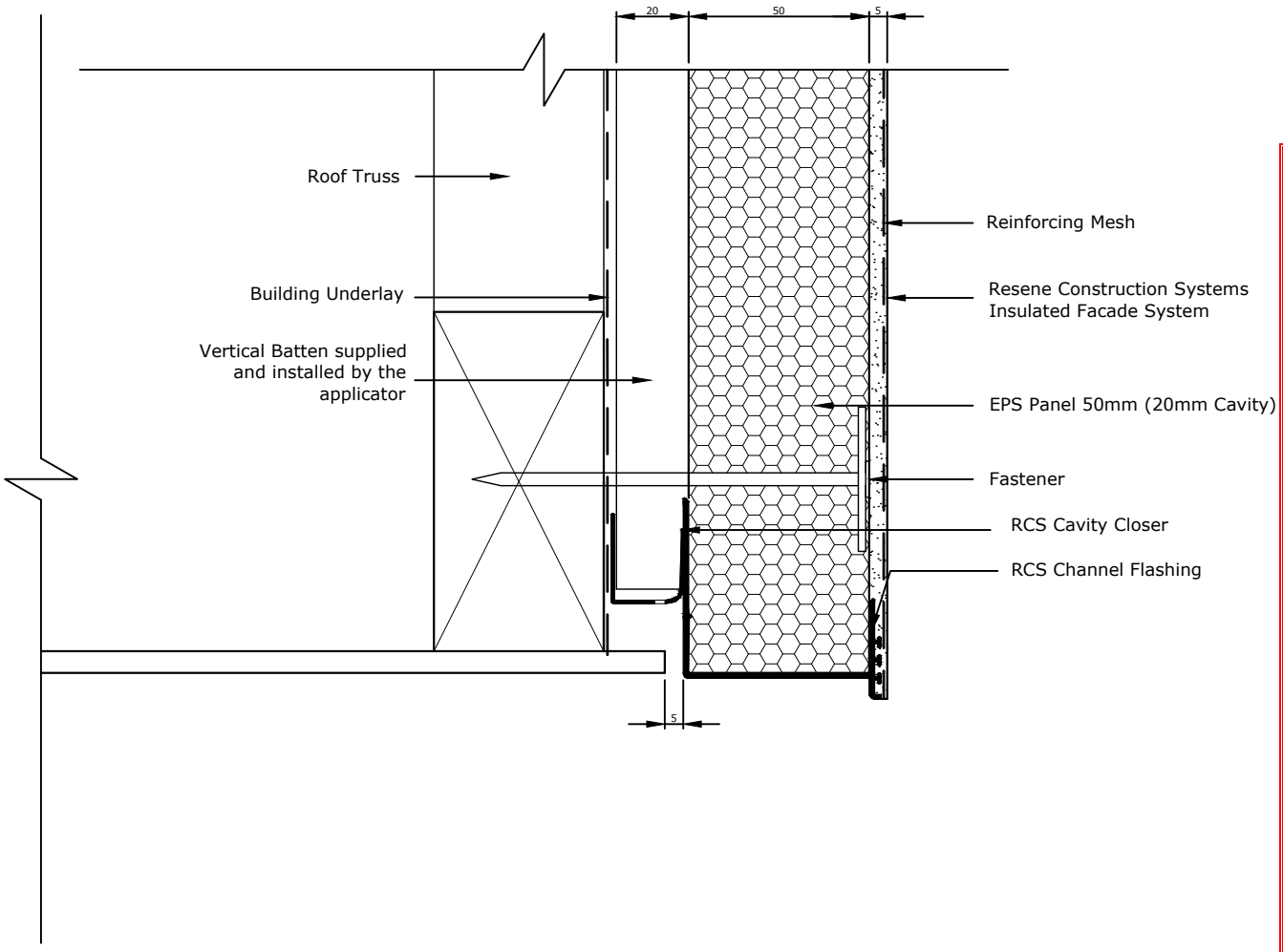
Substrate
EPS Panel 50mm (20mm Cavity)

Drawing Name
Soffit

Scale
1 : 2 @ A4

Date
1 November 2017

Sheet
71.08.00

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System
Insulated Facade System

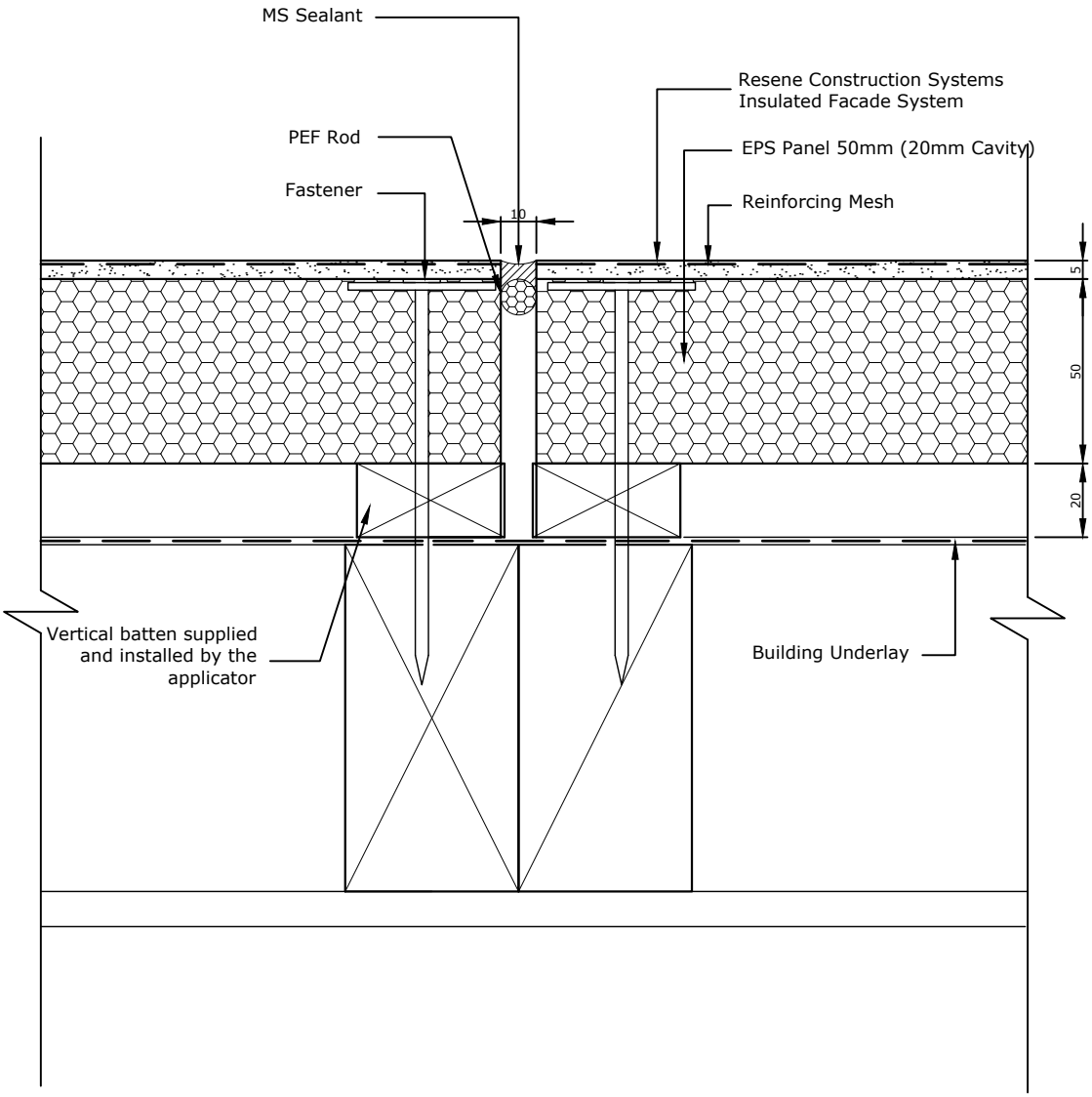
Substrate
EPS Panel 50mm (20mm Cavity)

Drawing Name
Soffit Edge - Option 1

Scale
1 : 2 @ A4

Date
1 November 2017

Sheet
71.08.10




All Control Joint spacings and setouts are the responsibility of the Designer, for suggested locations refer to TradeSpec™ Document 1.4

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System
Insulated Facade System

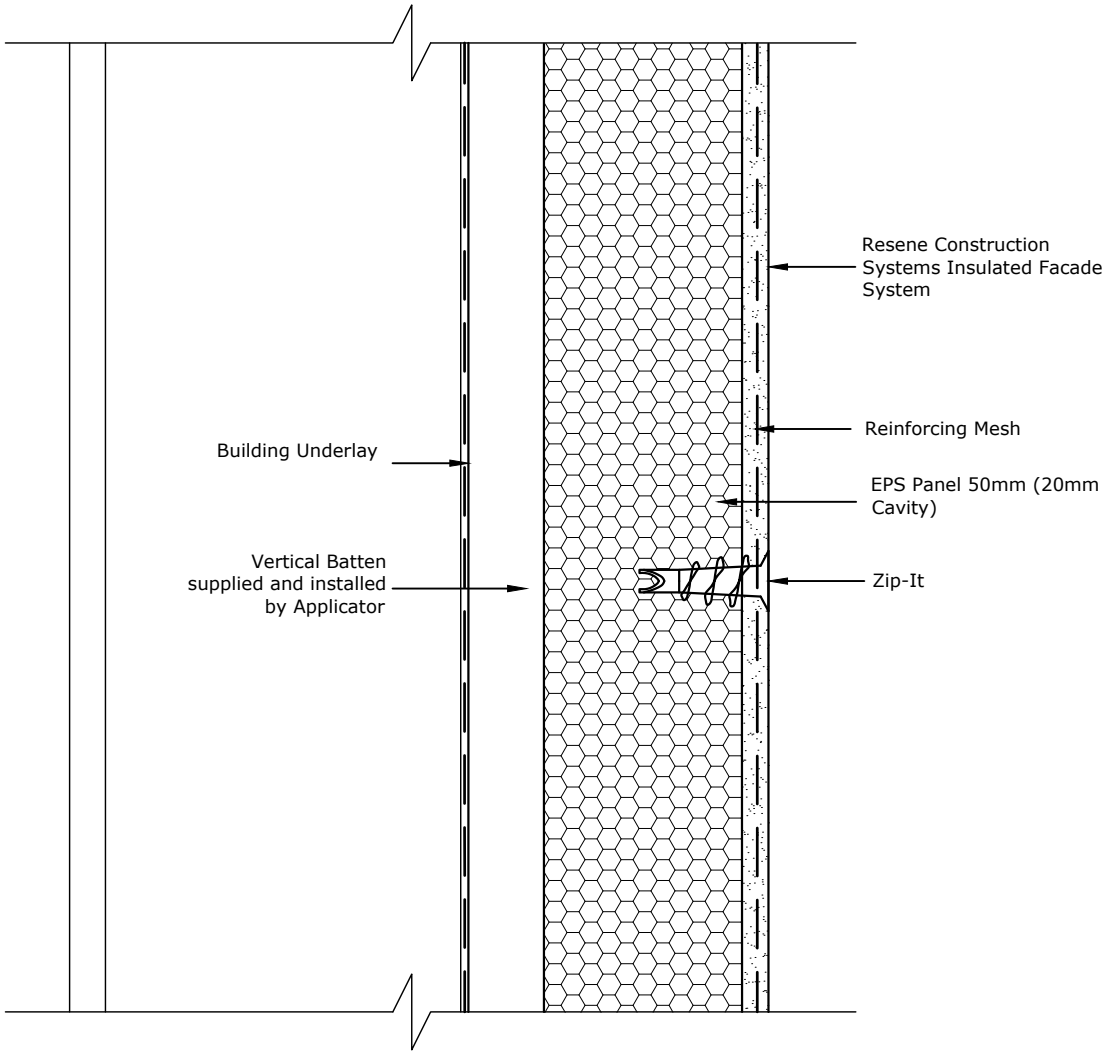
Scale
1 : 2 @ A4

Substrate
EPS Panel 50mm (20mm Cavity)

Date
1 November 2017

Drawing Name
Vertical Control Joint - Option 1

Sheet
71.10.00

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System
Insulated Facade System

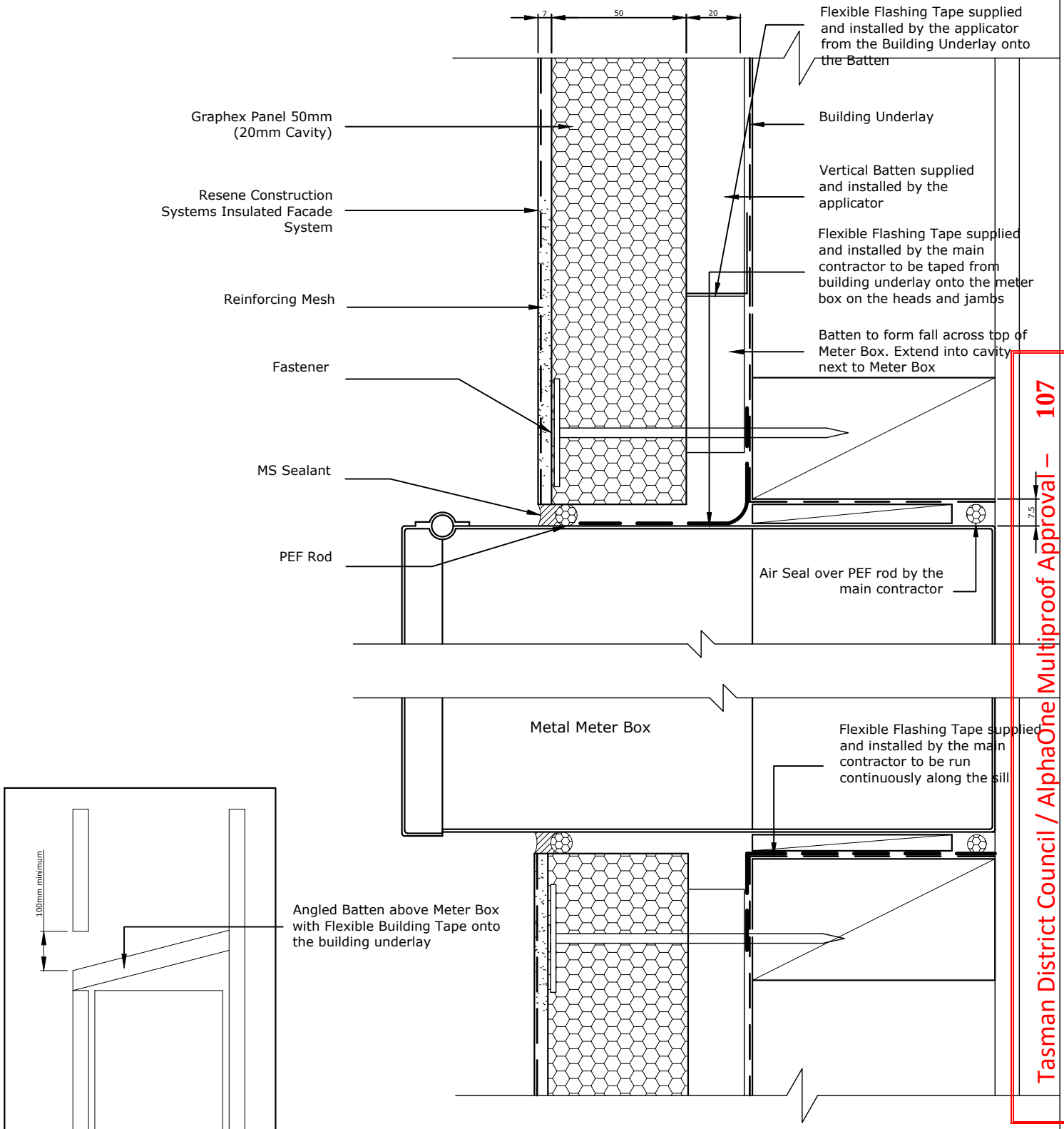
Substrate
EPS Panel 50mm (20mm Cavity)

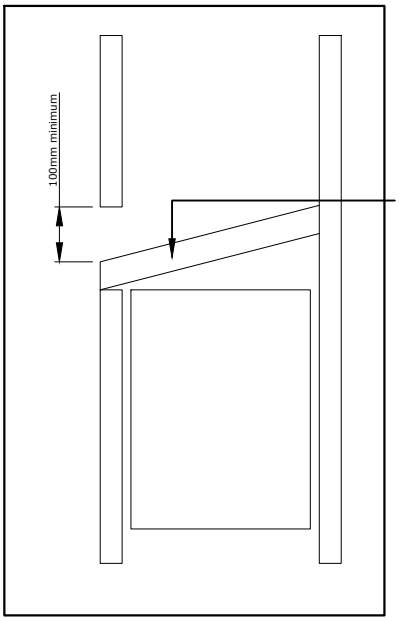
Drawing Name
Lightweight Fixing

Scale
1 : 2 @ A4

Date
1 November 2017

Sheet
71.12.00




Angled Batten above Meter Box with Flexible Building Tape onto the building underlay

The responsibility for the penetration is the responsibility of the main contractor, where possible and practical use a flange.

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System
Insulated Facade System

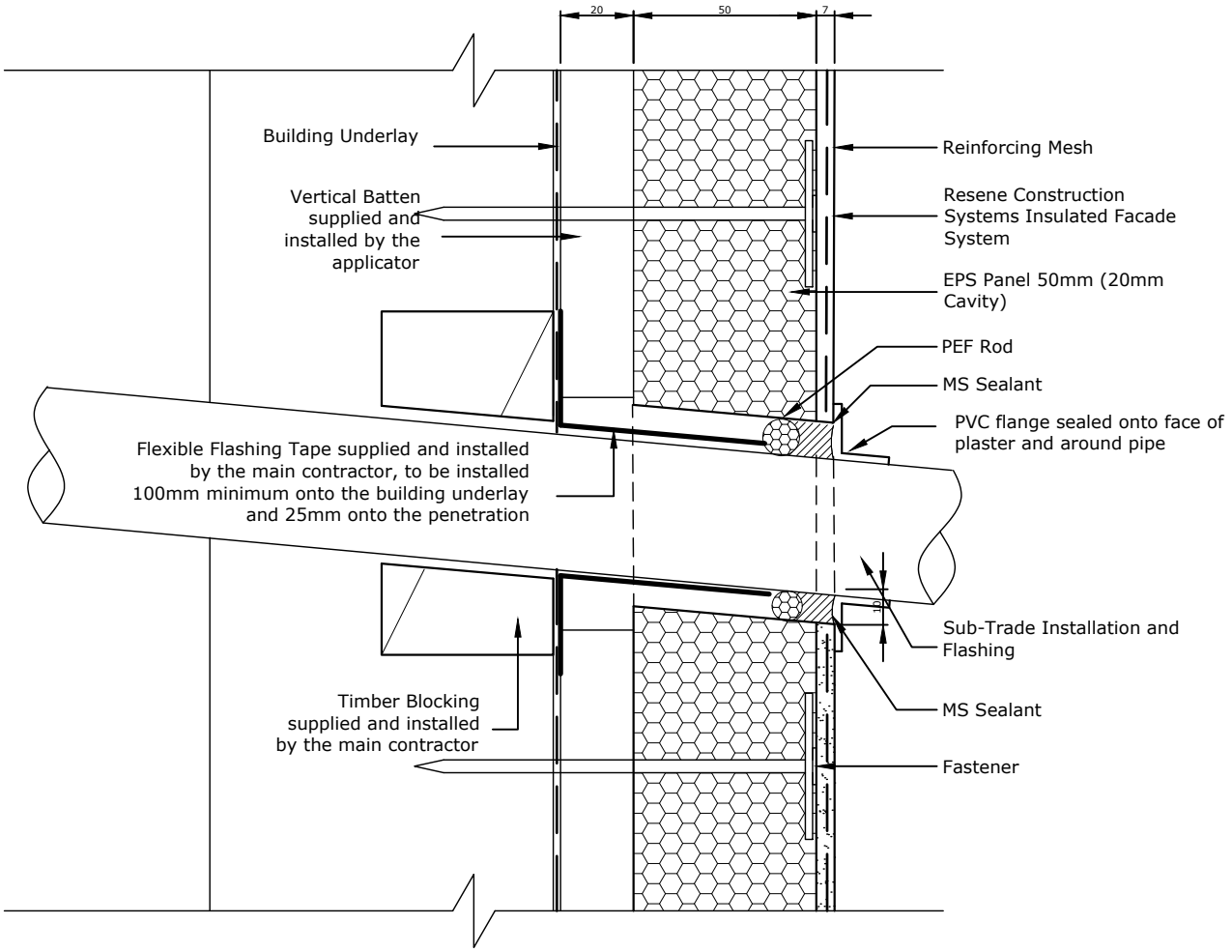
Scale
1 : 2 @ A4

Substrate
EPS Panel 50mm (20mm Cavity)

Date
1 November 2017

Drawing Name
Meter Box Penetration - Option 1

Sheet
71.12.10




The responsibility for the penetration is the responsibility of the main contractor, where possible and practical use a flange.

It is important that there is adequate support for the penetration in the form of timber packing. The penetration should be angled slightly away from the cladding so any moisture is diverted away from the cladding.

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System
Insulated Facade System

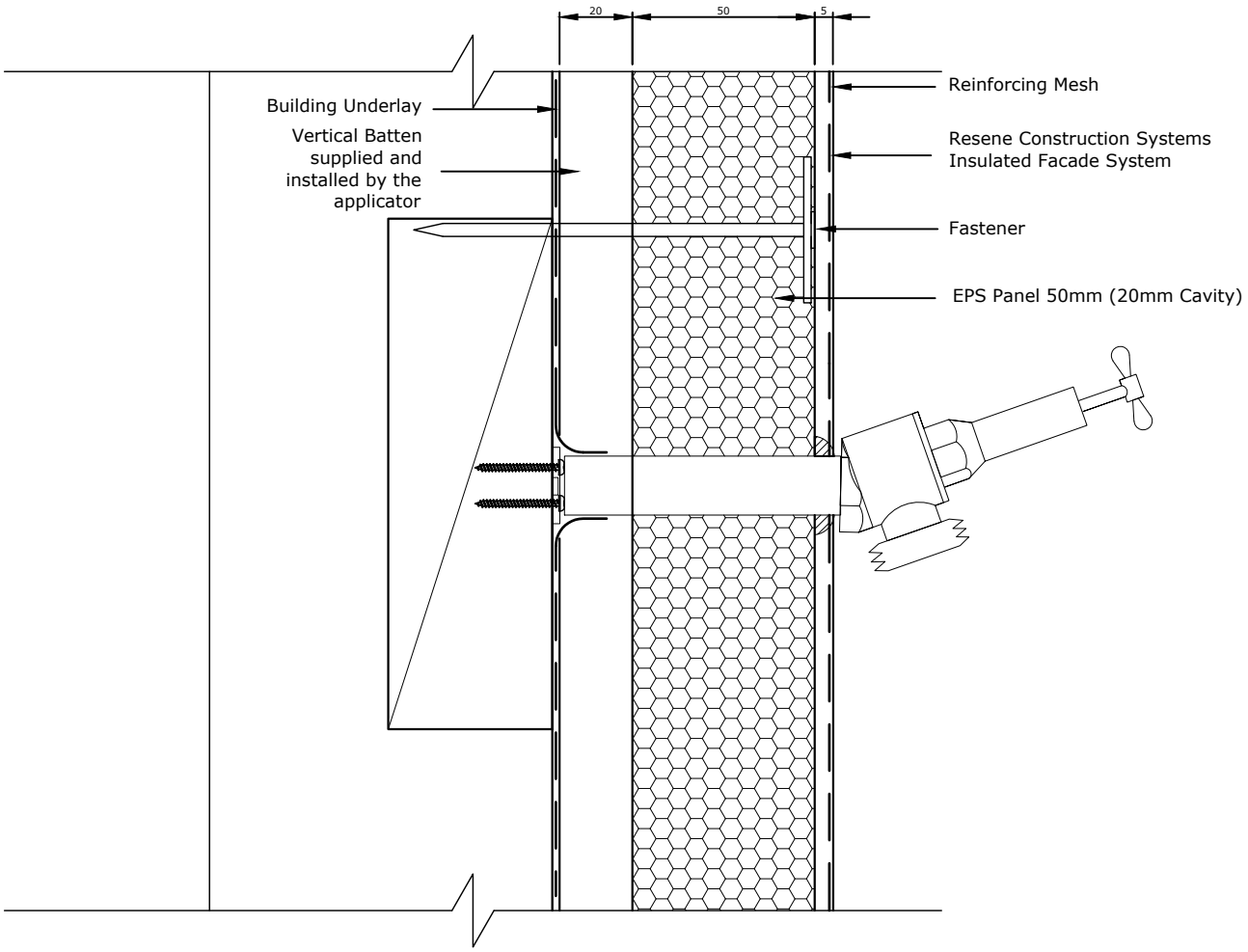
Substrate
EPS Panel 50mm (20mm Cavity)

Drawing Name
Pipe Penetration

Scale
1 : 2 @ A4

Date
1 November 2017

Sheet
71.12.20

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System
Insulated Facade System

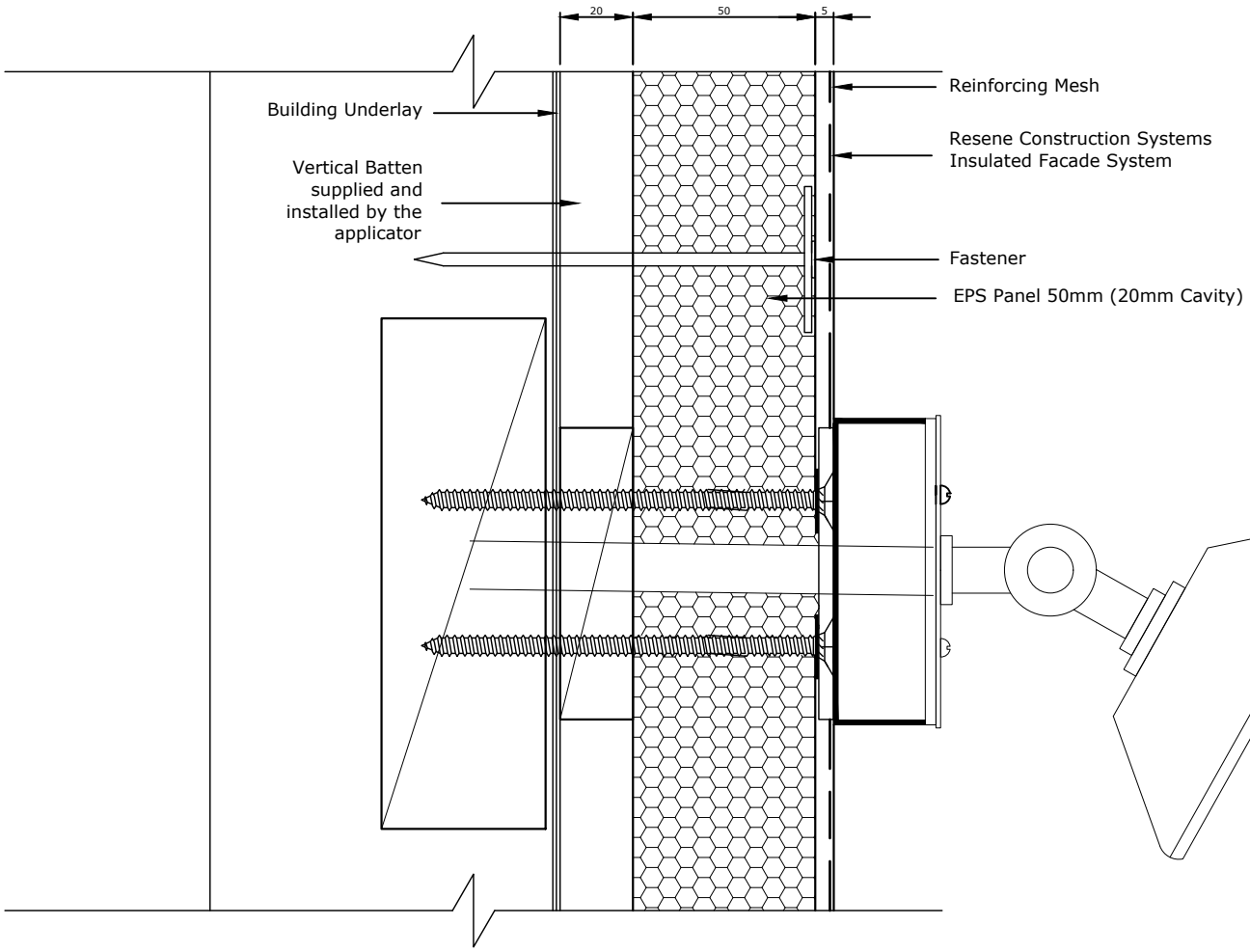
Substrate
EPS Panel 50mm (20mm Cavity)

Drawing Name
Tap Fitting Detail

Scale
1 : 2 @ A4

Date
1 November 2017

Sheet
71.12.22

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System
Insulated Facade System

Substrate
EPS Panel 50mm (20mm Cavity)

Drawing Name
Light Fixing Detail

Scale
1 : 2 @ A4

Date
1 November 2017

Sheet
71.12.23

G.J. Gardner. HOMES

# Details

For

## Multiproof Application

At

## Lot 363-367 DP 561194
## Street address 12,14,16,18,20 Kahikatea Way, Richmond.

For

## G.J Gardner Homes Nelson (LSK Builders 2011 Ltd).

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Page 816 / 1401

# TruBolt™
## Stud Anchors

Ramset™

## Materials

Zn — ZINC Electroplated
GAL — Galvanised
A4 316 — Stainless Steel 316

## Description

The TruBolt™ Stud Anchor is a true-to-size, heavy duty, torque controlled expansion anchor, for permanent anchoring into concrete.

## Specification

| | |
|---|---|
| **Material - Bolt** | Carbon Steel, Stainless Steel 316 (A4) |
| **Corrosion Protection** | Zinc Plating, Hot Dipped Galvanising |
| **Head Styles** | Hex Nut |
| **Fixing Method** | Through Fixture |
| **Setting Method** | Torque Controlled |
| **Anchoring Method** | Expansion |
| **Thread Diameters** | M6, M8, M10, M12, M16, M20 |
| **Drilled Hole Diameters** | 6mm, 8mm, 10mm, 12mm, 16mm, 20mm |
| **Anchor Lengths** | 55mm, 65mm, 75mm, 80mm, 85mm, 90mm, 100mm, 120mm, 125mm, 140mm, 150mm, 160mm, 175mm, 180mm, 215mm |
| **Maximum Fixture Thickness'** | 6mm, 8mm, 10mm, 12mm, 15mm, 20mm, 25mm, 30mm, 35mm, 40mm, 45mm, 50mm, 65mm, 70mm, 80mm, 90mm, 100mm |
| **Indicative Working Loads in 32MPa Concrete*** | Max Tensile 3.4kN - 32.5kN<br>Max Shear 2.8kN - 27.3kN |
| **Substrates** | Concrete |

* Refer to load table

## Features & Benefits

- The TruBolt™ diameter equals the required hole diameter providing maximum shear capacity for hole size and making drill bit selection simple. Its cold forged construction ensures superior strength and reliability.
- The anchor design ensures maximum expansion of the sleeve and pull-down on the fixture. These actions are both further assisted by the application of load.
- The anti-rotation expansion sleeve is designed to grip the sides of the hole, preventing anchor rotation during installation.

## Related Products

DynaDrill™
Carbide Drill Bits
Diamond Motor
Diamond Core Drill Bits
Hole Cleaning Brush
Hole Cleaning Pump
Wet and Dry Vacuum

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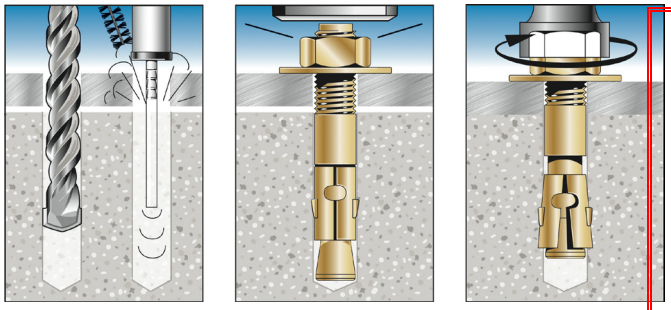
## Trades & Applications

| | Steel Fabricator | Elevator Installer | Construction Contractor | Seating Contractor | Racking Installer |
|---|---|---|---|---|---|
| Installing handrails, balustrades & safety barriers | ✓ | | | | |
| Anchoring elevator guide rails | | ✓ | ✓ | | |
| Anchoring structural steel columns/beams | ✓ | | | | |
| Staduim seating | | | | ✓ | |
| Pallet racking | | | | | ✓ |

## Installation

1. Drill or core a hole to the recommended diameter (same as the TruBolt™) and depth using the fixture as a template. Clean the hole thoroughly with a hole cleaning brush. Remove the debris with a hand pump, compressed air, or vacuum.
2. Insert the anchor through the fixture and drive with a hammer until the washer contacts the fixture.
3. Tighten the nut with a torque wrench to the specified assembly torque.



## TruBolt™ Stud Anchors - Hex Nut - Stainless Steel

| Ramset Part No | Description | Thread Diameter | Drill Diameter | Total anchor length | Hole depth minus fixture thickness | Minimum Drilling depth | Maximum fixture thickness | Maximum tightening Torque | Fixture clearance hole diameter |
|---|---|---|---|---|---|---|---|---|---|
| T06055SSA | Trubolt M6 x 55mm | ø6 | ø6 | 55mm | 66mm | 51mm | 15mm | 10Nm | ø8 |
| T08055SSA | Trubolt M8 x 55mm | ø8 | ø8 | 55mm | 70mm | 65mm | 5mm | 20Nm | ø9 |
| T08070SSA | Trubolt M8 x 70mm | ø8 | ø8 | 70mm | 85mm | 65mm | 20mm | 20Nm | ø9 |
| T08090SSA | Trubolt M8 x 90mm | ø8 | ø8 | 90mm | 105mm | 65mm | 40mm | 20Nm | ø9 |
| T08130SSA | Trubolt M8 x 130mm | ø8 | ø8 | 130mm | 145mm | 65mm | 80mm | 20Nm | ø9 |
| T10065SSA | Trubolt M10 x 65mm | ø10 | ø10 | 65mm | 83mm | 78mm | 5mm | 35Nm | ø12 |
| T10075SSA | Trubolt M10 x 75mm | ø10 | ø10 | 75mm | 93mm | 78mm | 15mm | 35Nm | ø12 |
| T10095SSA | Trubolt M10 x 95mm | ø10 | ø10 | 95mm | 113mm | 78mm | 35mm | 35Nm | ø12 |
| T10120SSA | Trubolt M10 x 120mm | ø10 | ø10 | 120mm | 138mm | 78mm | 60mm | 35Nm | ø12 |
| T12080SSA | Trubolt M12 x 80mm | ø12 | ø12 | 80mm | 100mm | 95mm | 5mm | 50Nm | ø14 |
| T12100SSA | Trubolt M12 x 100mm | ø12 | ø12 | 100mm | 120mm | 95mm | 25mm | 50Nm | ø14 |
| T12115SSA | Trubolt M12 x115mm | ø12 | ø12 | 115mm | 135mm | 95mm | 40mm | 50Nm | ø14 |
| T12140SSA | Trubolt M12 x 140mm | ø12 | ø12 | 140mm | 160mm | 95mm | 65mm | 50Nm | ø14 |
| T16125SSA | Trubolt M16 x 125mm | ø16 | ø16 | 125mm | 147mm | 117mm | 30mm | 100Nm | ø18 |
| T16150SSA | Trubolt M16 x 150mm | ø16 | ø16 | 150mm | 172mm | 117mm | 55mm | 100Nm | ø18 |
| T16170SSA | Trubolt M16 x 170mm | ø16 | ø16 | 170mm | 192mm | 117mm | 75mm | 100Nm | ø18 |

## TruBolt™ Stud Anchors - Hex Nut - Stainless Steel

| Part No | Thread Size | Max Fixture Thickness (mm) | Overall Anchor Length (mm) | Drilled Hole Ø (mm) | Fixture Hole Ø (mm) | Min Hole Depth (mm) | Effective Length | Order Qty |
|---|---|---|---|---|---|---|---|---|
| T20140SS | M20 | 10 | 120 | 20 | 24 | 140 | 85 | 10 |
| T20160SS | M20 | 35 | 160 | 20 | 24 | 170 | 115 | 10 |

Heavy Duty Anchors
Tasman District Council / AlphaOne Multiproof Approval A107

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# TruBolt™
## Stud Anchors

Ramset™

### TruBolt™ Stud Anchors - Hex Nut - Hot Dipped Galvanised

| Part No | Thread Size | Max Fixture Thickness (mm) | Overall Anchor Length (mm) | Drilled Hole Ø (mm) | Fixture Hole Ø (mm) | Min Hole Depth (mm) | Effective Length | Order Qty |
|---|---|---|---|---|---|---|---|---|
| T12080GH | M12 | 6 | 80 | 12 | 15 | 90 | 58 | 20 |
| T12100GH | M12 | 25 | 100 | 12 | 15 | 105 | 71 | 20 |
| T12120GH | M12 | 45 | 120 | 12 | 15 | 105 | 93 | 20 |
| NZ ONLY | | | | | | | | |
| T12140GH | M12 | 65 | 140 | 12 | 15 | 105 | 111 | 20 |
| T12180GH | M12 | 100 | 180 | 12 | 15 | 125 | 151 | 20 |
| T16110GH | M16 | 8 | 100 | 16 | 19 | 115 | 67 | 20 |
| T16125GH | M16 | 20 | 125 | 16 | 19 | 135 | 85 | 20 |
| T16150GH | M16 | 45 | 150 | 16 | 19 | 145 | 110 | 20 |
| T16175GH | M16 | 70 | 175 | 16 | 19 | 145 | 135 | 20 |
| T20140GH | M20 | 15 | 140 | 20 | 24 | 140 | 95 | 10 |
| T20160GH | M20 | 35 | 160 | 20 | 24 | 170 | 115 | 10 |
| T20215GH | M20 | 90 | 215 | 20 | 24 | 200 | 170 | 10 |

### TruBolt™ Stud Anchors - Hex Nut - Zinc Plated

| Part No | Thread Size | Max Fixture Thickness (mm) | Overall Anchor Length (mm) | Drilled Hole Ø (mm) | Fixture Hole Ø (mm) | Min Hole Depth (mm) | Effective Length | Order Qty |
|---|---|---|---|---|---|---|---|---|
| AU ONLY | | | | | | | | |
| T06055 | M6 | 15 | 55 | 6 | 8 | 55 | 38 | 100 |
| T06085 | M6 | 45 | 85 | 6 | 8 | 75 | 68 | 100 |
| T06120 | M6 | 80 | 120 | 6 | 8 | 75 | 103 | 50 |
| T06150 | M6 | 110 | 150 | 6 | 8 | 75 | 133 | 100 |
| T06180 | M6 | 140 | 180 | 6 | 8 | 75 | 163 | 100 |
| T08065 | M8 | 12 | 65 | 8 | 10 | 65 | 45 | 50 |
| T08090 | M8 | 40 | 90 | 8 | 10 | 75 | 70 | 50 |
| T10075 | M10 | 12 | 75 | 10 | 12 | 80 | 52 | 50 |
| T10090 | M10 | 30 | 90 | 10 | 12 | 90 | 67 | 50 |
| T10120 | M10 | 50 | 120 | 10 | 12 | 100 | 97 | 20 |
| T12080 | M12 | 6 | 80 | 12 | 15 | 90 | 58 | 20 |
| T12100 | M12 | 25 | 100 | 12 | 15 | 105 | 71 | 20 |
| T12120 | M12 | 45 | 120 | 12 | 15 | 105 | 93 | 20 |
| T12140 | M12 | 65 | 140 | 12 | 15 | 105 | 111 | 20 |
| T12180 | M12 | 100 | 180 | 12 | 15 | 125 | 151 | 20 |
| T16110 | M16 | 8 | 110 | 16 | 19 | 125 | 67 | 20 |
| T16125 | M16 | 20 | 125 | 16 | 19 | 135 | 85 | 20 |
| T16150 | M16 | 45 | 150 | 16 | 19 | 145 | 110 | 20 |
| T16175 | M16 | 70 | 175 | 16 | 19 | 145 | 135 | 20 |
| T20140 | M20 | 15 | 140 | 20 | 24 | 160 | 95 | 10 |
| T20160 | M20 | 35 | 160 | 20 | 24 | 170 | 115 | 10 |
| T20215 | M20 | 90 | 215 | 20 | 24 | 200 | 170 | 10 |

### TruBolt™ Stud Anchors - Indicative Working Loads in 32MPa Concrete

| Thread Size | Embedment Depth (mm) | Tightening Torque (Nm) | Min Edge Distance (mm) | Min Anchor Spacing (mm) | Max Tensile Load, $N_a$ (kN)* | Max Shear Load, $V_a$ (kN)* |
|---|---|---|---|---|---|---|
| M6 | 32 | 10 | 50 | 100 | 3.4 | 2.8 |
| M8 | 54 | 20 | 80 | 160 | 7.2 | 4.9 |
| M10 | 72 | 35 | 110 | 220 | 9.9 | 6.8 |
| M12 | 86 | 50 | 130 | 260 | 12.7 | 8.6 |
| M16 | 115 | 155 | 170 | 340 | 20.9 | 14.4 |
| M20 | 145 | 355 | 220 | 440 | 32.5 | 27.3 |

***The design engineer should ensure the structural element is capable of supporting these loads.**
**Refer to Ramset™ Specifiers Resource Book for more information or explanation of technical data.**

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KOPINE®
FLOORING SYSTEMS

# TECHNICAL DATA SHEET

APRIL 2021

Tasman District Council / AlphaOne Multiproof Approval – 107

TONGUE & GROOVE 12
KOPINE

ULTRA LOCK™ 12
KOPINE

CODEMARK
AQ-220917-CMNZ

ENVIRONMENTAL CHOICE NEW ZEALAND
Furniture, Fittings and Flooring
Licence No. 3210078

kopine.co.nz

# TECHNICAL DATA SHEET

## PRODUCT DESCRIPTION

Kopine Flooring Systems - Ultralock™12 and Tongue & Groove12 - are made from high density particleboard designed to offer superior stiffness for maximum span capability and weather resistance up to 12 weeks during construction.

Kopine Flooring Systems are cost effective, simple to lay and available in two jointing options. The fully glued joint can be walked on after two hours of installation.

Kopine Ultralock™12 is a unique patented system which uses fully glue bonded edges to form a continuous flooring membrane eliminating the need for nogs or dwangs under joints. The use of Gorilla Grip 1 Hour Cure allows for multiple sheets of Kopine Ultralock™12 to form into a continuous panel, reducing the "squeaks, creaks and groans."

The glue bond also provides an effective seal against moisture into the sheet edges during construction. This significantly reduces edge peaking and the risk of a squeaky floor.

Kopine Tongue and Groove is a more traditional tongue and groove method of jointing but uses a glue bond in addition to the black PVC tongue to produce a strong joint which significantly reduces edge peaking compared to the traditional glueless systems.

## INTENDED USE

Kopine Flooring Systems are intended for use as flooring in residential buildings designed and constructed within the scope of NZS 3604:2011 Timber Framed Buildings.

Kopine Flooring Systems are suitable for use as a flooring diaphragm within the scope of NZS 3604 and are Codemark compliant.

## LIMITATIONS

Where Kopine Flooring Systems are used outside the scope of NZS 3604 or where concentrated loads exceed 180 kg or uniformly distributed loads exceed 200kg/m2 a suitably qualified professional must be consulted.

Kopine Flooring Systems are suitable for residential flooring applications with a maximum frame spacing of 600mm centres for a maximum load of 1.8 kN live load.

Live loads above 2.0kPa / 1.8 kN are required to be specifically designed using the properties table contained in the Kopine 'Installation Guide and Technical Specifications' for Ultralock™12 and Tongue & Groove12 Flooring.

Kopine Flooring may be exposed to weather for up to 12 weeks. However, during construction all effort must be made to prevent ponding of water on the surface.

Protective membranes or coatings must not be used on the top or bottom of the floor while exposed to weather during construction.

For full guidance and information for specifying and installing Kopine Flooring Systems, please refer to the online video or installation instructions for Ultralock™12 and Tongue & Groove12 Flooring on the Kopine website, or download the 'Installation Guide and Technical Specifications' document from the resources page of the website.

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## MANUFACTURE

Kopine Ultralock™12 and Tongue & Groove12 particleboard flooring is made in New Zealand by Kopine, a business unit of NZ Panels Group. Kopine is an engineered reconstructed wood panel manufactured by bonding pine wood particles with a melamine urea formaldehyde resin using a combination of heat and pressure.

It is manufactured at the Kopu plant using untreated wood shavings supplied from timber sawmills. These sawmills use plantation-grown, radiata pine timber sourced from sustainable forests.

## AVAILABLE SIZES

| Product | Panel size | Thickness | Weight per sheet (approx.) |
|---|---|---|---|
| Ultralock™12 | 2400 x 1200 mm | 20mm | 41kg |
| Ultralock™12 | 3600 x 1200 mm | 20mm | 61kg |
| Tongue & Groove12 | 2400 x 1200 mm | 20mm | 41kg |
| Tongue & Groove12 | 3600 x 1200 mm | 20mm | 61kg |

CODEMARK™ AQ-220917-CMNZ ®

## COMPLIANCE: NEW ZEALAND BUILDING CODE / CODEMARK

Both Kopine Tongue & Groove12 and Ultralock™12 flooring have received Codemark compliance and this includes the glue system provided at no extra charge when Kopine board is purchased.

### CLAUSE B1 STRUCTURAL:

Kopine Flooring is manufactured in accordance with AS/NZS 1860 and as such complies with the structural requirements for sheet flooring of Clause B1/ 3.1, 3.2, 3.3 and 3.4 of the New Zealand Building Code.

The subfloor must be designed and constructed in accordance with NZS 3604 or designed by a suitably qualified professional.

### CLAUSE B2 DURABILITY:

When used installed in accordance with the supplied 'Installation Guide and Technical Specifications' document, and in accordance with NZS 3602, Kopine Flooring Systems will meet the durability requirements of the New Zealand Building Code under Clause B2/3.1a.

## HANDLING AND STORAGE

Kopine Flooring panels must be stored in dry interior conditions. Use a minimum of three bearers for a 2400 x 1200 panel and four bearers for 3600 x 1200 panels – with bearers laid underneath the full width of the panels, keeping them flat at all times. Avoid leaning sheets against walls. Store sheets where construction traffic and construction activity will not damage sheets. Treat sheets as a finished product and avoid dragging sheets across other surfaces.

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## SUSTAINABILITY

As a leader in the panel industry Kopine adopts and promotes sustainable business practices designed to minimise our national and global environmental impact.

Both Kopine Tongue & Groove12 and Ultralock™12 flooring have Environmental Choice NZ accreditation in the flooring category.

Kopine continues to search out alternative products to meet the growing needs of our environmentally conscious customers, while creating processes in our manufacturing plant that are mindful of the environment for future generations.

### SOME OF THE SUSTAINABLE PRINCIPLES INCLUDE:

- Donating sawdust chip leftovers to local schools and farmers.
- Reduction in annual use of diesel.
- Supplying flooring that meets E1 formaldehyde emissions in line with AS/NZS 1860 Standard.
- Reduction in the gauge of polyester film, making it thinner and stronger, and recyclable.
- Control of manufacturing waste such as separating waste for recycling.
- Endeavouring to buy any goods locally to cut down on the number of travel miles needed for them to reach the plant.

## HEALTH & SAFETY

Kopine Ultralock™12 and Kopine Tongue & Groove12 flooring should be handled in accordance with the Kopine Particleboard MSDS Materials Safety Data sheet (MSDS). The MSDS is available online from www.kopine.co.nz.

Wood dust and dust from resins used in the manufacture of particleboard are known health hazards. When machining particleboard sheets, including drilling, planing routing and sawing, a suitable class P1 or P2 respirator should be worn along with non-fogging safety glasses.

To avoid cuts from sharp edges suitable protective gloves should be worn.

Kopine Flooring sheets meet formaldehyde emission Class E1 – less than 1.5mg/litre.

## WARRANTY

Kopine offers a 50 year warranty on its Ultralock™12 and Tongue & Groove12 flooring provided it is used as the Installation Guide states, in a tradesman like manner and in accordance with relevant Standards and New Zealand Building Code requirements.

Download the full warranty wording from the Kopine website at www.kopine.co.nz.

## HANDY REFERENCES (available at www.kopine.co.nz)

- **Kopine Flooring Systems Installation Guide and Technical Specs**
- **Kopine Particleboard MSDS**
- **Environmental Choice NZ Certificate**
- **Codemark Certificate**

## TECHNICAL SUPPORT

Further information and technical support is available by contacting Kopine on 0800 866 678 or emailing sales@kopine.co.nz.

This publication was issued in April 2021.
Please ensure that you are using the latest publication by contacting Kopine or downloading the latest Technical Data Sheet from www.kopine.co.nz.

Kopine, a business unit of New Zealand Panels Group, reserves the right to make changes to information in this publication without notice.

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KOPINE®
FLOORING SYSTEMS

# INSTALLATION GUIDE

## AND TECHNICAL SPECIFICATIONS

APRIL 2021

Tasman District Council / AlphaOne Multiproof Approval – 107

TONGUE & GROOVE 12
KOPINE

ULTRA LOCK™ 12
KOPINE

CodeMark CM70064

Environmental Choice New Zealand
Furniture, Fittings and Flooring
Licence No. 3210078

kopine.co.nz

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ULTRA LOCK™ 12 KOPINE

TONGUE & GROOVE 12 KOPINE

# KOPINE FLOORING SYSTEMS INCLUDE BOTH ULTRALOCK12 AND TONGUE & GROOVE12 HIGH-DENSITY PARTICLEBOARD FLOORING.

- Codemark compliant
- 12 week exposure time
- Meets AS/NZS1860 Standard
- Adhesive for edge joins provided at no extra cost
- Easy to install - no nogs or dwangs required
- Moisture-resistant joints
- 2-hour walk on time
- Environmental Choice NZ
- Low formaldehyde emission (E1)
- 20mm thick
- Two panel sizes – 2400 x 1200mm and 3600 x 1200mm
- Made right here in New Zealand at Kopu near Thames.
- Using sustainable NZ grown Radiata pine

## WHAT'S IN THIS GUIDE

1. **How to install Ultralock12**
2. **How to install Tongue & Groove12**
3. **Technical Specifications**

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# 1 HOW TO INSTALL ULTRALOCK12

Kopine Ultralock™12 is a high-density particleboard flooring that uses a patented system to bond the panel edges together for a seamless finish. You don't need nogs or dwangs and the Gorilla Grip glue provides an effective moisture seal and an excellent strong joint when set.

## WHAT YOU NEED BEFORE YOU START

- Soudal Gorilla Grip is the only tested adhesive for Codemark compliance and is supplied in a quantity to cover the edges but not joists. Please refer to the table at the back to see how much glue is provided with your flooring order.
- No. 8 gauge x 50mm countersunk screws (recommended).

**OR**

- A minimum of 65mm x 2.8mm hot-dipped galvanised annular grooved flooring nails if you've got a nail gun and know how to use it.

**OR**

- A minimum of 60 x 2.8mm hot-dipped galvanised jolt head nails or 60 x 3.15mm hot-dipped galvanised csk annuler grooved flooring nails (if you're old school and using a hammer).

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### STEP 1
## JOIST SPACING

- Joist spacing should be no more than 600 mm centres. The closer the joists the more rigid the floor.
- Before you lay your first panel, put some nails into the joist to hold it in place.
- Irrespective of the size of the floor allow for an 8mm expansion gap between the panel edges and any fixed elements i.e. masonry walls, bottom plates etc.

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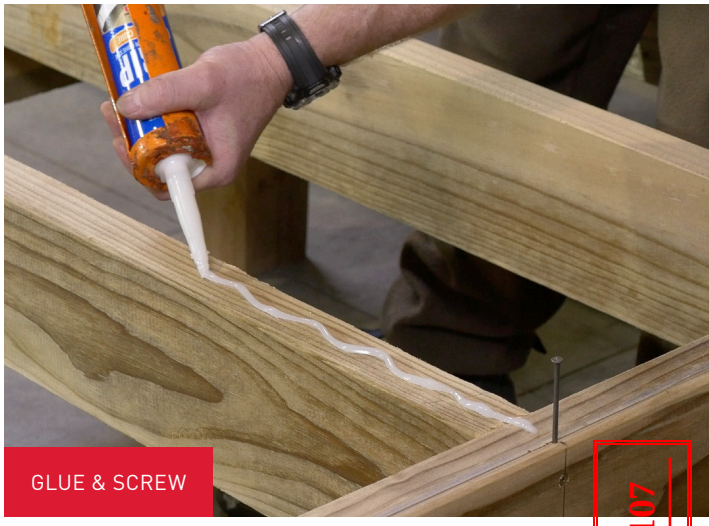
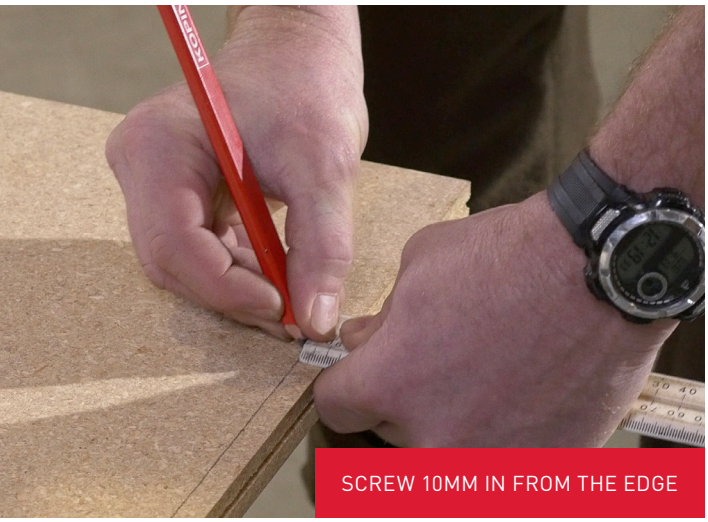
## STEP 2
# GLUE THE JOISTS

Before you put down your first panel, apply a continuous bead of glue to the top of the joists it's going to sit across, and then all subsequent joists as you lay further sheets.



GLUE & SCREW

ALLOW 8MM EXPANSION GAP



SCREW 10MM IN FROM THE EDGE

## STEP 3
# LAYING THE FIRST SHEET

- Make sure the panel edges are square, and free from dirt and grease.
- Take a straight, square line from one corner of the floor and lay the first panel down this line, across the glued joists.
- Screw the first panel down.
- Nails or screws should be spaced at 150mm centres along the short edge of the panels and around the perimeter edge of the entire floor and at 200mm centres along intermediate joists.
- Nails or screws must be a minimum of 10mm from the edge.
- Completely fix panels when you lay them down – corner fixing only is not good practice and not enough to hold the panels while the glue cures.

**Using screws?** Use a lower torque setting to reduce the risk of overdriving and tearing the threads loose in the timber. Overdriven screws must be removed and set in a new position. Screw fixing gives the tightest result of all the methods.

**Using a nail gun?** A depth adjuster attachment should be used on the nail gun and adjusted to ensure that the nails do not penetrate more than 2 mm below the surface of the panel. Do not rely on the nails to pull panels down tight on the joists – panels must be in contact with the joist before the nail is fired.

**Using a hammer?** Drive nails at a slight angle (alternating) and parallel to the sheet edge for improved lateral holding. Nail vertically at corners. Nails should be hammered flush when laying, then punched below the surface just before sanding.

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## STEP 4
# GLUEING THE PANELS

**Note:** Gorilla Grip adhesive works best in conditions above 10C. Do not use below 5C. It's the ONLY adhesive tested and recommended for use with Kopine flooring to achieve Codemark compliance.

- Apply the glue bead to all edges of the first panel in a continuous run of at least 5mm diameter – more is better!
- The glue should squeeze out of the top of the joint when you push the panels together.
- Lay panels in a staggered, brick-like pattern with panels at right angles to the joists, making sure you glue all edges and the joists underneath – this will help stop the squeaking and peaking.
- Gorilla Grip cures fast so don't mess about. Fix the panels within 15 minutes of the glue being applied.
- If you move the panels apart after 15 minutes, you'll need to put some fresh glue on before you rejoin them.

GLUE GENEROUSLY ALONG EDGE

EXCESS GLUE MEANS IT'S RIGHT

JOB DONE!

## STEP 5
# AVOID THE PANELS FOR TWO HOURS

- Clean any excess glue off the joints with a scraper.
- Don't walk on the joints for a minimum of two hours after you've glued – especially if joists are at 600mm centres or in cold conditions.
- If you have to walk over it, lay planks across or walk across the joists only.

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# HOW TO INSTALL TONGUE & GROOVE12

Kopine Tongue & Groove12 is a high-density particleboard flooring that uses black plastic tongues with a grooved edge to provide a super tough join. You don't need nogs or dwangs and the glue (provided when you buy the board at no extra cost) provides an effective moisture seal to minimise joint peaking.

## WHAT YOU NEED BEFORE YOU START

- Soudal Gorilla Grip is the only tested adhesive for Codemark complience. We supply sufficient adhesive for gluing edges but not the joists.
- No. 8 gauge x 50mm countersunk screws (recommended).
- A rubber mallet.

**OR**

- A minimum of 65mm x 2.8mm hot-dipped galvanised annular grooved flooring nails if you're using a nail gun.

**OR**

- A minimum of 60 x 2.8mm hot-dipped galvanised jolt head nails or 60 x 3.15mm hot-dipped galvanised csk annuler grooved flooring nails (if you're old school and using a hammer).

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**STEP 1**

## JOIST SPACING

- Joist spacing should be no more than 600 mm centres. The closer the joists the more rigid the floor.
- Before you lay your first panel, put some nails into the joist to hold it in place.
- Irrespective of the size of the floor allow for an 8mm expansion gap between the panel edges and any fixed elements i.e. masonry walls, bottom plates etc.

GLUE & SCREW

## STEP 2
# GLUE THE JOISTS

Before you put down your first panel, apply a continuous bead of glue to the top of the joists it's going to sit across, and then all subsequent joists as you lay further sheets.

## STEP 3
# LAYING THE FIRST SHEET

- Make sure the panel edges are square, and free from dirt and grease.
- Take a straight, square line from one corner of the floor and lay the first panel down this line, across the glued joists.
- Screw the first panel down, ensuring screws (or nails) are a minimum of 15mm from the edge to avoid the plastic tongue.
- Nails or screws should be spaced at 150mm centres along the short edge of the panels and around the perimeter edge of the entire floor, and at 200mm centres along intermediate joists.
- Completely fix panels when you lay them down – corner fixing only is not good practice and not enough to hold the panels while the glue cures.

**Using screws?** Use a lower torque setting to reduce the risk of overdriving and tearing the threads loose in the timber. Overdriven screws must be removed and set in a new position. Screw fixing gives the tightest result of all the methods.

**Using a nail gun?** A depth adjuster attachment should be used on the nail gun and adjusted to ensure that the nails do not penetrate more than 2 mm below the surface of the panel. Do not rely on the nails to pull panels down tight on the joists – panels must be in contact with the joist before the nail is fired.

**Using a hammer?** Drive nails at a slight angle (alternating) and parallel to the panel edge for improved lateral holding. Nail vertically at corners. Nails should be hammered flush when laying then punched below the surface just before sanding.

ALLOW 8MM EXPANSION GAP

SCREW 15MM IN FROM THE EDGE

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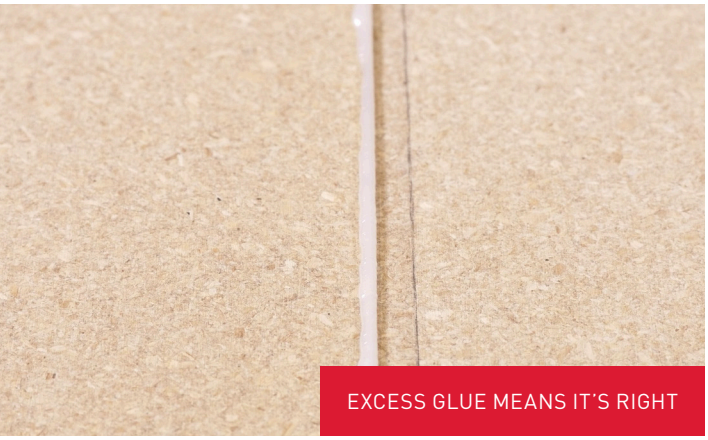
GLUE GENEROUSLY ALONG EDGE



EXCESS GLUE MEANS IT'S RIGHT

## STEP 4
# GLUEING THE PANELS

**Note:** Gorilla Grip adhesive works best in conditions above 10C. Do not use below 5C. It's the ONLY adhesive tested and recommended for use with Kopine flooring to achieve Codemark compliance.

- Apply the glue bead to all edges of the first panel (including the top and bottom of the tongue) in a continuous run of at least 5mm diameter – more is better!
- The glue should squeeze out of the top of the joint when you push the panels together. You'll need to use the rubber mallet to join the panels tightly.
- Lay panels in a staggered, brick-like pattern with panels at right angles to the joists, making sure you glue all edges and the joists underneath – this will help stop the squeaking and peaking.
- Gorilla Grip cures fast so don't mess about. Fix the panels within 15 minutes of the glue being applied.
- If you move the panels apart after 15 minutes, you'll need to put some fresh glue on before you rejoin them.

## STEP 5
# AVOID THE PANELS FOR TWO HOURS

- Clean any excess glue off the joints with a scraper.
- Don't walk on the joints for a minimum of two hours after you've glued – especially if joists are at 600mm centres or in cold conditions.
- If you have to walk over it, lay planks across or walk across the joists only.

JOB DONE!

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# TECHNICAL SPECS

Ultralock™12 and Tongue & Groove12 are high-density particleboard flooring systems made here in New Zealand by Kopine. Strong and fast to install, with water-resistant joints, both flooring systems are quiet, cost-effective and will stand the test of time.

The specifications here cover both systems – where differences occur they are clearly identified.

Both flooring products have been tested to AS/NZ 1860 and have Codemark Certification and Environmental Choice NZ certification.

ULTRA LOCK™ 12 KOPINE

Kopine Ultralock™12 system uses a patented system to glue the grooved panel edges together in a continuous flooring membrane. The adhesive, which is supplied at no extra cost when you buy the board, eliminates the need for nogs or dwangs, saving time and money.

The glue also provides an effective moisture seal at the joints, significantly reducing the chance of edge peaking that requires additional sanding.

TONGUE & GROOVE 12 KOPINE

Kopine Tongue & Groove12 is a traditional method of jointing but uses a glue bond in addition to the black PVC tounge to produce a strong joint which significantly reduces edge peaking compared to glueless systems.

## PRODUCT DESCRIPTION

Kopine Ultralock™12 and Kopine Tongue & Groove12 flooring systems are reconstituted wood panels manufactured by bonding radiata pine wood particles with a melamine urea formaldehyde resin using a combination of heat and pressure.

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ENVIRONMENTAL CHOICE NEW ZEALAND
*Furniture, Fittings and Flooring*
Licence No. 3210078

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## PROPERTIES OF KOPINE FLOORING SYSTEMS

| Dimensions | | |
|---|---|---|
| Size (mm) | 2400 x 1200 | 3600 x 1200 |
| Nominal Thickness(mm) | 20 mm | 20 mm |
| Sheets per pack | 50 | 20 |
| Sheet weight (kg) | 41 | 61 |

| Tolerances | |
|---|---|
| Board squareness | Length of sheet diagonals does not differ more than 1.5 mm |
| Thickness | +/ – 0.4 mm |
| Length and width | +/ – 1.5 mm |
| Sheet edges | 2.0 mm max. deviation from line |

| Physical properties of Kopine particleboard | |
|---|---|
| Density | > 670 kg/m3 |
| Internal bond[1] | > 500 kPa |
| Modulus of rupture[1] | > 17 MPa |
| Modulus of elasticity[1] | > 2650 MPa |
| Moisture content (at dispatch) | 5 – 13 % |
| Surface water absorption[1] | < 210 g/m2 |
| Thickness swell (24 hour soak)[1] | < 14 % |
| Extractable formaldehyde | E1:≤1.5 mg/L when tested in accordance with AS/NZS 4266.16. |
| Surface | Upper surface is sanded, underside is sanded |
| Thermal insulation | R = 0.13 m2 C/W |

[1] Physical properties based on lower 5th percentile values in relation to particleboard flooring panels when tested internally (based on the procedures stated in AS/ NZS 4266).

## BUILDING MATERIALS FOR USE WITH KOPINE® FLOORING SYSTEMS

### Soudal Gorilla Grip Adhesive

Soudal Gorilla Grip is a fast curing, one component, polyurethane-based adhesive with high bond strength. It bonds deeply into the panel fibres, even on damp surfaces. Soudal Gorilla Grip cures to a transparent glue line and gives added protection against moisture penetration into the joint significantly decreasing the risk of edge swell or peaking. The glue is temperature resistant to 100˚C.

For more information contact Soudal on 0800 701 080.

Construction adhesives are supplied in 310 ml cartridges and will fit any standard glue gun. Cartridges are included at no extra cost as part of the Kopine Ultralock™12 and Tongue & Groove12 flooring systems.

### Sustainability

Kopine Ultralock™12 and Tongue & Groove12 are made from radiata pine shavings and chips. New Zealand plantations are managed in compliance with the New Zealand Forest Accord.

Kopine Flooring Systems have Environmental Choice NZ accreditation under the Floor Coverings category.

### Joists

The choice of joists will play a part in determining the performance of the flooring system. Moisture content of the joists must be less than 18%. It is highly recommended that joists be either Machine Stress graded, high temperature kiln dried timber such as laser frame, OR where longer spans and higher performance is required, use LVL (laminated veneer lumber) joists.

The benefits are a stiffer, more level floor than one laid with conventional wet, visual graded joists. This will result in reduced vibration, transmitting less sound above and below the floor.

**Note:** Kopine Flooring systems provides maximum performance using the specified components only when used in accordance with the installation instructions at the front of this brochure. Substitute components have not been tested and may not perform to the same standard and are not recommended.

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# DESIGN CONSIDERATIONS

### Design responsibility

The specifier for the project must ensure that the details in the specification are appropriate for the intended application and that additional detailing is provided for specific design or any areas that fall outside the scope and specifications of this literature.

### Ground clearance

A minimum clearance of 550 mm must be provided between the underside of the flooring and the surface of the ground. Refer NZS 3604:2011. Inspection access is also required.

### Heavy loadings

For concentrated loads over 180 kg or uniformly distributed loads over 200 kg/m2, a structural engineer should be consulted. Joints must be supported by nogs/dwangs beneath heavy loads.

### Floor frame spacings

Kopine Ultralock™ particleboard flooring is suitable for residential flooring applications with a maximum frame spacing of 600 mm for a maximum 1.8 kN live load. Live loads above 2.0 kPa / 1.8 kN are required to be specifically designed using Kopine flooring properties outlined earlier in this technical section.

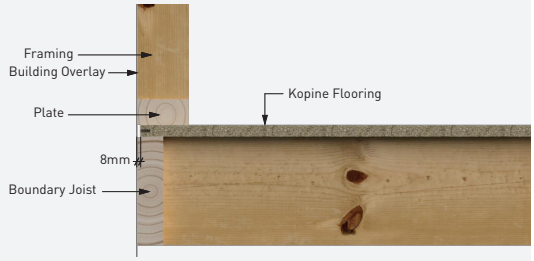
For greater strength and stiffness consider a frame spacing of 400 mm centres or 450 mm centres where 3600 x 1200 mm sheets are used.

### Expansion gaps

Regardless of the size of the floor, an 8 mm expansion gap must be provided between the panel edges and any fixed elements e.g. masonry walls, bottom plates etc. This is important to allow for any linear expansion and applies whether pre or post laying.

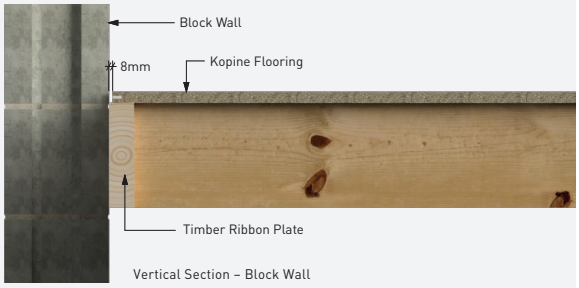
Where the effects of expansion in the flooring may be critical with respect to achieving the desired floor or wall finishes, then it is recommended that expansion joints be incorporated into the design. Allow expansion of 2.0 mm/m of floor dimension utilising the details given under 'Large Floor Areas' section.

**Expansion Gap at Exterior Wall**



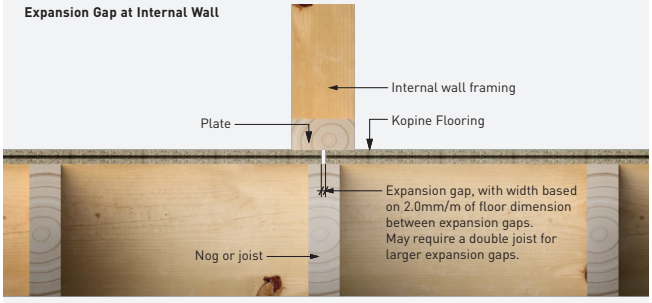

Vertical Section

**Expansion Gap at Exterior Block Wall**




Vertical Section – Block Wall

**Expansion Gap at Internal Wall**




Vertical Section

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**Large floor areas**

As with all wood products, particleboard floors will expand and contract with changes in moisture content of the panels. For large floor areas, provision must be made for expansion of the panels in addition to the perimeter gaps. It is recommended that expansion joints should be designed into the floor at a minimum of 20 mm per 10 metre of floor at a maximum of 10 metre spacing's or smaller gaps with closer spacing to give an equivalent space.

Where floors are laid in wet conditions, consideration should be given to decreasing the distance between expansion joints.

**Exposure to weather**

- Kopine flooring systems may be exposed to weather for up to three months. For best results keep exposure to a minimum.
- Pre laying - make sure the building is closed in within three months, preferably sooner. Post lay if there is a risk of over-exposure.
- Clear surface water from the floor quickly - do not allow to pond.
- To allow moisture to evaporate freely, do not apply sealer's, tape or other impervious sheet material to pre laid floor while it is exposed.
- Kopine flooring panels are designed to be laid across joists and glued together at the edges. This continuous glue bond eliminates the need for further edge support such as timber nogging. All end joints (short edges) must be made over a joist and glued.

**Floor diaphragms**

Kopine Ultralock™12 and Kopine Tongue & Groove12 are suitable for use as a floor diaphragm within the scope of NZS 3604.

**Ventilation**

Cross-flow ventilation must comply with NZS 3604 6.14 Prevention of Dampness. Ventilation openings must be evenly distributed around the entire perimeter – in the foundation and/or substructure walling.

**A ground cover vapour barrier must be installed in sub-floor areas where:**

- The ground will be permanently or seasonally damp.
- The airflow is obstructed by party walls, internal foundation walls or attached terraces.
- Points on the ground are greater than 7.5 metres from a ventilation opening.

Refer to NZS 3604 – 6.14.3.

**Underside coating**

The underside of Kopine flooring panels facing the ground must not be coated with any form of sealant and only approved product is to be used as insulation as per the NZ Building Code.

This allows the sheet to breathe.

**Surfacing for wet areas**

In water-serviced areas such as laundries, bathrooms, toilets and showers the floor must be covered with a moisture-impervious membrane, coved at the walls, extending under toilet pans. Vinyl tiles, carpet or clear coatings must not be used in these areas. Refer Acceptable Solution E3/AS1. 2.12

**Spread of fire**

Kopine Flooring Systems can be used where the NZ Building Code requires no specific fire protection criteria.

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**Heat and fire safety**

The floor must be protected from heat sources such as free-standing heaters, space heaters, hot air ducts and pipes containing hot water or steam. Floor temperature must not be allowed to exceed 35˚C for prolonged periods.

NZ Building Code C1.3.2 specifies how the floor must be separated from fireplaces, flues, chimneys and fuel burning appliances. Consult appliance manufacturers to determine minimum clearances which will ensure the floor does not exceed 50˚C for short periods or 35˚C for longer.

**Floor Heating Systems**

- Over Floor Heating Systems
  Over floor heating e.g. under carpet or tiles, may be used with Kopine Flooring Systems , provided the floor surface temperature does not exceed 35˚C.

  Care must be taken to ensure that the floor temperature is normally maintained at or less than the recommended long-term maximum of 35˚C. In these applications, care must be taken to ensure that flooring is laid over dry framing and is well protected from the weather until the building is closed in. Laying of the flooring after close in is recommended. Any failure of the heating system is the responsibility of the floor heating system manufacturer.
- Under Floor Heating Systems
  Under NO CIRCUMSTANCES should any floor heating system be attached to the underside of Kopine flooring panels or be attached or placed between joists or any cavities of the floor framing.

**Insects – fungus**

The risk of damage from insects such as borer or termites is very low. For best results ensure the moisture content does not exceed 18% for prolonged periods and install in accordance with the ventilation requirements of NZS 3604.

**Structure**

Kopine® Flooring Systems are manufactured to AS/NZS 1860 and as such comply with B1 of the NZ Building Code. The long-term performance of the floor depends almost entirely on the dryness and flatness of the subfloor and the standard of fixing.

**Durability**

When used in accordance with the instructions and recommendations in this guide and in accordance with NZS 3602, Kopine Ultralock™12 and Kopine Tongue & Groove12 flooring will meet the durability performance requirements of NZ Building Code. Both flooring systems carry Codemark accreditation, meeting the requirement for 50 years durability under the code and this includes the supplied adhesive.

## HEALTH & SAFETY

Kopine Flooring Systems should be handled as per the Particleboard Material Safety Data Sheet (MSDS) downloadable from **www.kopine.co.nz**

Storage and work areas should be well ventilated and dust cleared regularly by vacuum or wet sweeping methods.

If skin irritation occurs, wear long-sleeved shirts, trousers and comfortable work gloves.

For respiratory protection, wear dust masks which comply with AS/NZS 1715 and AS/NZS 1716, EN 143:2000 and EN 149:2001, ANSI 288 or national equivalent.

For eye protection wear safety glasses which comply with AS/NZS 1337.

Soudal Gorilla Grip Adhesive: Observe normal industrial hygiene measures and for further information refer to the MSDS sheet available from Soudal, 0800 701 080.

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## STORAGE & HANDLING

**Kopine® Ultralock™12 & Tongue & Groove12 Flooring:**

- May be exposed to weathering for up to 12 weeks during the construction process. It must not be exposed for longer periods and should be protected from extreme weather during construction.
- Must not be installed over timber supports with moisture content over 18%.
- Is not suitable for use as a substrate for roofing or decking membranes.
- Interior surfaces must be sealed with polyurethane or covered with carpet or sheet vinyl prior to occupation of the building.

**Before Installation**

- Protect the panels from weather and keep dry before laying. Store the pack clear of the ground on level bearers.
- A breather-type cover must be supported clear of the panel surface allowing air to circulate freely around the pack.

**Handling**

- Use gloves when handling product to avoid splinters.

**After Installation**

- Kopine flooring may be exposed to weather for up to 12 weeks. For best results keep exposure to a minimum.
- Clear surface water from the floor quickly – do not allow it to pond. Remove the bottom plate from doorways to make clearing easier.
- To allow moisture to evaporate freely, do not apply sealers, tape or other impervious sheet materials to a pre-laid floor while it is exposed.

Dimensional changes of up to 0.2% in panel length and width may occur in response to humidity changes.

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# FINISHING

## CLEAR FINISHING PREPARATION

If clear finishing is planned, to avoid colour variation do not mix batches of sheets. To prevent stains, avoid prolonged contact with sawdust piles, stacked timber, steel scaffolding, cement, strapping or nails especially if rusting is likely. Avoid spills of tea, coffee, paint or cement. Keep the period of exposure short.

Kopine flooring panels must be sealed with polyurethane or covered with carpet or sheet vinyl before the building is occupied. Lightly sand with 40-80 grit paper before laying floor coverings or clear finishing.

Do not over-sand. Excessive sanding can reduce structural strength and lead to colour variation, visible when the floor is clear finished.

### Clear finishing

- Punch nails then carefully sand the entire floor.
- Remove dust from the floor and skirtings with a broom and vacuum cleaner.
- Apply the first polyurethane coat, following manufacturer's instructions.
- Fill nail holes with a filler such as DAP wood dough.
- Apply further coats, lightly sanding between each coat.
- Follow manufacturer's instructions to complete.

### Glue-fixed floor coverings

Refer to floor covering manufacturer's specific requirements.

### Maintenance

Regular underfloor inspections must be made. Any sign of moisture or mould on the floors or lower parts of walls must be investigated and corrective action taken. Plumbing leaks, moisture migration or leakage from external sources must be rectified. Moisture concentration in wall cavities must be repaired and recurrence prevented.

Keep vents in the perimeter foundation walls clear of vegetation and other obstructions to allow proper subfloor ventilation at all times. Keep subfloor vapour barriers and insulation foil in a serviceable and effective condition.

Floor coverings and coatings must protect the whole floor surface. In water-serviced areas the moisture-impervious floor covering or coating must be maintained so water cannot reach the particleboard.

Floor wastes must be kept unobstructed and drain to the outside of the building.

### After flooding

Dry the floor quickly. Lift carpets and slit insulation foil drapes so all water drains.

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**FURTHER INFORMATION**

Please refer to the appropriate Technical Data Sheets or MSDS which are downloadable from the Kopine website at **www.kopine.co.nz**

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# GORILLA GRIP RATIO CHART FOR GLUING EDGES

KOPINE® FLOORING SYSTEMS

2400x1200

GORILLA GRIP CONSTRUCTION ADHESIVE 1 HOUR CURE

| Amount of sheets | Amount of Cartridges |
|---|---|
| 50 | 18 |
| 49 | 18 |
| 46-48 | 17 |
| 44-45 | 16 |
| 41-43 | 15 |
| 38-40 | 14 |
| 35-37 | 13 |
| 32-34 | 12 |
| 30-31 | 11 |
| 27-29 | 10 |
| 24-26 | 9 |
| 21-23 | 8 |
| 19-20 | 7 |
| 16-18 | 6 |
| 13-15 | 5 |
| 10-12 | 4 |
| 7-9 | 3 |
| 5-6 | 2 |
| 3-4 | 1 |
| 1-2 | 1 |

KOPINE® FLOORING SYSTEMS

3600x1200

GORILLA GRIP CONSTRUCTION ADHESIVE 1 HOUR CURE

| Amount of sheets | Amount of Cartridges |
|---|---|
| 20 | 9 |
| 19 | 9 |
| 18 | 8 |
| 17 | 8 |
| 16 | 7 |
| 15 | 7 |
| 14 | 6 |
| 13 | 6 |
| 12 | 5 |
| 11 | 5 |
| 10 | 4 |
| 9 | 4 |
| 8 | 3 |
| 7 | 3 |
| 6 | 2 |
| 5 | 2 |
| 4 | 1 |
| 3 | 1 |
| 2 | 1 |
| 1 | 1 |

**Please note:**

(50 sheets) 2400x1200 Kopine = 2 cases of 9 Gorilla Grip 1 Hour Cure
(20 sheets) 3600x1200 Kopine = 1 case of 9 Gorilla Grip 1 Hour Cure

| Code | Description | Case Qty |
|---|---|---|
| 20075 | Gorilla Grip 1 Hour Cure Construction Adhesive 310ml | 9 |

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**APRIL 2021**

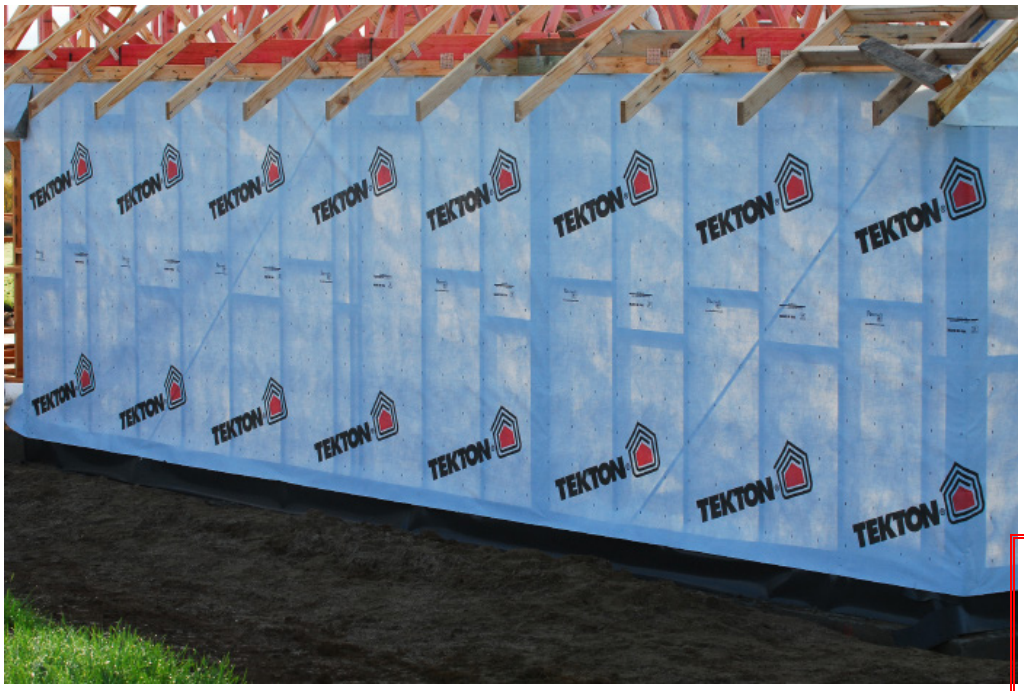
Kopine® is a registered trade mark of Kopine Ltd, a business unit of New Zealand Panels Group.

This guide contains important information on the installation and maintenance of the Kopine Ultralock™ & Tongue & Groove flooring systems. The information contained in this guide is current as at November 2018 and replaces all previous publications relating to the Kopine Ultralock™ and Tongue & Groove flooring systems. Kopine reserves the right to revise this brochure without any notice.

Kopine has used its reasonable endeavours to ensure the accuracy and reliability of the information contained in this brochure, and to the extent permitted by law, will not be liable for any inaccuracies, omissions or errors in this information nor for any actions taken in reliance on this information. When specifying or installing Kopine Flooring Systems visit **www.kopine.co.nz** or call **0800 866 678** to ensure you have the current specification material.

**BRANZ Appraised**
Appraisal No. 548 [2019]

# TEKTON® BUILDING WRAP




**Appraisal No. 548 (2019)**

This Appraisal replaces BRANZ Appraisal No. 548 (2013)

**BRANZ Appraisals**

Technical Assessments of products for building and construction.

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## Product

1.1 Tekton® Building Wrap is a synthetic breather-type flexible wall underlay and air barrier for use under direct and non-direct fixed wall cladding on timber and steel framed buildings. The product is manufactured of a coated spun-bonded polypropylene.

## Scope

2.1 Tekton® Building Wrap has been appraised for use as a flexible wall underlay on timber framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- with absorbent wall claddings directly fixed to framing; and,
- with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; and,
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1; and,
- situated in NZS 3604 Wind Zones up to, and including Very High.

2.2 Tekton® Building Wrap has been appraised for use as a flexible wall underlay on steel framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; and,
- with masonry veneer subject to specific design; and,
- situated in NZS 3604 Wind Zones up to, and including Very High.

2.3 Tekton® Building Wrap has been appraised for use as a flexible wall underlay over rigid wall underlays on timber and steel framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; and,
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1 for timber framed buildings or specific design for steel framed buildings; and,
- situated in NZS 3604 Wind Zones up to and including Extra High.

2.4 Tekton® Building Wrap has also been appraised for use on buildings subject to specific weathertightness design. Building designers are responsible for the building design and for the incorporation of Tekton® Building Wrap into their design in accordance with the declared properties and the instructions of Marshall Innovations Limited.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

## Building Regulations

**New Zealand Building Code (NZBC)**

3.1 **In the opinion of BRANZ, Tekton® Building Wrap, if used, designed, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet, or contribute to meeting the following provisions of the NZBC:**

**Clause B2 DURABILITY:** Performance B2.3.1 (a), not less than 50 years, B2.3.1 (b), 15 years and B2.3.2. Tekton® Building Wrap meets these requirements. See Paragraphs 9.1 and 9.2.

**Clause E2 EXTERNAL MOISTURE:** Performance E2.3.2. When used as part of the cladding system, Tekton® Building Wrap will contribute to meeting this requirement. See Paragraphs 12.1 – 12.3.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. Tekton® Building Wrap meets this requirement and will not present a health hazard to people.

## Technical Specification

4.1 Tekton® Building Wrap is a 100 g/m$^2$ light grey sheet polypropylene membrane material approximately 0.6 mm thick.

4.2 The product is supplied in rolls 1.370 m x 37 m and 2.743 m x 37 m. The product is printed with the Tekton® logo repeated along the length of the roll. The rolls are wrapped with an instruction sticker.

**Accessories**

4.3 Accessories used with Tekton® Building Wrap which are supplied by the installer are:

- Fixings – staples, clouts, screws or proprietary wrap fixings, or other temporary fixings to attach the wall wrap to the framing.
- Wall underlay support – polypropylene strap, 75 mm galvanised mesh or galvanised wire, or vertical cavity battens where required to support the wall wrap in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5.

## Handling and Storage

5.1 Handling and storage of the product, whether on or off site, is under the control of the installer. The rolls must be protected from damage and weather. They must be stored on end, under cover, in clean, dry conditions and must not be crushed.

## Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Tekton® Building Wrap. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

## Design Information

**Timber and Steel Framing**

7.1 Studs must be provided at maximum 600 mm centres. Dwangs must be fitted flush between the studs at maximum 1200 mm centres.

**General**

7.2 Tekton® Building Wrap is intended for use as an alternative to conventional building papers which are fixed over timber and steel framed walls in order to limit the entry of wind into building cavities, and to act as a secondary barrier to wind-driven rain.

7.3 The material also provides a degree of temporary weather protection during early construction. However, the product will not make the building weathertight and some wetting of the underlying structure is always possible before the building is closed in. Hence, the building must be closed-in and made weatherproof before moisture sensitive materials such as wall or ceiling linings and insulation materials are installed.

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7.4 Tekton® Building Wrap must not be exposed to the weather or ultra violet light for a total of more than 60 days before being covered by the wall cladding.

7.5 Tekton® Building Wrap is suitable for use under wall claddings as a wall underlay as called up in NZBC Acceptable Solution E2/AS1, Table 23, except that it must not be used with non-absorbent wall claddings such as vinyl or metal based sidings or weatherboards in direct fixed installations. Tekton® is suitable for use under cavity based wall claddings as a non-absorbent synthetic wall underlay as called up in NZS 2295, Table 2.4 on steel framed buildings. Refer to Table 1.

7.6 Tekton® Building Wrap is also suitable for use as an air barrier to walls that are not lined, such as attic spaces at gable ends, as called up in NZBC Acceptable Solution E2/AS1, Paragraph 9.1.4 (c). Refer to Table 1.

**Table 1: NZBC E2/AS1 Table 23 Requirements**

| NZBC E2/AS1<br>Table 23<br>Wall Wrap Properties | Property Performance Requirement | Actual Property Performance |
|---|---|---|
| Absorbency | ≥ 100 g/m$^2$ | Classified as non-absorbent<br>(see paragraph 7.5) |
| Vapour Resistance | ≤ 7 MN s/g | Pass |
| Water Resistance | ≥ 20 mm | Pass |
| pH of Extract | ≥ 5.5 and ≤ 8 | 9.78 *(Note 1)* |
| Shrinkage | ≤ 0.5% | Pass |
| Mechanical | Edge tear and tensile strength | **Edge tear:**<br>Machine direction = 228 N<br>Cross direction = 186 N<br>**Tensile strength:**<br>Machine direction = 4.4 kN/m<br>Cross direction = 3.9 kN/m |
| Air Barrier | Air resistance: ≥ 0.1 MN s/m$^3$ | Pass |

*Note 1: Further testing of Tekton® Building Wrap was completed to determine the effect of the high pH level on the wall underlay and materials it is likely to come into contact with during its serviceable life. The testing confirmed that the high pH had no adverse effects on the wall underlay performance, or the performance of other materials.*

7.7 In cavity installations where the cavity battens are installed at greater than 450 mm centres, the wall underlay must be supported between the battens to prevent the wall underlay bulging into the cavity space when bulk insulation is installed in the wall frame cavity in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5.

**Stucco Plaster**

7.8 Tekton® Building Wrap is suitable for use as a non-rigid backing material for stucco plaster in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.3.5.1. The wall underlay must be supported with 75 mm galvanised mesh or plastic tape or wire at 150 mm centres run across the cavity battens to limit deflection to a maximum of 5 mm.

7.9 Tekton® Building Wrap may also be used as a slip layer over rigid backings for stucco plaster in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.3.3.1 (b).

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## Structure

8.1 Tekton® Building Wrap is suitable for use in all Wind Zones of NZS 3604 up to, and including, Very High when used as a flexible building underlay, and all Wind Zones of NZS 3604 up to, and including, Extra High when used as an overlay for rigid building underlays.

## Durability

9.1 Tekton® Building Wrap meets code compliance with NZBC Clause B2.3.1 (a), not less than 50 years for building wraps used where the cladding durability requirement or expected serviceable life is not less than 50 years, and code compliance with NZBC Clause B2.3.1 (b), 15 years for building wraps used where the cladding durability requirement is 15 years.

**Serviceable Life**

9.2 Provided it is not exposed to the weather or ultra-violet light for a total of more than 60 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather resistant, Tekton® Building Wrap is expected to have a serviceable life equal to that of the cladding.

## Control of Internal Fire and Smoke Spread

10.1 Tekton® Building Wrap has an AS 1530 Part 2 flammability index of not greater than 5 and therefore meets the requirements of NZBC Acceptable Solutions C/AS2 to C/AS6, Paragraph 4.17.8 b), for the surface finish requirements of suspended flexible fabric used as an underlay to exterior cladding that is exposed to view in occupied spaces. It may therefore be used with no restrictions in all buildings.

## Prevention of Fire Occurring

11.1 Separation or protection must be provided to Tekton® Building Wrap from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

## External Moisture

12.1 Tekton® Building Wrap must be used behind claddings that meet the requirements of the NZBC, e.g. such as those covered by NZBC Acceptable Solution E2/AS1, or claddings covered by a valid BRANZ Appraisal.

12.2 Tekton® Building Wrap, when installed in accordance with the Technical Literature and this Appraisal, will assist in the total cladding systems compliance with NZBC Clause E2.

12.3 When used as an air barrier, particular care must be taken to ensure an air tight barrier is achieved, and weather sealing at all openings and penetrations through the cladding meets the requirements of the NZBC.

# Installation Information

## Installation Skill Level Requirements

13.1 Installation must always be carried out in accordance with the Tekton® Building Wrap Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant Licence Class.

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## Wrap Installation

14.1 Tekton® Building Wrap must be fixed to all framing members at maximum 300 mm centres with hot-dip galvanised, large-head clouts 20 mm long, zinc plated 6-8 mm staples, self-drilling screws, or proprietary wrap fixings. The membrane must be pulled taut over the framing before fixing.

14.2 Tekton® Building Wrap must be run horizontally and must extend from the upper-side of the top plate to the under-side of the bearers or wall plates supporting ground floor joists, or below bottom plates on concrete slabs. Horizontal laps must be no less than 75 mm wide, with the direction of the lap ensuring that water is shed to the outer face of the membrane. End laps must be made over framing and be no less than 150 mm wide.

14.3 The wall underlay should be run over openings and these left covered until windows and doors are ready to be installed. Openings are formed in the membrane by cutting on a 45 degree diagonal from each corner of the penetration. The flaps of the cut membrane must be folded inside the opening and stapled to the penetration framing. Excess wall underlay may be cut off flush with the internal face of the wall frame.

14.4 Tekton® Building Wrap can be added as a second layer over head flashings in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.10.3.

14.5 When fixing the product in windy conditions, care must be taken due to the large sail area created by wide roll widths.

14.6 Any damaged areas of Tekton® Building Wrap, such as tears, holes or gaps around service penetrations, must be repaired. Damaged areas can be repaired by covering with new material lapping the damaged area by at least 150 mm and taping, or by taping small tears.

**Inspections**

14.7 The Technical Literature must be referred to during the inspection of Tekton® Building Wrap installations.

# Basis of Appraisal

The following is a summary of the technical investigations carried out:

## Tests

15.1 The following tests have been carried out on Tekton® Building Wrap by Scion: Folding strength of paper in accordance with AS/NZS 1301.423; edge tear resistance and tensile strength in accordance with AS/NZS 4200.1 and air resistance in accordance with BS 6538-3.

15.2 The following tests have been carried out on Tekton® Building Wrap by BRANZ: Absorbency in accordance with AS/NZS 4201.6, Vapour transmission in accordance with ASTM E 96B, Shrinkage in accordance with AS/NZS 4201.3, Water barrier in accordance with AS/NZS 4201.4 and pH of extract in accordance with AS/NZS 1301.421. A range of these tests were completed before and after Tekton® Building Wrap was exposed to ultra-violet light.

15.3 The Flammability Index of Tekton® Building Wrap has been evaluated in accordance with AS 1530.2.

## Other Investigations

16.1 A durability opinion was given by BRANZ technical experts.

16.2 Site inspections were carried out by BRANZ to assess methods used for the installation of Tekton® Building Wrap, and to examine completed installations.

16.3 The marketer's Technical Literature, including installation instructions, have been examined by BRANZ and found to be satisfactory.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

## Quality

17.1 The manufacture of Tekton® Building Wrap has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory. BRANZ has taken note of product certification by ICC-ES and CCMC covering quality aspects associated with the product.

17.2 The quality of supply to the market is the responsibility of Marshall Innovations Limited.

17.3 Building designers are responsible for the design of the building, and for the incorporation of the wall wrap into their design in accordance with the instructions of Marshall Innovations Limited.

17.4 Quality of installation is the responsibility of the installer in accordance with the instructions of Marshall Innovations Limited.

## Sources of Information

- AS 1530.2 – 1993 Test for flammability of materials.
- AS/NZS 1301.421s: 1998 Determination of the pH value of aqueous extracts of paper, board and pulp – cold extraction method.
- AS/NZS 4200.1: 1994 Pliable building membranes and underlays – materials.
- AS/NZS 4201.1: 1994 Pliable building membranes and underlays – Methods of test – Resistance to dry delamination.
- AS/NZS 4201.2: 1994 Pliable building membranes and underlays – Methods of test – Resistance to wet delamination.
- AS/NZS 4201.3: 1994 Pliable building membranes and underlays – Methods of test – Shrinkage.
- AS/NZS 4201.4: 1994 Pliable building membranes and underlays – Methods of test – Resistance to water penetration.
- AS/NZS 4201.6: 1994 Pliable building membranes and underlays – Methods of test – Surface water absorbency.
- BS 6538.3: 1987 Method for determination of air permeance using the Garley apparatus.
- NZS 2295: 2006 Pliable, Permeable Building Underlays.
- NZS 3604: 2011 Timber-framed buildings.
- Acceptable Solutions and Verification Methods for New Zealand Building Code External Moisture Clause E2, Ministry of Business, Innovation and Employment, Third Edition July 2005 (Amendment 8, 30 November 2018).
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

BRANZ

In the opinion of BRANZ, Tekton® Building Wrap is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to Marshall Innovations Limited, and is valid until further notice, subject to the Conditions of Appraisal.

## Conditions of Appraisal

1. This Appraisal:
   a) relates only to the product as described herein;
   b) must be read, considered and used in full together with the Technical Literature;
   c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
   d) is copyright of BRANZ.
2. Marshall Innovations Limited:
   a) continues to have the product reviewed by BRANZ;
   b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
   c) abides by the BRANZ Appraisals Services Terms and Conditions;
   d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
   a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
   b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
   c) any guarantee or warranty offered by Marshall Innovations Limited.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to Marshall Innovations Limited or any third party.

**For BRANZ**

**Chelydra Percy**
Chief Executive

Date of Issue:
14 June 2019

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Marshall Innovations Construction Solutions

# TEKTON SPECIFICATION

## PRODUCT DESCRIPTION

Tekton Wall Underlay is a synthetic breather-type Wall Underlay for use as a wall underlay and air barrier under direct and non-direct fixed wall cladding on timber and steel framed buildings. The product is a coated spun-bonded polypropylene, and is approximately 0.6mm thick. Tekton Wall Underlay is supplied in rolls 2740mm x 37m and 1370mm x 37m.

## FEATURES /BENEFITS

- Tekton Wall Underlay can be used in all wind zones up to and including very high and extra high with RAB Systems.
- Tekton Wall Underlay is fire retardant with a zero flammability index and can be used without restriction on all buildings, however must be separated from fireplaces, heating appliances, flues and chimneys in accordance with the NZ Building Code.
- Tekton Wall Underlay can be installed as an air barrier to walls that are not lined, such as gable ends.
- Tekton Wall Underlay has superior water hold out - keeping framing drier while permanent cladding is installed.
- Tekton Wall Underlay has 50 year durability.
- Tekton Wall Underlay can be left exposed for up 60 days.
- Tekton Wall Underlay has optimal surfactant resistance (will not lose integrity if exposed to most soaps, detergents and cleaning chemicals).
- Tekton Wall Underlay is Branz appraised # 548 (2013)
- Tekton Wall Underlay can be used as a non-rigid backing material for stucco plaster and as a slip layer over rigid backing for stucco plaster.
- Tekton Wall Underlay is compatible with metal cavity battens.

## APPLICATION RANGE

### TIMBER FRAMED BUILDINGS

- With absorbent wall claddings directly fixed to the framing.
- With absorbent and non-absorbent wall claddings installed over an 18mm minimum drained cavity.
- With masonry veneer.
- In building wind zones up to and including very high.

### STEEL FRAMED BUILDINGS

- With absorbent and non-absorbent wall claddings installed over an 18mm minimum drained cavity.
- With masonry veneer.
- In building wind zones up to and including very high.

**Tekton Wall Underlay can also be used on buildings subject to specific weathertightness design.**

## STORAGE

Tekton Wall Underlay must be stored on its end in a clean and dry environment. It is the responsibility of the installer to protect the roll from damage and weather.

## SURFACE PREPARATION

Studs must be provided at a maximum of 600mm centres. Nogs must be fitted flush between the studs at a maximum of 1200mm centres. The framing must be free from any sharp protrusions that may damage the wall underlay.

TEKTON specification
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# INSTALLATION

## PLACEMENT

- The branded side of the wall underlay must face away from the framing.
- The wall underlay must run horizontally.
- The wall underlay must extend from the upper side of the top plate to the underside of the bearers or wall plates supporting ground floor joists, or below bottom plates on concrete slabs.
- Horizontal laps must be no less than 75mm with the direction of the lap ensuring that water is shed to the outside.
- End laps must be made over framing and be no less than 150mm wide.

**It is preferable to tape all joins.**

## APPLICATION

- Position the roll of Tekton Wall Underlay against the framing with a short length of wall underlay free of the roll.
- Align the guide marks printed on the Tekton Wall Underlay with visible studs and nail /staple to the framing

**Fix the wall underlay into place using 6-8mm zinc/ stainless plated staples, hot dip galvanised large head clouts or proprietary wall underlay fixings.**

- Unroll the wall underlay across the framing and fix to all framing members at a maximum of 300mm centres.
- Keep the wall underlay straight and taut over the framing.
- The wall underlay should be run over any openings and these should be left covered until the windows and doors are ready to be installed. To form the openings cut the wall underlay at a 45 degree diagonal in from each corner. Fold and staple the wall underlay to the inside of the framed opening. Excess wall underlay can be trimmed.
- All openings must be detailed using a Branz appraised flexible flashing system like Super-Stick, Protecto One Piece Sill Tape or the Protecto Sill System.
- Where cavity battens are installed at greater than 450 mm centres, the wall underlay must be supported between the battens to prevent the wall underlay bulging into the cavity space when insulation is installed.
- Tekton Wall Underlay can be added as a second layer over head flashings as per E2/AS1 or the headflashing can be sealed to the wall underlay using Protecto Head Flashing Tape.
- Any damaged areas of the wall underlay must be repaired by overlapping with new material and taping, or by taping small tears .

**When fixing wall underlay in windy conditions, care must be taken due to the large sail area created by the roll widths.**

## WARRANTY

Tekton Wall Underlay meets the durability requirements of NZBC B2.3.1(a), 50 years and B2.3.1(b), 15 years. Tekton Wall Underlay is warranted to be free of defect in manufacture. This warranty is limited to replacement of the Tekton Wall Underlay material. Marshall Innovations NZ/AUS Ltd (the distributor) is not liable for incorrect installation or any accidental or wilful damage to the product.

TEKTON specification
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# BUILDING WRAP

## TEKTON® HouseWrap

A new revolution in building wrap

BRANZ Appraised
Appraisal No.548 [2007]

Marshall Waterproofing
*Professional Solutions*

**50 YEARS Durability**

**Air barrier for unlined walls**

**Exceptional water hold-out**

**Fire retardant**

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TEKTON HouseWrap
01 - 08 - 2007 version 2

The building wrap of the future
Superior water hold out and strength
2740mm x 37m (101m2) or 1370mm x 74m (101m2)

TEKTON HouseWrap

# TEKTON House Wrap *The Builder's Choice*

- Tekton House Wrap is ***BRANZ Appraised #548 (2007).***
- Tekton is a ***breather type*** coated, spun-bonded polypropylene.
- Tekton can be left ***exposed for 60 days***.
- Tekton has ***superior water holdout***. Taking the industry to a new level for water resistance.
- Tekton has ***optimal surfactant resistance***. Wash your building with confidence.
- Tekton is ***fire retardant***.
- Tekton is a leader in ***tear strength***.
- Tekton is suitable in ***all wind zones***.
- Tekton can be used with no internal wall linings, ie: ***gable ends***.
- Tekton increases your building's ***energy efficiency***.
- Tekton has a ***50 year durability warranty***.
- Tekton can be used for ***residential and commercial*** applications.

*For best results, use with* Protecto Wrap — Serious Waterproofing Solutions

BRANZ Appraised
Protecto Wrap Tapes

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## benefits of **Tekton** house wrap

- COST EFFECTIVE
- LIGHT WEIGHT
- FIRE RETARDANT
- WATER RESISTANT
- BRANZ APPRAISED
- 50 YEAR WARRANTY

## please note:

- For peace of mind use with BRANZ Appraised Protecto Wrap tapes.
- Tekton House Wrap must not be used behind face fixed non absorbent claddings such as vinyl or metal.
- Tekton House Wrap can be used on all absorbent and non-absorbent wall claddings installed over 18mm minimum drainage cavity.
- Tekton House Wrap can be used in all wind zones up to and including "Very high".
- Tekton House Wrap may be used as a slip layer over rigid backings for stucco plaster in accordance with the requirements of NZDC acceptable solutions E2/AS1 paragraph 9.3.3(b).
- Tekton House Wrap has an AS 1530 Part 2 Flammability Index of 0 and meets the requirements of NZBC Acceptable Solution C/AS1 Part 6, Table 6.2 for surface finish requirements for suspended flexible fabrics, and therefore it may be used with no restrictions in all buildings.
- Tekton House Wrap must be separated from fireplaces, heating appliances, flues and chimneys in accordance with the requirements of NZBC Acceptable Solution C/AS1 Part 9 for the protection of combustible materials.
- BRANZ Appraised - Appraisal # 548 (2007).

## other professional solutions by Marshall Waterproofing

- Protecto Sill System – Window and door protection, BRANZ Appraisal # 444 (2005).
- Protecto Tape - Parapet and handrail protection, BRANZ Appraisal #450 (2005).
- Anti Fracture Membrane (AFM) – crack suppression and waterproofing for under tiles.
  Interior BRANZ Appraisal # 461 (2005).
  Exterior BRANZ Appraisal # 449 (2005).
- Protecto Wall – Tanking and below ground applications, BRANZ Appraisal # 517 (2006).
- Pro-Joist - Cantilevered deck joist protection, BRANZ Appraisal #497 (2006).
- Pro-Drain 8 - The protection board that creates a neutral pressure zone between the foundation wall and subsoil.

Nov 2007

Marshall Waterproofing
Professional Solutions

Marshall Waterproofing Ltd, PO Box 9411, Greerton, Tauranga, New Zealand
Phone: 07 543 0948 FREE PHONE: 0800 776 9727
Facsimile: 07 541 1029
Email: info@mwnz.com

www.mwnz.com

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CBI 5113

AUG 2012

# GIB® RONDO® METAL BATTEN SYSTEMS

## SYSTEM AND INSTALLATION MANUAL

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# GIB® Rondo® Metal Batten Systems

## Specification and installation guide

- Suitable for Residential and some commercial applications
- GIB® Rondo® metal battens are the recommended system for use in ceilings in conjunction with 13mm GIB® plasterboard
- Easy to install; achieve a flat and true ceiling
- A stable substrate that reduces the risk of costly call backs

### GIB® Rondo® Metal batten systems

Winstone Wallboards accepts no liability if the system is not installed in strict accordance with the instructions contained in this publication.

### Use only the current specification

This publication may be superseded by a new publication. Winstone Wallboards accepts no responsibility for reliance on superseded publications. Call 0800 100 442 or visit www.gib.co.nz to confirm the currency of the publication.

### Beware of substitution

The performance of GIB® Rondo® Metal batten systems is very sensitive to design detailing and specification. It is important that only GIB® Rondo® branded products are used in the systems contained in this publication. No responsibility will be accepted for alternative manufacturers product.

### Customised design solutions

The systems detailed in this publication should cover most commonly encountered situation. For projects where specific performance is required please contact our technical support team on 0800 100 442.

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# INTRODUCTION

AUGUST 2012

## WHY METAL?

A large proportion of ceiling defects such as peaking or cracked joints and popped fasteners can be attributed to movement in the substrate. Timber ceiling substrates are more prone to temperature or moisture induced movement and shrinkage. These issues tend to impact on the surface of the plasterboard and can result in call-backs. Metal ceiling batten systems provide a stable substrate for plasterboard ceiling linings. Regular users of metal batten systems consistently have fewer call-backs for movement related ceiling defects such as peaking or cracked joints and popped fasteners.
Once builders change to GIB® Rondo® metal battens they appreciate the simple installation methodology and enjoy reduced callbacks. Very few, if any, revert back to using timber.

**Benefits of steel battens include;**

- Consistent performance
  - Less influence from moisture or environmental factors than timber. Unlike timber battens which can vary in grade, species with temperature and humidity, the performance of GIB® Rondo® metal battens is consistent throughout New Zealand
- Lighter weight
  - Lower transport costs and easier to handle on site
- Require less storage space
  - Storage space is often at a premium on building sites and a house-lot of GIB® Rondo® componentry will occupy substantially less space on site than timber battens
- Easy to achieve a flat, stable substrate
  - This results in a trouble free ceiling and reduces the risk of costly call-backs

**Benefits of GIB® Rondo® metal batten systems**

- Versatility
  - The extensive componentry range provides solutions to a multitude of situations
- Technical back up
  - Our well established and highly rated technical team are available to quickly and efficiently handle any enquiries, call us on 0800 100 442
- Flexibility
  - GIB® Rondo® metal batten systems can be used on residential and some commercial ceilings. Components are also available for use in wall strapping situations and have been tested and approved for use in GIB® noise control systems

There are two systems to select from;

**GIB® Rondo® 310 metal batten system – (35mm battens)**
The GIB® Rondo® 310 metal batten system comprises a 35mm deep batten. The recommended method of fixing is to use clips as illustrated below.
This provides a flat substrate for the plasterboard ceiling as it is able to compensate for any deviations in the framing.
If the substrate is consistently flat the battens can be attached directly to the underside of the framing.

**GIB® Rondo® 308 metal batten system – (16mm battens)**
The GIB® Rondo® 308 ceiling batten is a light weight system based on a 16mm deep batten fixed to a clip attached to the ceiling framing as shown.

| 310 METAL BATTEN | | 308 METAL BATTEN |
|---|---|---|
| Batten on clips | Direct fix | Batten on clips |

**IMPORTANT NOTE:**
Manufactured from 0.55BMT steel with a Z275 coating exceeding the NZBC durability requirements for interior use

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# GIB® RONDO® 310 METAL BATTEN SYSTEM

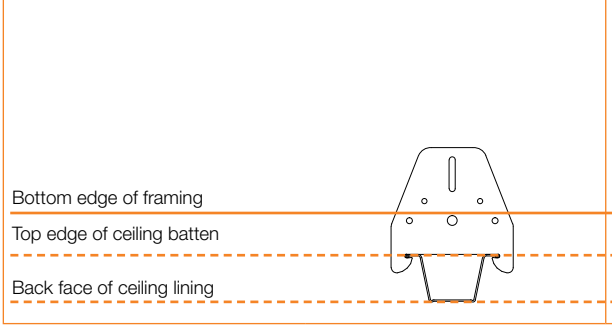
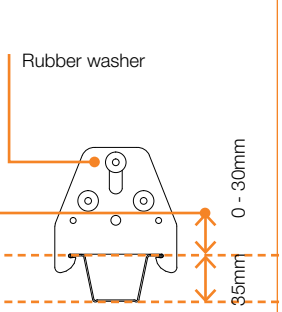
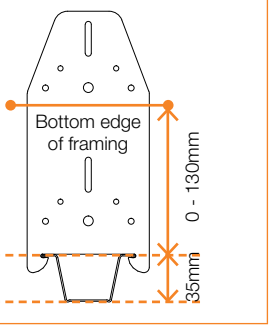
AUGUST 2012

## GIB® RONDO® 310 CEILING BATTEN SYSTEM

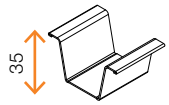
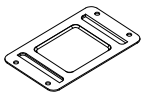
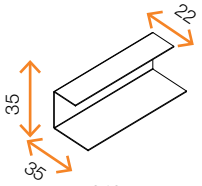
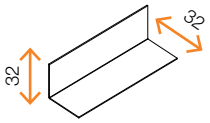
The GIB® Rondo® 310 system forms a strong, stable and flat substrate for ceilings in residential and commercial applications. The 35mm dimension allows it to be directly substituted into ceilings where 35mm timber battens would traditionally have been used. Consult an electrical contractor for any earthing requirements that may need to be incorporated.
There are two methods of fixing GIB® Rondo® 310 metal battens.

**Recommended method**
Clipped using either;
- 311 clip for a drop of 0-30mm
- 313 clip where a larger drop is required between the bottom of the truss chord, joist or rafter and the back of the ceiling batten a drop of up to 130 mm can be achieved in order to accommodate services or variations in framing heights
- GIB Quiet Clip® for use in GIB® Noise control systems

**Alternative method**
- Directly by fastening with pairs of min GIB Grabber® 32mm x 8g wafer head screws through the flange (consult span tables pg 5)
- Alternatively pairs of min 45mm x 2.8mm FH nails can be used
- For fixing to steel framing a drill tip screw is recommended

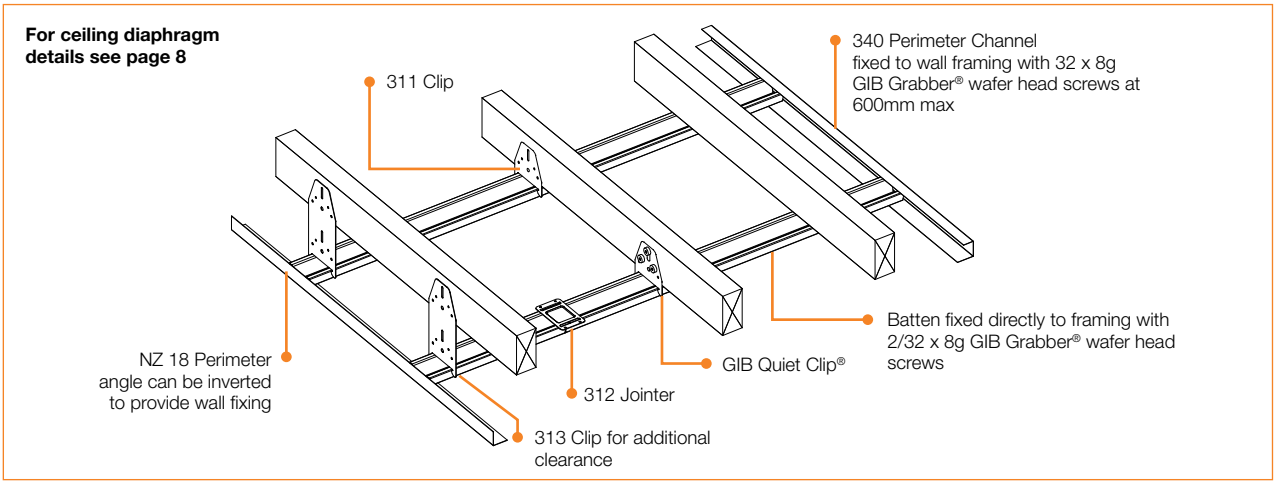
| 311 CLIP | GIB QUIET CLIP® | 313 CLIP |
|---|---|---|
|  |  |  |



| GIB® RONDO® 310 BATTEN | 312 JOINTER CLIP | 340 PERIMETER CHANNEL | NZ18 PERIMETER ANGLE |
|---|---|---|---|
|  |  |  |  |
| 35 | 312 | 340 | NZ18 |





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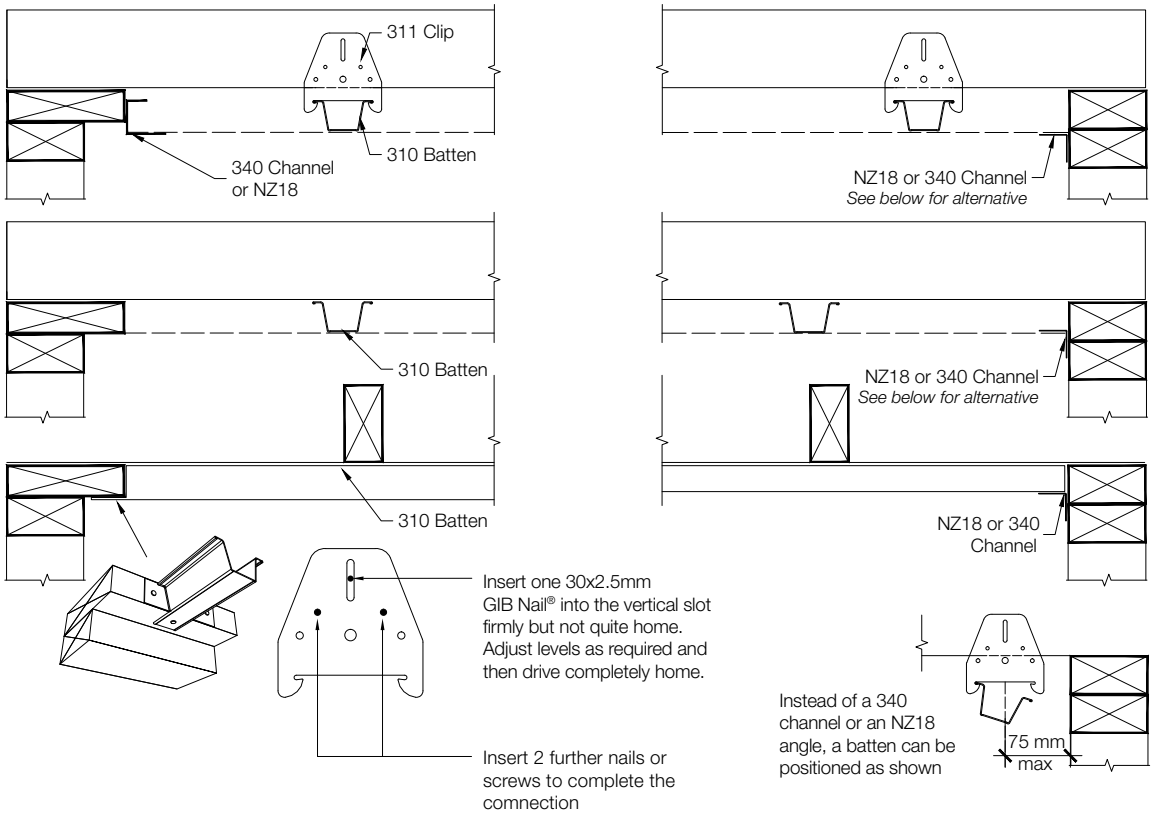
# GIB® RONDO® 310 METAL BATTEN SYSTEM

AUGUST 2012

## GIB® RONDO® METAL BATTEN SYSTEM INSTALLATION INSTRUCTIONS

Consult an electrical contractor for any earthing requirement that may need to be incorporated

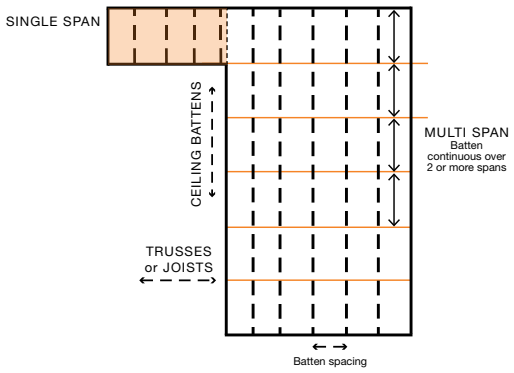



- Establish a datum line for the ceiling
- Place a string line on the datum line at right angles to the battens, under the truss or joist closest to the centre of the room
- Install GIB® Rondo® clips at 600mm centres (450mm for 10mm plasterboard) using the string line to establish the correct position
- Cut the batten to the required length using snips or a hacksaw
- Insert the batten into the channel at each end and fit into the clip
- Install remainder of clips ensuring that the batten is straight and flat

**GIB® Rondo® 310 Batten Span Table for Residential Internal Applications**

| GIB® Plasterboard thickness Single layer | Maximum batten spacing (mm) | Multi Span (mm) | Single Span and Garages (mm) |
|---|---|---|---|
| 10mm | 450 | 1200 | 900 |
| 13mm | 600 | | |

*For situations not covered by this chart please contact the GIB®Helpline on 0800 100 442*

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# GIB® RONDO® 308 METAL BATTEN SYSTEM

AUGUST 2012

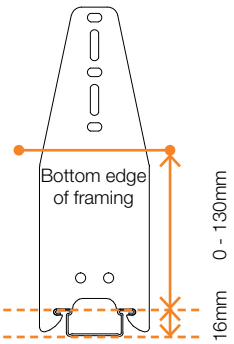
## GIB® RONDO® 308 METAL BATTEN SYSTEM

The GIB® Rondo® 308 system is a light weight yet very strong ceiling batten. In addition to its function as a ceiling batten it can also be used as a wall furring channel and is an integral part of GIB® Noise control systems. *See page 9 for details.* Consult an electrical contractor for any earthing requirements that may need to be incorporated.

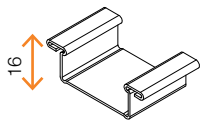
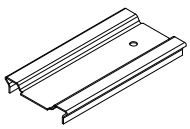
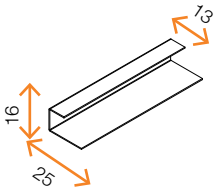
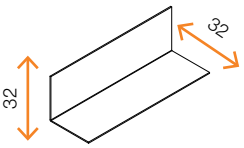
The GIB® Rondo® 308 system is installed using either;

- 226 clip for a drop of 0-30mm
- 394 clip where a larger drop is required between the bottom of the truss chord, joist or rafter and the back of the ceiling batten. Up to 130 mm clearance between the bottom of the framing and the back of the batten of can be achieved in order to accommodate services or variations in framing heights

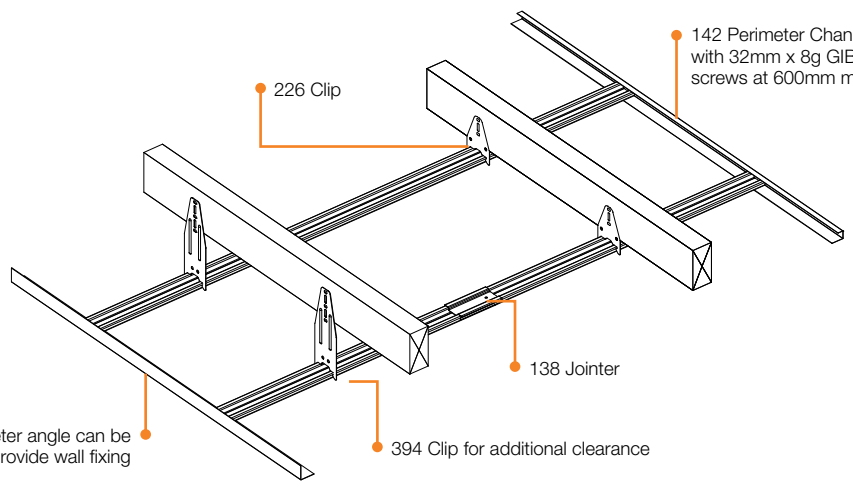
**Note:** If the 308 system is to be used in a ceiling diaphragm, the batten needs to secured directly to the framing. See page 8 for details.

| 226 CLIP | 394 CLIP |
|---|---|
| |  |



| GIB® RONDO® 308 BATTEN | 138 JOINTER | 142 PERIMETER CHANNEL | NZ 18 PERIMETER ANGLE |
|---|---|---|---|
|  |  |  |  |
| | 138 | 142 | NZ18 |







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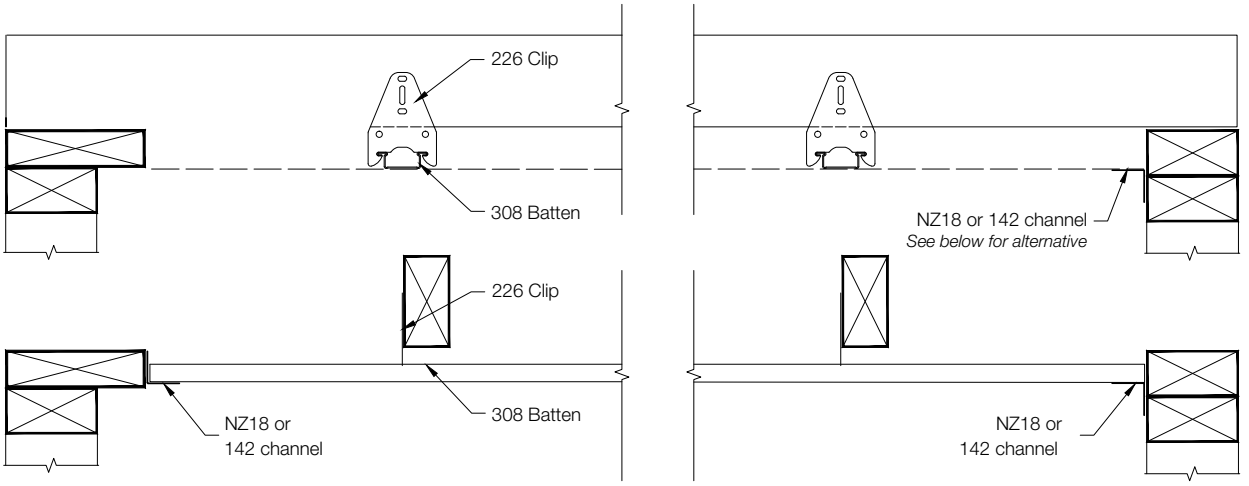
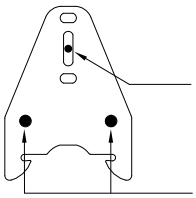
# GIB® RONDO® 308 METAL BATTEN SYSTEM

AUGUST 2012

## GIB® RONDO® METAL BATTEN SYSTEM INSTALLATION INSTRUCTIONS

Consult an electrical contractor for any earthing requirement that may need to be incorporated.

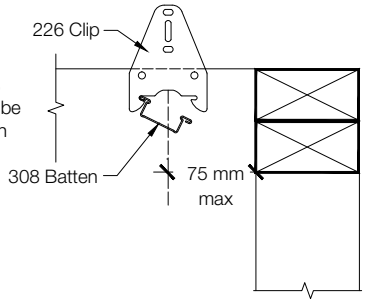


Insert one 30x2.5mm GIB Nail® into the vertical slot firmly but not quite home. Adjust levels as required and then drive completely home.

Insert 2 further nails or screws to complete the connection

Instead of a 142 channel or an NZ18 angle, a batten can be positioned as shown

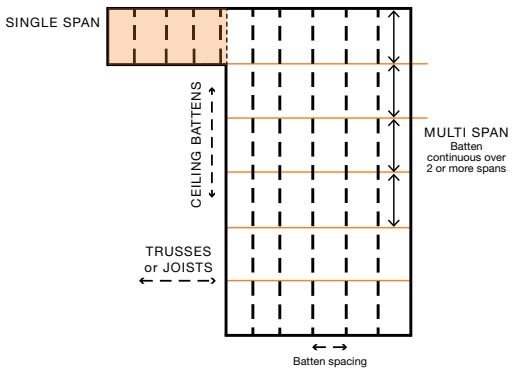



- Establish a datum line for the ceiling
- Place a string line on the datum line at right angles to the battens, under the truss or joist closest to the centre of the room
- Install GIB® Rondo® clips at 600mm centres (450mm for 10mm plasterboard) using the string line to establish the correct position
- Cut the batten to the required length using snips or a hacksaw
- Insert the batten into the channel at each end and fit into the clip
- Install remainder of clips ensuring that the batten is straight and flat

**GIB® Rondo® 308 Batten Span Table for Residential Internal Applications**

| GIB® Plasterboard thickness Single layer | Maximum batten spacing (mm) | Multi Span (mm) | Single Span and Garages (mm) |
|---|---|---|---|
| 10mm | 450 | 1200 | 900 |
| 13mm | 600 | | |

*For situations not covered by this chart please contact the GIB®Helpline on 0800 100 442*

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# GIB® RONDO® COMPONENTS

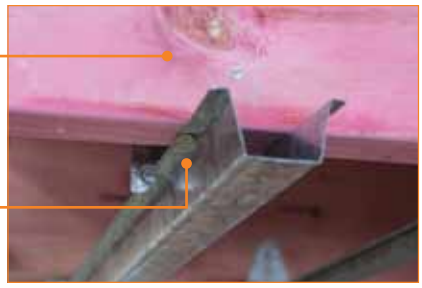
AUGUST 2012

**Ceiling Diaphragms using GIB® Rondo® Metal Battens**

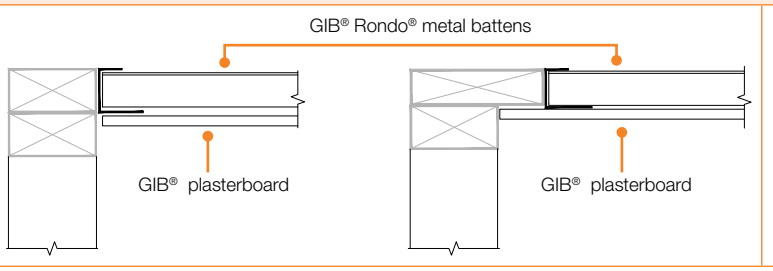
GIB® Rondo® metal batten systems may be used in ceiling diaphragms as required for GIB Ezybrace® systems provided that;

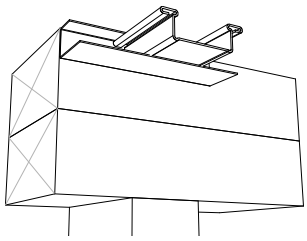
- The batten is either fixed directly to the underside of the ceiling framing OR
- The batten is fixed to a block or continuous member that has been securely attached to the ceiling framing with 4x90mm nails (minimum)

**NOTE:** It is not acceptable to install a ceiling diaphragm on clips without additional support as shown below:



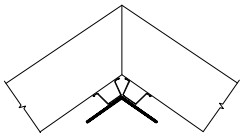

## CEILING DIAPHRAGM PERIMETER

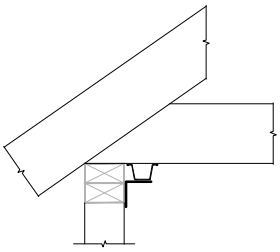


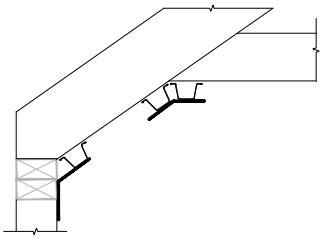



Perimeter channel, (340, 142 or 140) to be fixed with 32mm x 8g GIB® Grabber® wafer head screws at 300mm centres

## CHANGE IN PLANE





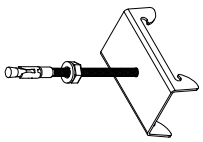
Changes in plane can be achieved by attaching a folded metal angle to the junction.

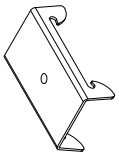
- Minimum 0.55mm BMT
- Fastened on each edge using 2.8mm x 30mm GIB® Nails or 32mm x 8g GIB® Grabber® wafer head screws at 300mm centres
- Plasterboard linings to be fastened to each edge of the folded angle at 150mm centres

**GIB® Rondo® wall strapping systems**

In addition to the ceiling batten function the GIB® Rondo® 308 batten system can be used as a wall strapping channel for masonry or concrete wall construction. The adjustable length masonry anchor allows insulation to be installed if required.

| A239 CLIP | 237 CLIP |
|---|---|
| Threaded hole,<br>Masonry anchor included<br>(100mm or 180mm) | Unthreaded hole,<br>No masonry anchor included<br>Suitable for timber or masonry application |



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# GIB® RONDO® COMPONENTS

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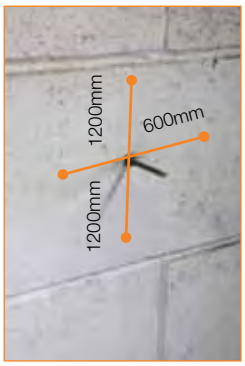
The A239 clip can be used in conjunction with the 308 batten to provide an effective wall strapping solution. If required polystyrene insulation can be fitted over the anchor bolts. A239 clips should be spaced at 1200mm centres vertically (max) and 600mm centres horizontally (max).



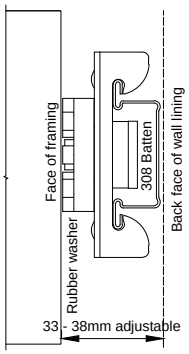
**GIB® Rondo® and Noise Control**

GIB® Rondo® metal batten systems play an important part in GIB® Noise control systems.

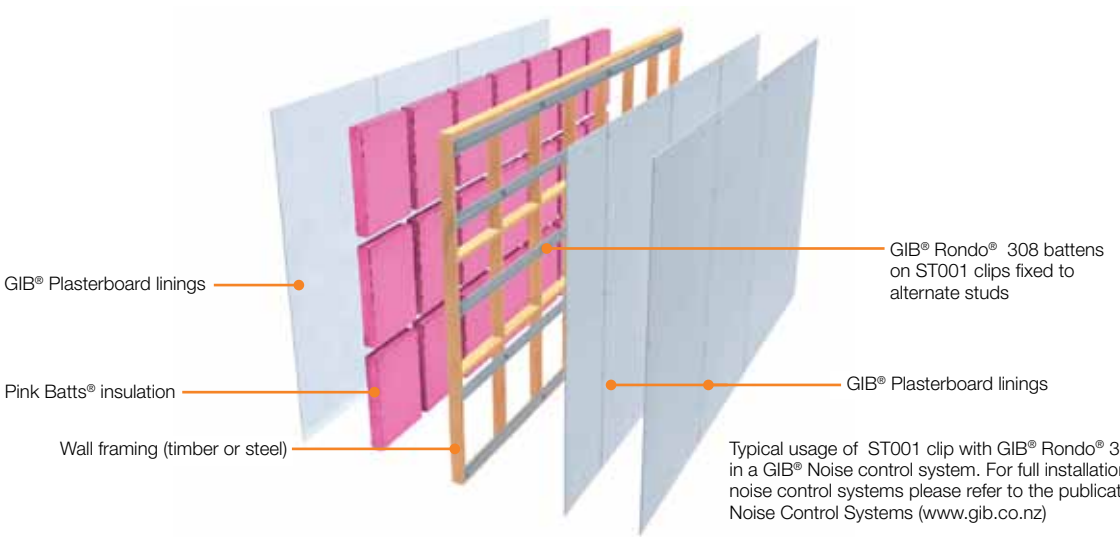
## GIB QUIET CLIP®

The GIB Quiet Clip® has rubber grommets that provide isolation between the ceiling and the ceiling framing. Installation is the same as for the 311 clip.

## ST001 ACOUSTIC MOUNT




The ST001 clip has a threaded rubber washer to provide isolation from the wall framing. The thread allows the clip to be adjusted to compensate for framing deviations. The clip accepts the GIB® Rondo® 308 batten. This is a high performing noise control system and can deliver STC ratings up to 62.




Typical usage of ST001 clip with GIB® Rondo® 308 batten in a GIB® Noise control system. For full installation details for noise control systems please refer to the publication GIB® Noise Control Systems (www.gib.co.nz)

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# SUSPENDED CEILING SYSTEMS

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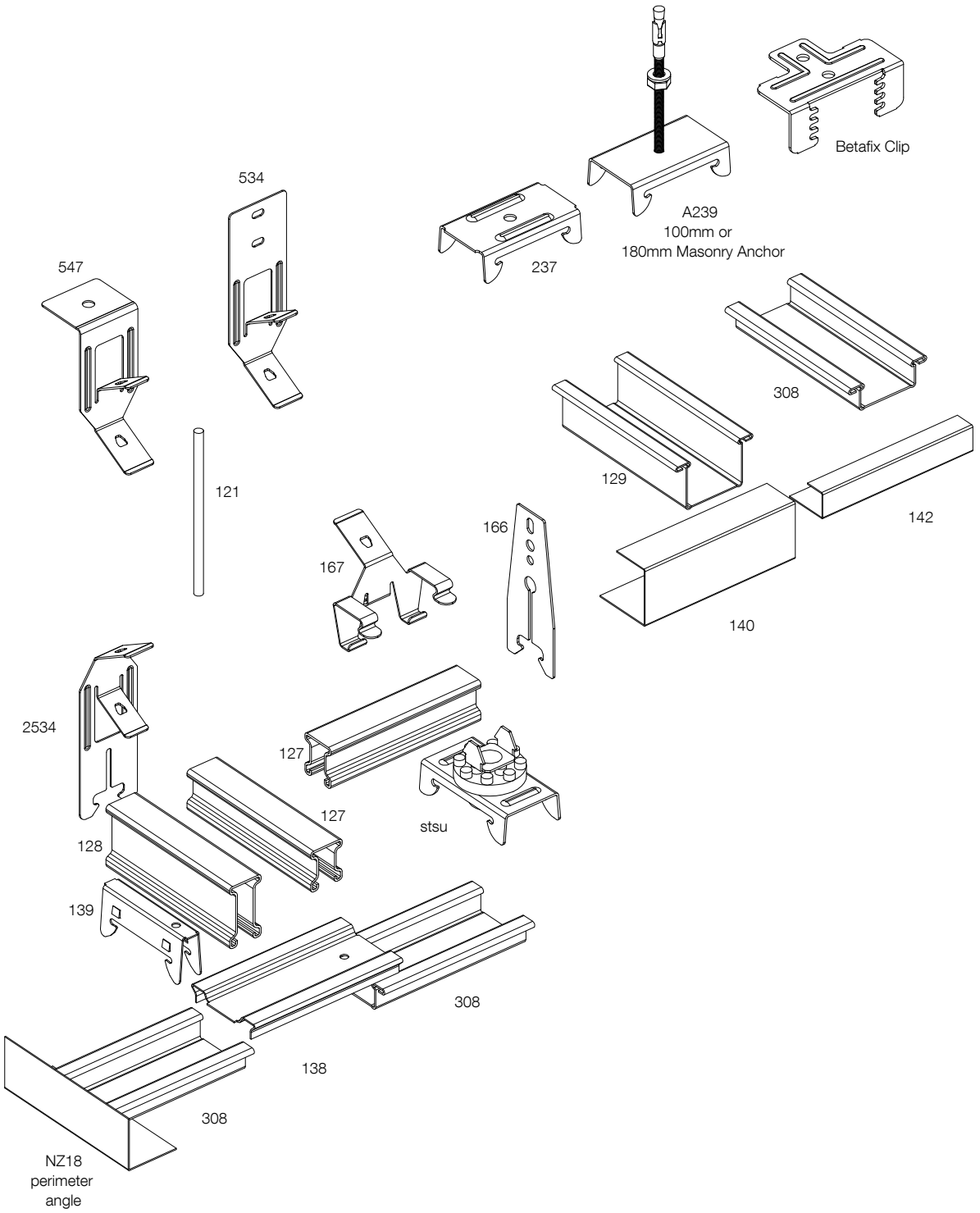
Suspended ceiling layout and spans are subject to specific design. For further information please contact the GIB® Help line on 0800 100 442

The range of GIB® Rondo® suspended ceiling componentry provides additional clearance above the ceiling level. This could be to run electrical, plumbing or ventilation equipment. The system allows for the ceiling lining material to be directly attached to the lower face of the battens. This is not to be confused with a two way grid system which accommodates proprietary ceiling tiles.

The components can be assembled in a wide range of combinations to suit a variety of applications.

Curved ceilings can also be created by curving the Top Cross Rail (TCR) and attaching the batten to the TCR.

For details on curving componentry contact the GIB® Helpline on 0800 100 442.

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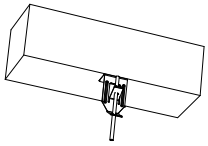
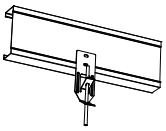
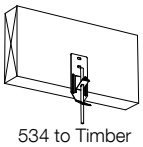
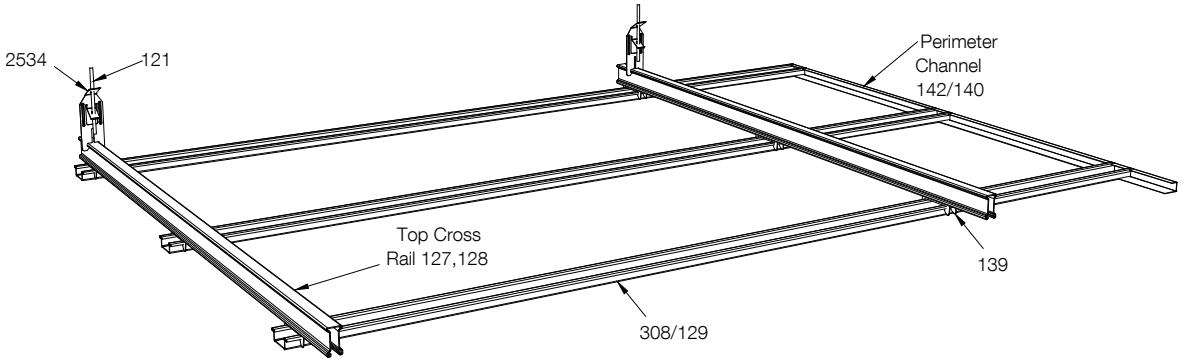
# SUSPENDED CEILING SYSTEMS

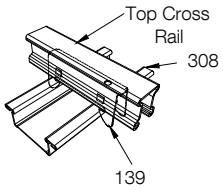


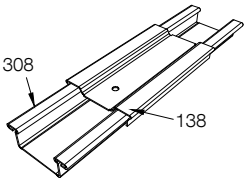


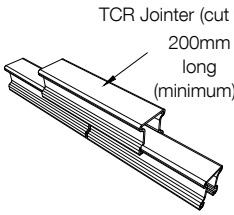



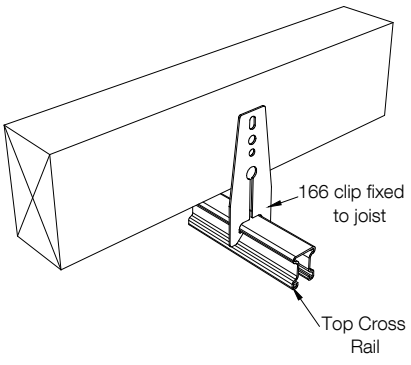



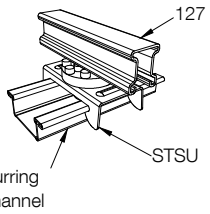



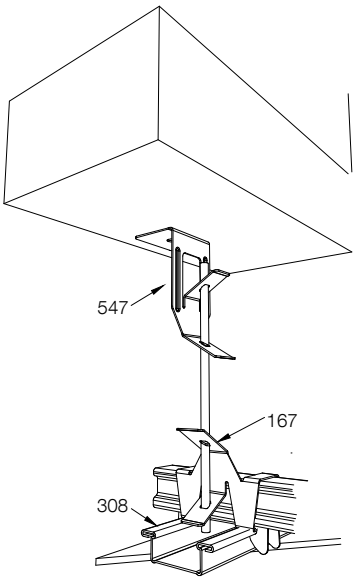



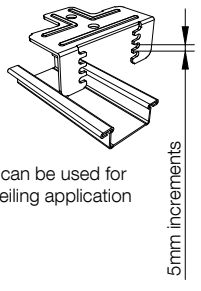

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# NOTES

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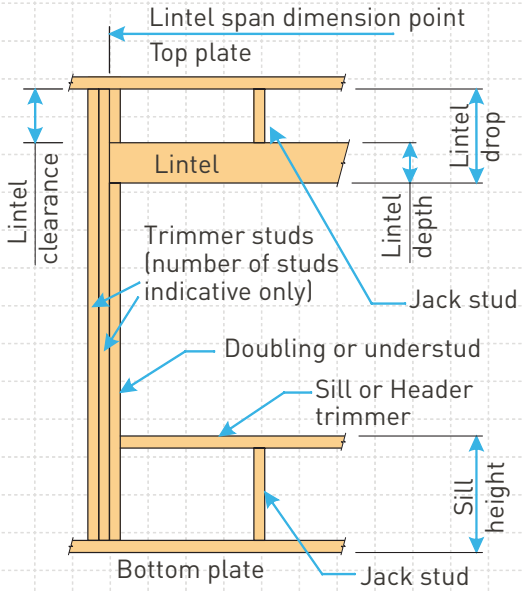
# LUMBERLOK® LINTEL FIXING SCHEDULE

## ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12 NZS 3604:2011

- All fixings are designed for vertical loads only. Dead loads include the roof weight and standard ceiling weight of 0.20kPa
- Refer to Table 8.19 NZS 3604:2011 for nailing schedule to resist horizontal loads
- These fixings assume the correct choice of rafter/truss to top plate connections have been made
- All fixings assume bottom plate thickness of 45mm maximum. Note: Tylok options on timber species
- Wall framing arrangements under girder trusses are not covered in this schedule
- All timber selections are as per NZS 3604:2011




### LINTEL SUPPORTING GIRDER TRUSSES

| | Light Roof | | | Heavy Roof | | |
|---|---|---|---|---|---|---|
| | Wind Zone | | | Wind Zone | | |
| Roof Tributary Area | Low, Medium, High | Very High | Extra High | Low, Medium, High | Very High | Extra High |
| 8.6m² | G | G | H | G | G | H |
| 11.6m² | G | H | H | G | G | H |
| 12.1m² | G | H | H | G | H | H |
| 15.3m² | H | H | - | G | H | H |
| 19.1m² | H | - | - | G | H | - |
| 20.9m² | H | - | - | H | H | - |
| 21.8m² | H | - | - | H | - | - |
| 34.3m² | - | - | - | H | - | - |

**NOTES:**

1. Roof Tributary Area = approx. 1/2 x (total roof area on girder and rafter trusses supported by lintel)
2. Assumed girder truss is at mid-span or middle third span of lintel
3. Use similar fixings for both ends of lintel
4. All other cases require specific engineering design

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# LUMBERLOK® LINTEL FIXING SCHEDULE

## ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12 NZS 3604:2011

| Lintel Span (m) | Loaded Dimension (m) | Light Roof | | | | | Heavy Roof | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Wind Zone | | | | | Wind Zone | | | | |
| | | Low | Medium | High | Very High | Extra High | Low | Medium | High | Very High | Extra High |
| 1.0 | 2.0 | E | E | E | F | F | E | E | E | E | F |
| | 3.0 | E | E | F | F | F | E | E | E | F | F |
| | 4.0 | E | F | F | F | G | E | E | F | F | F |
| | 5.0 | E | F | F | G | G | E | E | F | F | G |
| | 6.0 | E | F | F | G | G | E | E | F | F | G |
| 1.2 | 2.0 | E | E | F | F | F | E | E | E | F | F |
| | 3.0 | E | E | F | F | F | E | E | F | F | F |
| | 4.0 | E | F | F | G | G | E | E | F | F | G |
| | 5.0 | E | F | F | G | G | E | E | F | F | G |
| | 6.0 | F | F | G | G | H | E | E | F | G | G |
| 1.5 | 2.0 | E | E | F | F | F | E | E | E | F | F |
| | 3.0 | E | F | F | F | G | E | E | F | F | F |
| | 4.0 | E | F | F | G | G | E | E | F | F | G |
| | 5.0 | F | F | G | G | H | E | E | F | G | G |
| | 6.0 | F | F | G | H | H | E | E | F | G | H |
| 2.0 | 2.0 | E | F | F | F | G | E | E | F | F | F |
| | 3.0 | E | F | F | G | G | E | E | F | F | G |
| | 4.0 | F | F | G | G | H | E | E | F | G | G |
| | 5.0 | F | F | G | H | H | E | E | F | G | H |
| | 6.0 | F | G | G | H | H | E | F | G | H | H |
| 2.4 | 2.0 | E | F | F | G | G | E | E | F | F | G |
| | 3.0 | F | F | G | G | H | E | E | F | G | G |
| | 4.0 | F | F | G | H | H | E | E | F | G | H |
| | 5.0 | F | G | G | H | H | E | F | G | H | H |
| | 6.0 | F | G | H | H | - | E | F | G | H | H |
| 3.0 | 2.0 | E | F | F | G | G | E | E | F | F | G |
| | 3.0 | F | F | G | H | H | E | E | F | G | H |
| | 4.0 | F | G | G | H | H | E | F | G | H | H |
| | 5.0 | F | G | H | H | - | E | F | G | H | H |
| | 6.0 | F | G | H | - | - | E | F | G | H | - |
| 3.6 | 2.0 | F | F | G | G | H | E | E | F | G | G |
| | 3.0 | F | F | G | H | H | E | F | G | G | H |
| | 4.0 | F | G | H | H | - | E | F | G | H | H |
| | 5.0 | F | G | H | - | - | E | F | G | H | - |
| | 6.0 | G | H | H | - | - | E | F | H | - | - |
| 4.2 | 2.0 | F | F | G | G | H | E | E | F | G | G |
| | 3.0 | F | G | H | H | - | E | F | G | H | H |
| | 4.0 | F | G | H | - | - | E | F | G | H | - |
| | 5.0 | G | H | H | - | - | E | F | H | - | - |
| | 6.0 | G | H | - | - | - | E | F | H | - | - |
| 4.5 | 2.0 | F | F | G | H | H | E | E | F | G | H |
| | 3.0 | F | G | H | H | - | E | F | G | H | H |
| | 3.4 | F | G | H | H | - | E | F | G | H | H |
| | 4.0 | F | G | H | - | - | E | F | G | H | - |
| | 5.0 | G | H | - | - | - | E | F | H | - | - |
| | 6.0 | G | H | - | - | - | E | F | H | - | - |
| 4.8 | 2.0 | F | F | G | H | H | E | E | F | G | H |
| | 3.0 | F | G | H | H | - | E | F | G | H | H |
| | 3.2 | F | G | H | H | - | E | F | G | H | H |
| | 4.0 | F | G | H | - | - | E | F | H | H | - |
| | 5.0 | G | H | - | - | - | E | F | H | - | - |
| | 6.0 | G | H | - | - | - | E | F | H | - | - |
| 5.1 | 2.0 | F | F | G | H | H | E | F | G | G | H |
| | 3.0 | F | G | H | H | - | E | F | G | H | H |
| | 3.5 | F | G | H | - | - | E | F | G | H | - |
| | 4.0 | G | G | H | - | - | E | F | H | H | - |
| | 5.0 | G | H | - | - | - | E | F | H | - | - |
| | 6.0 | G | H | - | - | - | E | G | H | - | - |
| 5.4 | 2.0 | F | F | G | H | H | E | F | G | G | H |
| | 2.8 | F | G | H | H | - | E | F | G | H | H |
| | 3.0 | F | G | H | - | - | E | F | G | H | - |
| | 4.0 | G | H | H | - | - | E | F | H | - | - |
| | 5.0 | G | H | - | - | - | E | F | H | - | - |
| | 6.0 | G | H | - | - | - | E | G | H | - | - |

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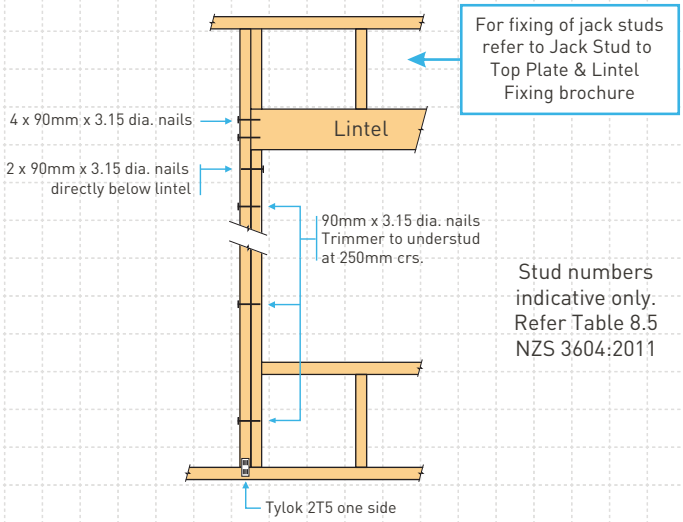
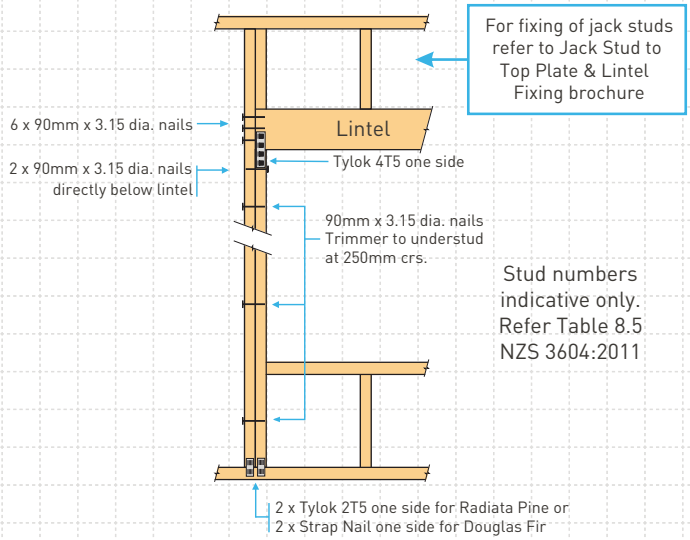
# LUMBERLOK® LINTEL FIXING OPTIONS

## ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12 NZS 3604:2011

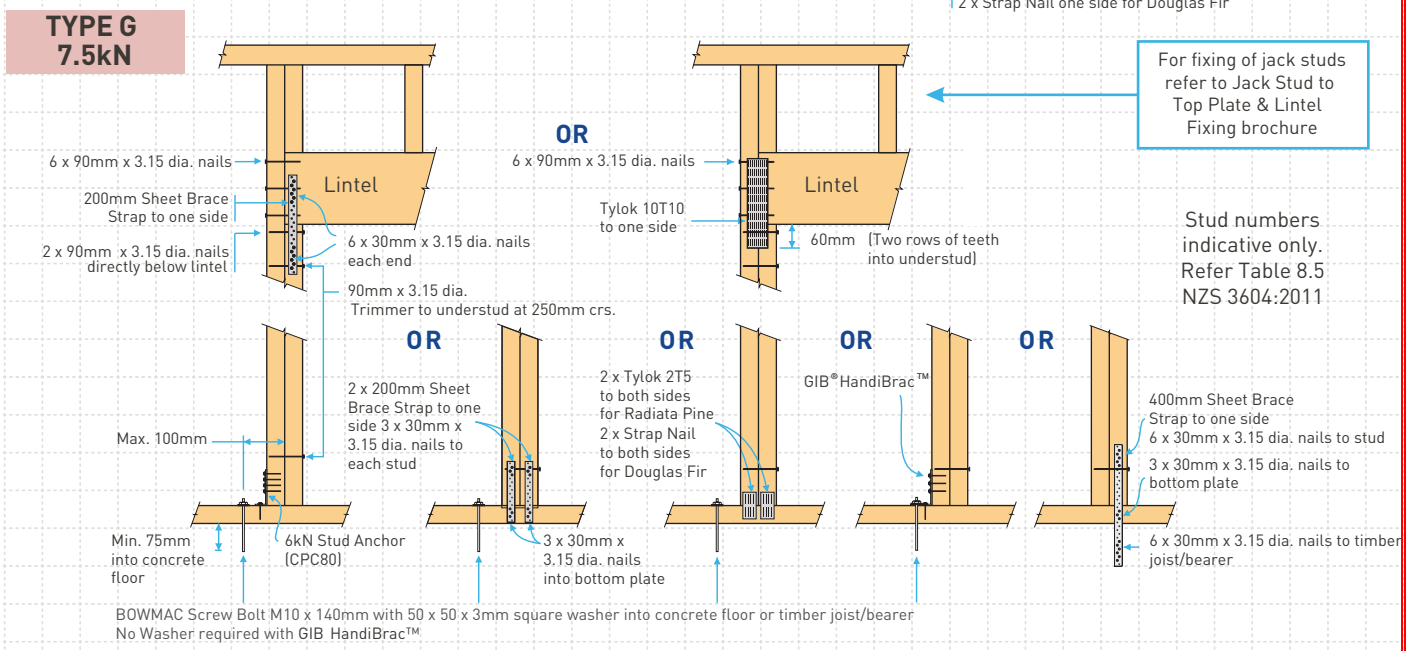
### TYPE E 1.4kN



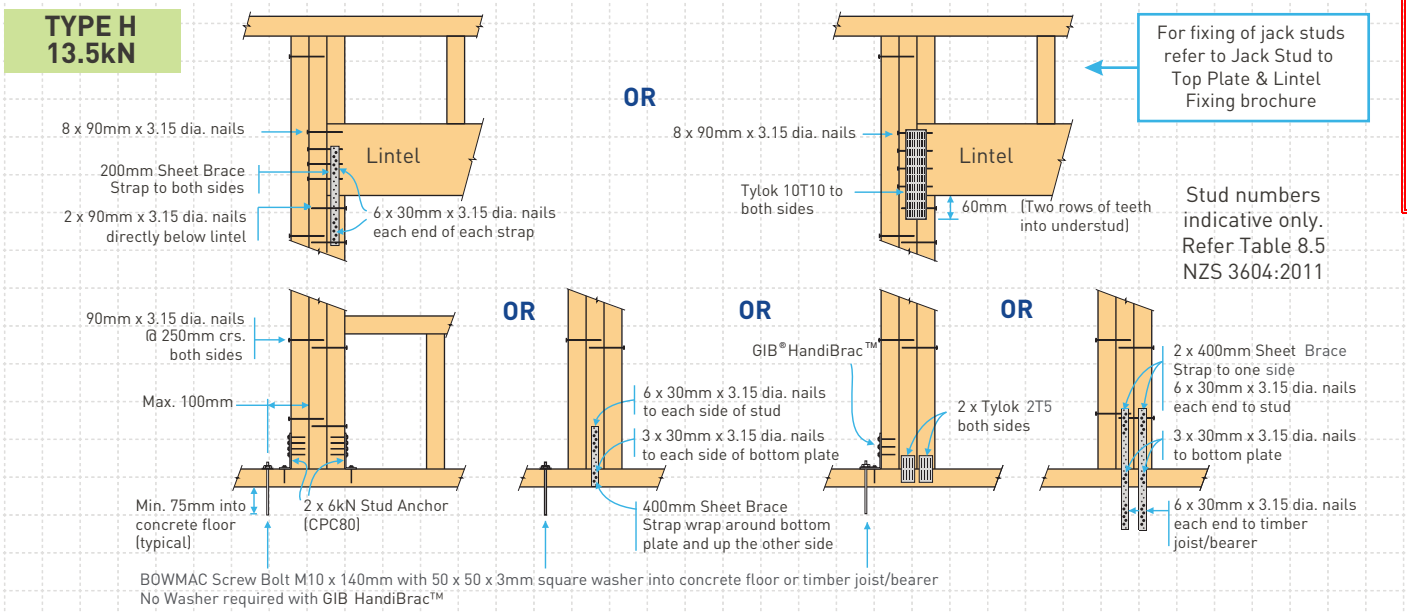

### TYPE F 4.0kN




### TYPE G 7.5kN




### TYPE H 13.5kN

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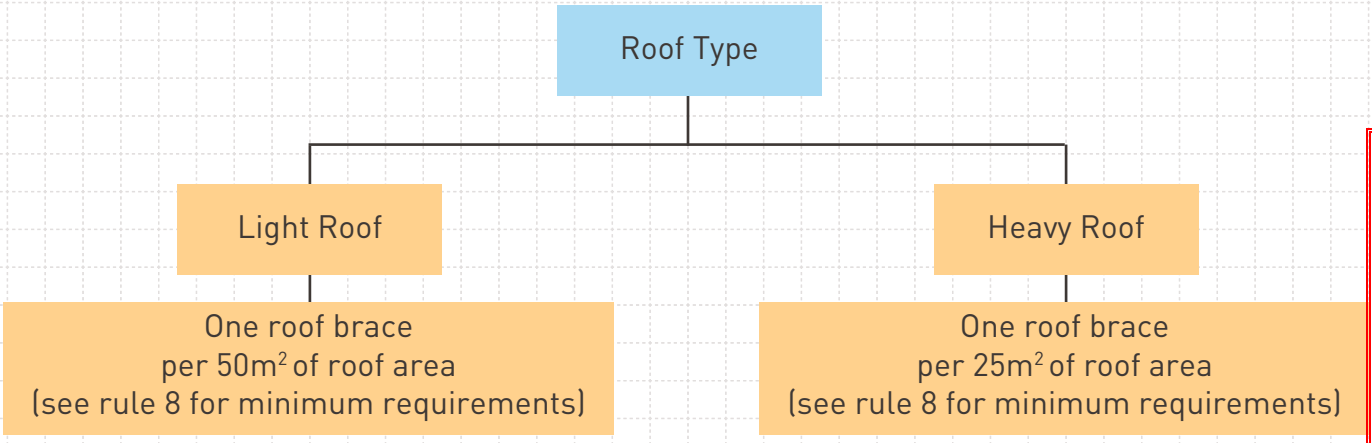
# ROOF BRACING SPECIFICATION

## AS PER NZS 3604:2011

- Covers roof bracing requirments to resist horizontal loads as set out in Section 10 NZS 3604:2011
- A definitive guide to the description and installation of Roof Plane Braces and Rood Space Braces

### Roof Bracing Requirements




### Roof Bracing Rules & Definitions

1. The bracing described in this brochure covers both framed roofs and fully trussed roofs.
2. Roof planes less than 6m2 (e.g. dormers & porches) do not require bracing.
3. Roof braces can consist of either;
   i) Roof Plane Brace or
   ii) Roof Space Brace or combination of the two.
4. Roof braces are not required on roofs where sarking is installed as per Clause 10.4.4 NZS 3604:2011 or where a ceiling diaphragm is installed and is attached to the rafters.
5. Roof area is the actual plan area of the roof and includes overhangs.
6. A hip or valley rafter running continuously from ridge to top plate can be classed as one roof plane brace.
7. A pair of crossed LUMBERLOK Strip Brace (preferred for ease of installation) can be classed as one roof plane brace and shall be installed as detailed in this brochure.
8. There must be at least one roof plane brace in each roof plane. Each ridge line shall have a minimum of two roof braces.
9. Every design effort should be made to distribute the roof braces as evenly as possible over the entire roof area and run alternately in opposite directions.

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Timber Connectors

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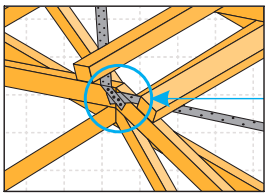
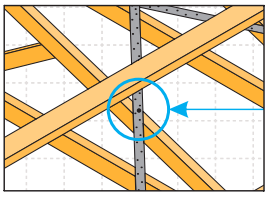
# ROOF BRACING SPECIFICATION

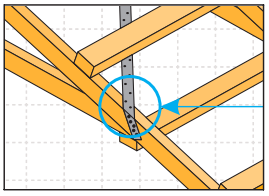
## Roof Bracing Options
## i) Roof Plane Brace



5 x 30mm x 3.15 dia. nails each end

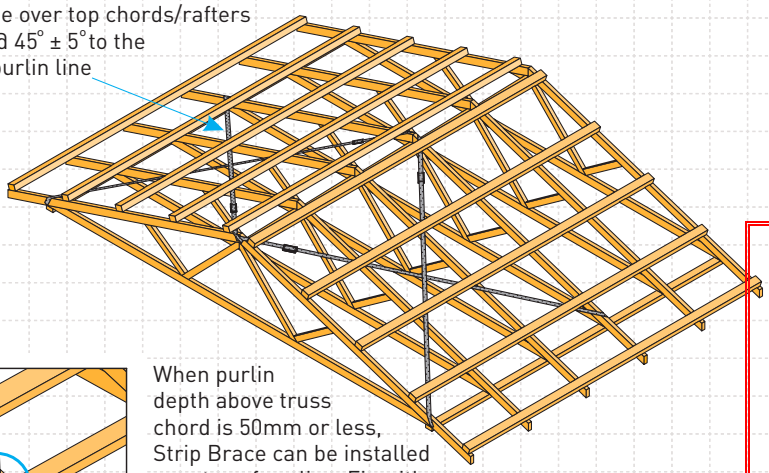


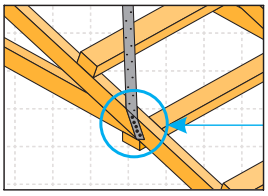
1 x 30mm x 3.15 dia. nail at crossing (after tensioning)



5 x 30mm x 3.15 dia. nails each end

A pair of tensioned and crossed LUMBERLOK Strip Brace over top chords/rafters installed @ 45° ± 5° to the rafter or purlin line

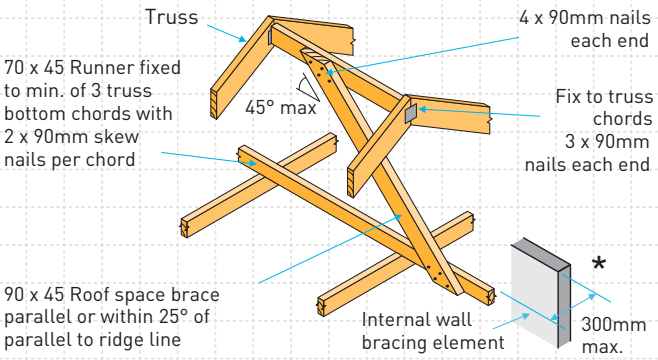




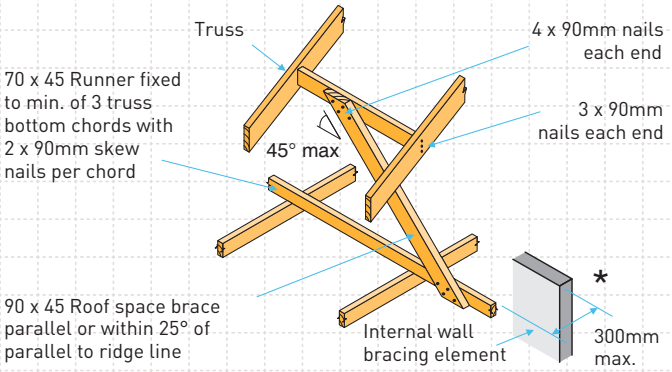
When purlin depth above truss chord is 50mm or less, Strip Brace can be installed over top of purlins. Fix with 1 x 30mm x 3.15 dia. nail at the purlin closest to the rafter/truss crossing

## ii) Roof Space Brace

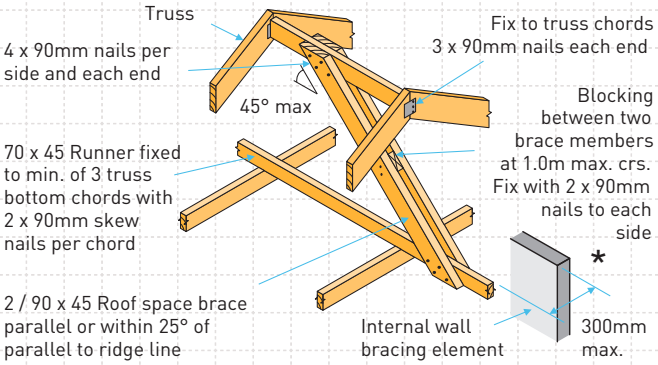
### (A) Less than 2m long



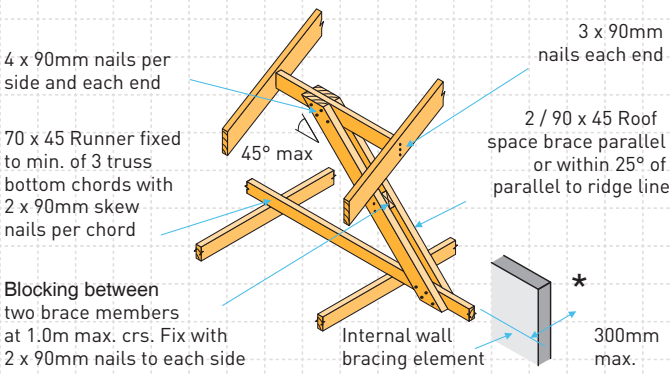

### (C) Not directly under the ridge - less than 2m long




### (B) More than 2m long (Max. 4.8m)




### (D) Not directly under the ridge - more than 2m long

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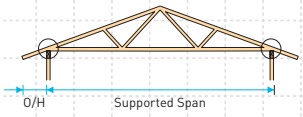
# STUD TO TOP PLATE FIXING SCHEDULE

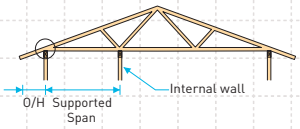
## ALTERNATIVE TO TABLE 8.18 NZS 3604:2011

- Fixings are designed to resist vertical loads only. Dead loads include roof weight and standard ceiling weight of .20kPa
- Refer to Table 8.19 NZS 3604:2011 for nailing schedule to resist lateral loads
- These fixings assume the correct choice of rafter/truss to top plate connections have been made
- For gable end walls where the adjacent rafter/truss is located within 1200mm and with a maximum verge overhang of 750mm, select stud to top plate fixing using a loaded dimension of 1.5m
- All fixings assume top plate thickness of 45mm maximum
- Wall framing arrangements under girder trusses are not covered in this schedule
- All timber selections are as per NZS 3604:2011

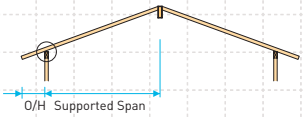
## LOADED DIMENSION DEFINITION



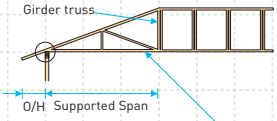

External wall
Standard truss



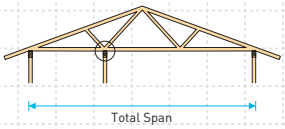

External wall
Internally supported truss




External wall
Rafter roof



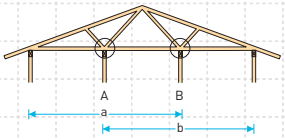

External wall
Jack truss




Internal wall
Internally supported truss
(overhang dimension does not apply)

EXTERNAL WALL
LOADED DIMENSION =
$\frac{\text{SUPPORTED SPAN}}{2}$ + O/H

INTERNAL WALL
LOADED DIMENSION =
$\frac{\text{TOTAL SPAN}}{2}$




Multiple internal walls
(overhang dimension does not apply)

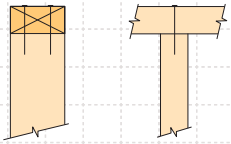
MULTIPLE INTERNAL WALL
LOADED DIMENSION FOR
WALL A = $\frac{a}{2}$
WALL B = $\frac{b}{2}$

**For Fixing Selection Chart refer chart on reverse page**

## FIXING OPTIONS

**FIXING TYPE A 0.7kN**

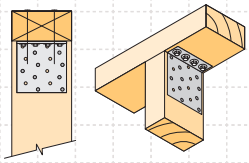
2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



**FIXING TYPE B 4.7kN**

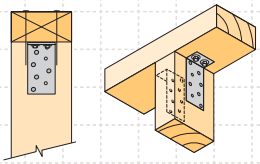
**CHOOSE ANY OF THE 3 OPTIONS BELOW**

2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



Plus
LUMBERLOK
6kN Stud Anchor
(CPC80)

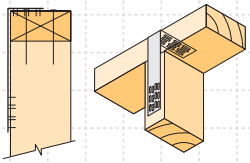
2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



Plus
2 x LUMBERLOK
CPC40

Recommended for internal wall options to avoid lining issues

2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



Plus
LUMBERLOK
Stud Strap
(one face only)

**Note:**
To calculate the number of B type fixings required, divide the wall length by the stud centres, add 1 to this figure and locate this number of fixings as evenly as possible along the wall length. This figure includes the start and end studs in each wall length.

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# STUD TO TOP PLATE FIXING SCHEDULE

## FIXING SELECTION CHART

(Suitable for walls supporting roof members at 600, 900 or 1200mm crs.)

**Wind Zones L, M, H, VH, EH, as per NZS 3604:2011**

| LOADED DIMENSIONS (M) STUD CENTRES | | | LIGHT ROOF WIND ZONE | | | | | HEAVY ROOF WIND ZONE | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 300MM | 400MM | 600MM | L | M | H | VH | EH | L | M | H | VH | EH |
| 3.0 | 2.3 | 1.5 | A | A | B | B | B | A | A | B | B | B |
| 4.0 | 3.0 | 2.0 | A | A | B | B | B | A | A | B | B | B |
| 5.0 | 3.8 | 2.5 | A | B | B | B | B | A | A | B | B | B |
| 6.0 | 4.5 | 3.0 | A | B | B | B | B | A | A | B | B | B |
| 7.0 | 5.3 | 3.5 | A | B | B | B | B | A | A | B | B | B |
| 8.0 | 6.0 | 4.0 | A | B | B | B | B | A | A | B | B | B |
| 9.0 | 6.8 | 4.5 | B | B | B | B | B | A | A | B | B | B |
| 10.0 | 7.5 | 5.0 | B | B | B | B | B | A | A | B | B | B |
| 11.0 | 8.3 | 5.5 | B | B | B | B | B | A | A | B | B | B |
| 12.0 | 9.0 | 6.0 | B | B | B | B | B | A | A | B | B | B |

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# GABLE END BRACING

## OVER ROOF SECTION OF END WALLS

- Covers bracing of the roof section on gable end construction.
- Includes bracing on extra high gables.
- All timber to be minimum grade SG8 as defined in NZS 3604:2011 apart from gable end webs which are either SG6 or SG8 (see Tables 1A & 1B).
- Tables cover gable end truss installed as single component 45mm thick, double component 90mm thick, 45x70mm or 45x90mm webs "on flat".
- "On flat" description here refers to truss fabrication terminology.
- Design assumes restraints are provided at the ceiling and roof lines.
- Bracing covers loading conditions as per NZS 3604:2011 up to Extra High wind and includes full height brick veneer gables.
- Height of webs design for wind serviceability deflection limit of h/180 and a maximum of 15mm in accordance with NZS 3604:2011.

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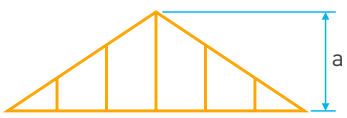
## TABLE 1A - STRONGBACK LOCATION FOR WEBS @ 600MM CRS.

| WIND ZONE | MAXIMUM STRONGBACK HEIGHT (h) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 70 x 45 Web | | 90 x 45 Web | | Double Component Gable Ends Webs | | | | 45 x 70 on Flat | | 45 x 90 on Flat | |
| | | | | | 2/70 x 45 | | 2/90 x 45 | | | | | |
| | SG6 | SG8 | SG6 | SG8 | SG6 | SG8 | SG6 | SG8 | SG6 | SG8 | SG6 | SG8 |
| LOW | 1750 | 1950 | 1900 | 2100 | 2200 | 2450 | 2400 | 2650 | 2350 | 2600 | 2950 | 3150 |
| MEDIUM | 1600 | 1750 | 1750 | 1900 | 2000 | 2200 | 2200 | 2400 | 2150 | 2350 | 2750 | 2950 |
| HIGH | 1400 | 1500 | 1500 | 1650 | 1750 | 1900 | 1900 | 2100 | 1800 | 2050 | 2350 | 2650 |
| VERY HIGH | 1250 | 1400 | 1400 | 1500 | 1600 | 1750 | 1750 | 1900 | 1600 | 1900 | 2050 | 2400 |
| EXTRA HIGH | 1150 | 1350 | 1300 | 1450 | 1550* | 1700* | 1650* | 1850* | 1450 | 1700 | 1850* | 2200* |

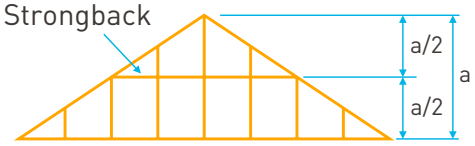
## TABLE 1B - STRONGBACK LOCATION FOR WEBS @ 400MM CRS.

| WIND ZONE | MAXIMUM STRONGBACK HEIGHT (h) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 70x45 Web | | 90x45 Web | | Double Component Gable Ends Webs | | | | 45x70 on Flat | | 45x90 on Flat | |
| | | | | | 2/70x45 | | 2/90x45 | | | | | |
| | SG6 | SG8 | SG6 | SG8 | SG6 | SG8 | SG6 | SG8 | SG6 | SG8 | SG6 | SG8 |
| LOW | 2000 | 2200 | 2200 | 2400 | 2550 | 2750 | 2750 | 2950 | 2700 | 2900 | 3250 | 3500 |
| MEDIUM | 1800 | 2000 | 2000 | 2200 | 2300 | 2550 | 2500 | 2750 | 2450 | 2700 | 3050 | 3300 |
| HIGH | 1600 | 1750 | 1750 | 1900 | 2000 | 2200 | 2200 | 2400 | 2150 | 2350 | 2750 | 2950 |
| VERY HIGH | 1450 | 1600 | 1600 | 1750 | 1850 | 2000 | 2000 | 2200 | 1950 | 2200 | 2500 | 2750 |
| EXTRA HIGH | 1400 | 1550 | 1500 | 1650 | 1750* | 1950* | 1900* | 2100* | 1800 | 2100 | 2300* | 2650* |

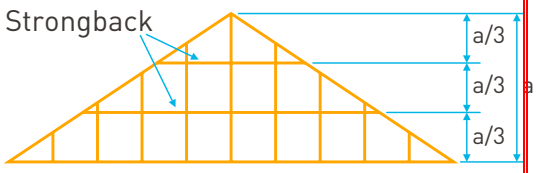
*** Use these values for full height brick veneer attached to gable end.**
Please note that the maximum height of brick veneer on a gable end wall is 5.5m.



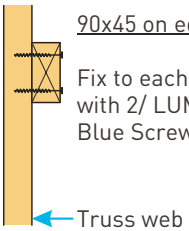

- Where (a) is less than or equal to (h) - no strongback required.



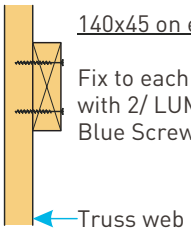

- Where (a) is greater than (h) but less than 2(h) - lower strongback is required.
- Locate the strongback at height of (a/2).



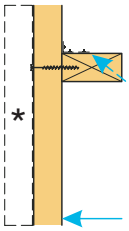

- Where (a) is greater than 2(h) but less than 3(h) - lower and upper strongbacks are required.
- Locate strongbacks at height increments of (a/3).



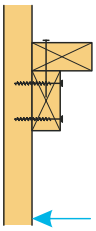

**OPTION 1**




**OPTION 2**




**OPTION 3**




**OPTION 4**

## TABLE 2 - STRONGBACK SPAN AND GABLE BRACE LOCATION

| Option 1 | Option 2 | Option 3 | Option 4 |
|---|---|---|---|
| 90x45 on edge | 140x45 on edge | 90x45 on flat | 90x45 on flat plus 90x45 on edge |
| Max. span and/or gable brace location 1200mm | Max. span and/or gable brace location 1400mm | Max. span and/or gable brace location 1600mm | Max. span and/or gable brace location 2000mm |

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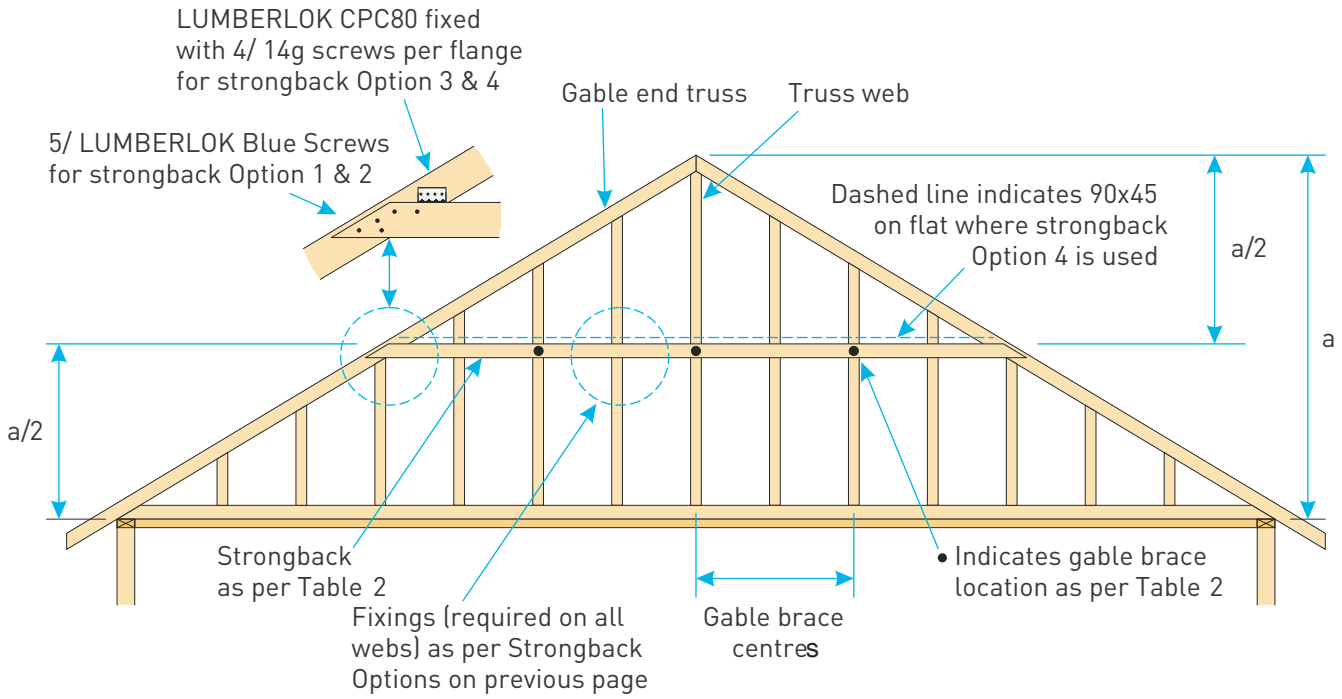
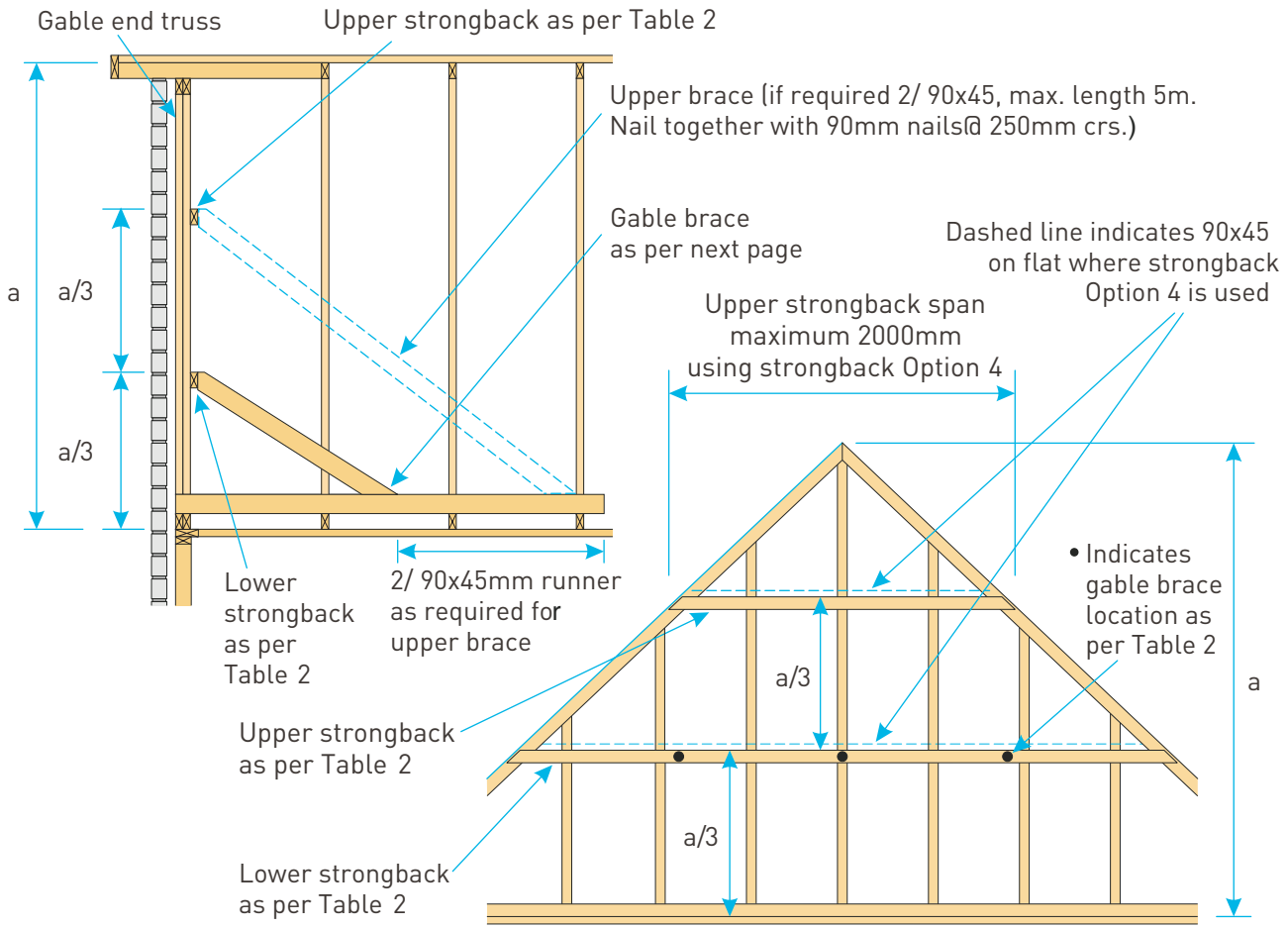



## SINGLE STRONGBACK DETAILS




## DOUBLE STRONGBACK DETAILS FOR ALL GABLE END OPTIONS
**(FULL HEIGHT BRICK VENEER OPTION SHOWN)**

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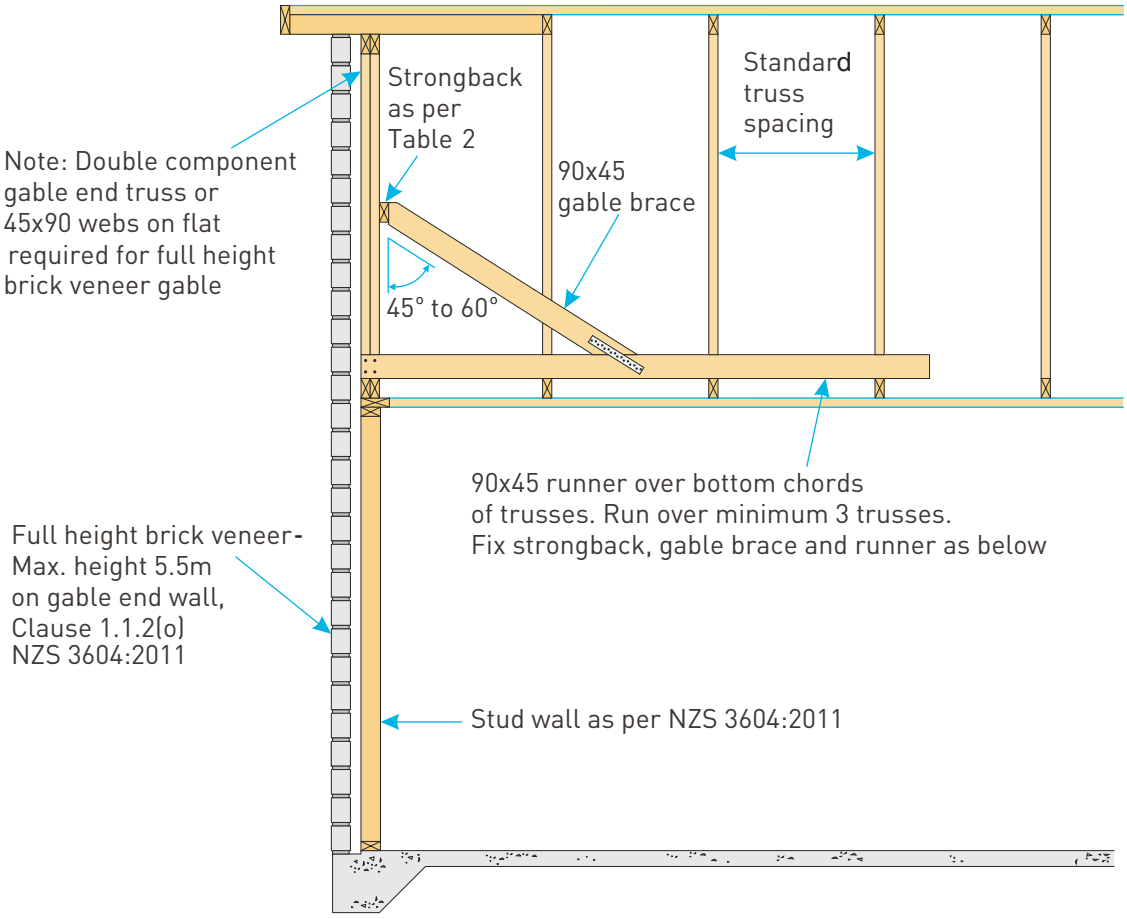
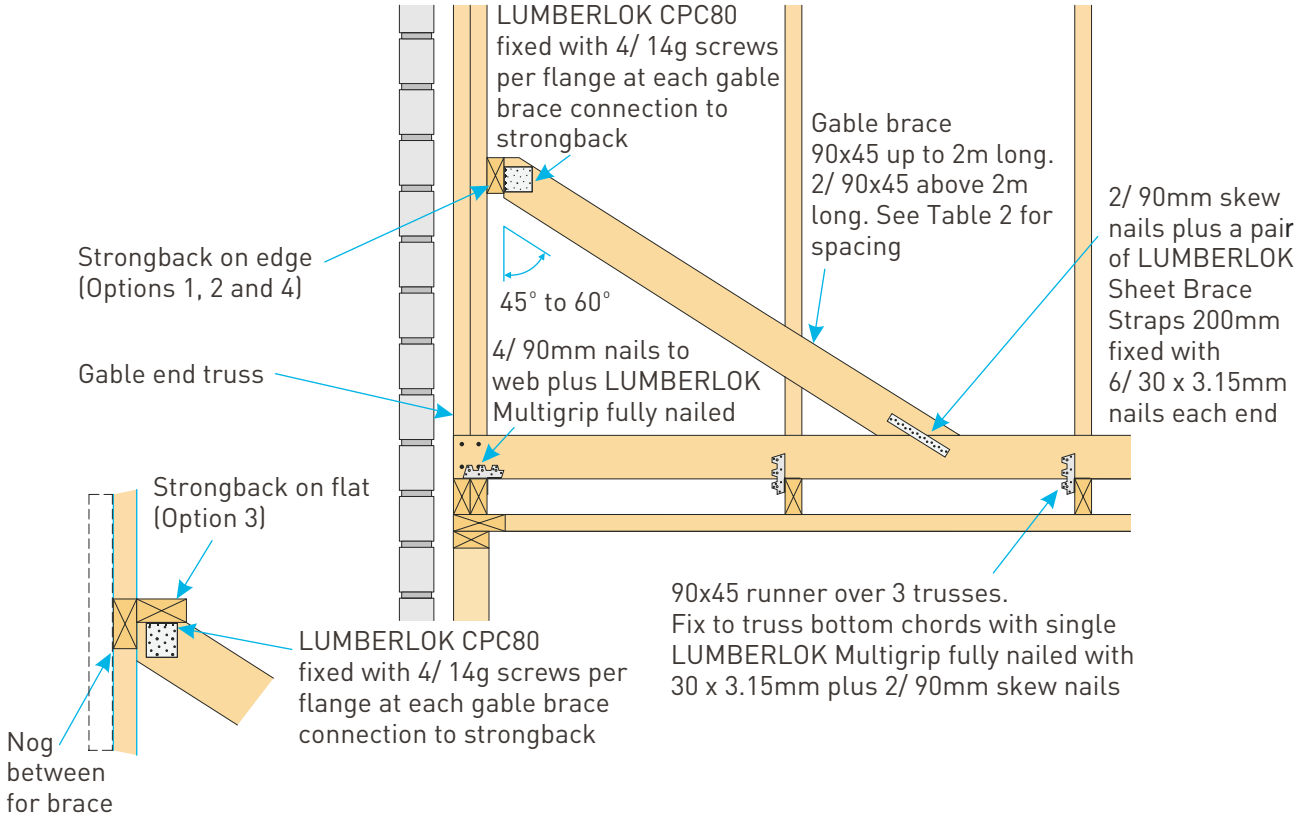



## CROSS SECTION (FULL HEIGHT BRICK VENEER OPTION SHOWN)




## CROSS SECTION (FULL HEIGHT BRICK VENEER OPTION SHOWN)

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# FLASHING SYSTEMS

## Selection and Installation Handbook

ISSUE 08

- Longrun Metal Roofs
- Concrete, Slate and Tile roofs
- Flues
- Pipes
- Ridges
- Apron Flashings
- Hip Flashings
- Damp Proof Course
- Silicone
- Tape

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dlm

**Got a question? Please contact us using details below.**

**Email:** info@dlmwallace.co.nz **Web:** www.dlm.co.nz **Tel:** 09 622 9100

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# Time and money saving answers for every flashing situation

Whatever your building and construction flashing requirements, you will find an innovative, practical answer in the DLM range of flashing systems.

The unique features and high performance of any DLM flashing system symbolises the care and attention to design detail that goes into every DLM product.

From the smallest cable penetration, through to roof, window and door flashings, or for an emergency repair in a hurry, DLM will provide the ultimate weather tight seal.

When you choose from the DLM flashing systems you will discover the advantages of doing it right, with better performance and an easier, more cost effective installation.

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**Dektite Pipe Flashing Warranties** ..... Page 1
**Dektite** Design features ..... Page 2
**Dektite Premium** The versatile solution ..... Page 3-4
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# Helpful Hints

### Dektites

- ✔ When cutting do not use a knife. Sharp tin snips will provide the smoothest finish.
- ✔ Always cut where sizes are indicated. Incorrect point of cutting may result in poor fit.
- ✔ Hand form aluminium edge before fastening.
- ✔ Fasten from vertical centre to outside.
- ✔ When pulling the Dektite down a pipe, lubricate the pipe with water first.

### Retrofits and Combos

- ✔ Do not overcrimp seam.
- ✔ For pipes over 100mm diameter use a stainless steel support clip (hose clamp) if desired.

### General Points - Applicable to all Deks flashing products

- ✔ Always ensure that a liberal amount of neutral cure 100% silicone sealant (roof and gutter approved) is applied **UNDER** any perimeter aluminium-backed edge.
- ✔ **Seamed Pipes:** When flashing a metal flue that has an exposed seam, using a neutral cure 100% silicone sealant (roof and gutter approved) seal the seam from underside of the cowl to the top of Dektite cone.
- ✔ Where multiple skin flues are used, EPDM Dektite are appropriate.
- ✔ Under **NO** circumstances should any Dektite product be used on an unapproved **(i.e. single skin)** flue discharging from a wood combustion appliance.
- ✔ Overstretching of EPDM compound products can lead to shortened life expectancy.
- ✔ Please note that the outside temperature of the pipe is usually significantly lower to the exit temperature of the appliance.

# Dektite Pipe Flashing Warranties

This warranty on Dektite Pipe Flashing is given by Consolidated Alloys (NZ) Ltd 55 Maurice Road, Penrose Auckland, New Zealand for the periods and under the terms and conditions listed below.

1. DLM warrants that all Dektite pipe flashings will perform in accordance with our published specifications and will be free from defects in material and workmanship for a maximum period of 20 years, commencing from the date of delivery to end user.

Under this warranty DLM will,at its option,repair or replace any defective Products. Any claim should be made in writing within 60 days following the discovery of any defect. DLM shall not be liable for any costs incurred in the removal of defective items or installation of replacement items nor cost of freight and other associated charges.

2. This warranty shall not apply where:-

(a) the Product has not been installed in strict accordance with our published recommendations;

(b) the Product has been installed in an area which has been exposed at any time during the warranty period to corrosive conditions including but not limited to,corrosive chemicals,ash fumes or condensates or harmful substance generated within or about the building(s) or fixture(s) to which the Product has been applied;

(c) any damage to the Product has been caused as a result of the negligence or misuse of the Product by the claimant

(d) any modification to the specification ofthe Product has been made,save and except where any modification is reasonably necessary in adopting the Product to size.

(f) defects are a result of acts of God or other external forces, including but not limited to,failure to provide free drainage of water from around the areas in which the Product has been installed.

3. To the extent permitted by law,this warranty is given in lieu of all other warranties,express or implied,including any warranty of merchantability or fitness for a particular purpose. Where so permitted,the remedies stated herein are exclusive remedies and DLM shall not be responsible for any indirect,consequential or incidental damages or further loss of any kind whatsoever except as expressly provided by in this Warranty.

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# Dektite

## Design features

### Flexible Cone Sleeve

Dektite cone shape eliminates seal breakdown due to vibration or expansion and contraction, while isolation of pipe from sheeting dampens noise levels.

### Stress Isolation Points

Unique to Dektite, two flexible shoulders absorb distortion and stop transfer of stresses from base to cone, as unit is formed over roofing profile.

### Bonded Aluminium Flange

Corrosion resistant, malleable flange, evenly distributes fastening pressure and allows ease of hand shaping on most sheet profiles.

### Integrity of Flashing Shape

Minimal distortion after installation, maintains natural flashing shape and seal around pipe, while water run-off is improved.

### UV Protection

Dektite products are resistant to ultraviolet light damage and will remain fully flexible under all conditions.

### Easily Identified Sizing

Pipe diameter rings are clearly marked on the cone sleeve (metric and imperial) for cutting to match the appropriate pipe diameter.

### Low Profile Design

Sleek, unobtrusive shape is designed to minimise silhouette on roofline, while managing to provide generous internal clearance for steep, angular installations.

### Improved Waterproofing

Designed to strengthen sealant bond and improve waterproofing, the ribbed base also has a tapered edge to improve runoff and contribute to a superior waterproof seal.

### Perfect for approved flues!

Dektite polymer flashings have been officially tested and conform to all Australian and New Zealand Standards on approved flue systems. EPDM withstands temperatures from -50$^{o}$C to 115$^{o}$C and up to 150$^{o}$C intermittently. Silicone withstands temperatures from -60$^{o}$C to 200$^{o}$C and up to 250$^{o}$C intermittently.

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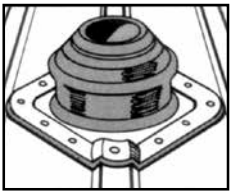
# Dektite Premium

## The versatile solution

- ✔ Most extensive range of Dektites for flashing penetrations 0 - 510mm, available in black and grey EPDM and silicone red for high temperatures.
- ✔ Designed to enable practically any pipe flashing operation to be carried out within minutes, simple to install and very effective.
- ✔ The low profile cone not only looks good but provides a generous internal clearance, so even the steepest roofs are handled with ease.
- ✔ Suitable for flashing pipes that penetrate wall claddings.
- ✔ Can also be used to flash square penetrations. Just add 30% to the pipe diameter and trim the cone to suit.
- ✔ EPDM withstands temperatures from -50°C to 115°C and up to 150°C intermittently.
- ✔ Silicone withstands temperatures from -60°C to 200°C and up to 250°C intermittently.

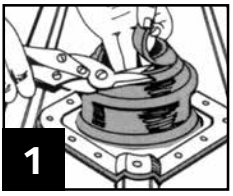
## Installation Instructions:



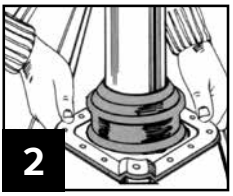
**NOTE:**

For more effective drainage, always fit the Dektite on the diamond or bias.

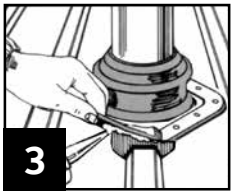
Dektites are suitable for flashing pipes that penetrate wall claddings.



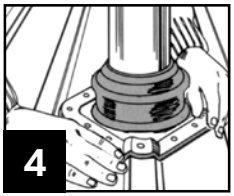

Cut a neat hole in roofing sheet with minimum clearance for pipe and insert pipe through hole. Trim the cone to suit pipe size using sharp tin snips. Where required, support cut sections of sheet with additional framing.



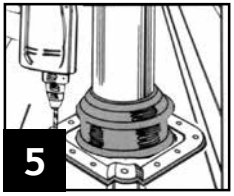

Slide Dektite flashing down over pipe. Lubricating the pipe with water allows the pipe to slide snuggly into position.




Apply a neutral cure 100% silicone sealant (roof and gutter approved) to the underside of the Dektite by turning back the flexible flange.




Press base to the roof profile by hand, smooth out any awkward creases. Don't fully extend to allow for vibration.




Fasten using self drilling washered screws or sealed rivets. Fit fasteners progressively outward in opposing pairs to avoid gaps.

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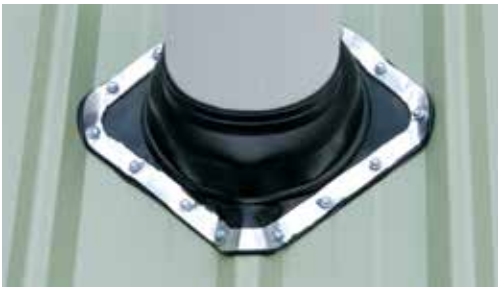
# Dektite Premium

## The versatile solution

| CODE: BLACK EPDM | CODE: GREY EPDM | CODE: RED SILICONE | BASE (MM) | PIPE (MM) | ROOF PITCH |
|---|---|---|---|---|---|
| DFE10MB | | | 71 x 71 | 0-20 | Up to 60°* See foot note |
| DFE100B | DFE100G | | 100 x 100 | 0-35 | |
| DFE100BS* | | DFE200RES | 100 x 100 | 0-35 | |
| DFE101B | DFE101G | | 139 x 139 | 5-55 | Up to 45°* See foot note |
| DFE101BS* | | DFE201RES | 139 x 139 | 5-55 | |
| DFE102BA | DFE102GA | DFE202REA | 181 x 181 | 50-70 | |
| DFE103B | DFE103G | DFE203RE | 218 x 218 | 5-127 | |
| DFE104B | DFE104G | DFE204RE | 279 x 279 | 75-175 | |
| DFE105B | DFE105G | DFE205RE | 309 x 309 | 100-200 | |
| DFE106B | DFE106G | DFE206RE | 363 x 363 | 125-230 | |
| DFE107B | DFE107G | DFE207RE | 456 x 456 | 150-300 | |
| DFE108B | DFE108G | DFE208RE | 495 x 495 | 170-355 | |
| DFE109B | DFE109G | DFE209RE | 680 x 680 | 230-508 | |

* DFE100BS and DFE101BS both have multiple cable nipples



## Can a Dektite flash a square pipe? YES!

100mm Round

Circumference = 314mm

100mm Square

Perimeter = 400mm

**Difference = Approx. 30%**

Therefore, to suit square pipes/stanchions add 30% to the diameter of the pipe and cut accordingly.

**100mm x 30% = 130mm to suit a square**

NOTE: Refer to page 7 for guide to Dektite square penetrations from 20mm - 125mm.

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# Dektite Premium Solar Flashings

## Perfect for flashing pipes and cables on any roof type

The multi-application flashing in a highly durable EPDM or silicone, edged with a flexible aluminum band, flashes pipes and cables on all roofs. The square base fits most roof profiles.

### Dektite Premium DFE101BM

- ✔ Incorporates 12 cable nipples.
- ✔ Ideal for Solar PV installations.
- ✔ Black EPDM high UV resistant cone.

### Dektite Premium DFE100BS

- ✔ Incorporates 3 cable nipples.
- ✔ Suitable for pipes and/or cables.
- ✔ Available in black EPDM.

### Dektite Premium DFE200RES

- ✔ Versatile flashing accommodates up to 5 penetrations.
- ✔ Suitable for pipes and/or cables.
- ✔ Available red silicone.

### Solar Kit DSK200 KIT

## Components:

### DEKTITE FLASHING ADHESIVE (Silicone Dektites only)

Dektite Flashing Adhesive (50ml) is a one part neutral cure (non acid) engineering grade silicone adhesive. This primerless adhesive adheres to most substrates and is formulated for use with Dektite silicone flashings only. The adhesive reacts with atmospheric moisture to produce a long life seal that is resistant to UV and will remain flexible and withstands temperatures from -50°C to 165°C. Ideal for tile roofs.

### DEKTITES (2pcs)

2 x silicone Dektites
0 - 35mm plus 2 x cable nipples. Red silicone will withstand constant temperatures at the roofline or -50°C to 200°C and up to 250°C intermittently.

### ROOFING SCREWS (16 pcs)

10 Gauge, 16mm, class 4, mechanically plated roofing screws. 16 screws in solar kit.

| CODE | No CODE | TO FIT PIPE SIZE | ROOF PITCH |
|---|---|---|---|
| DFE100BS (BLACK EPDM) | SOLAR MINI #0 | 0 - 35 | Up to 60° See foot note |
| DFE101BS (Black EPDM) | SOLAR #1 | 5 - 55 | |
| DFE200RES (Silicon Red) | SOLAR MINI #0 | 0 - 35 | |
| DFE201RES (Silicon Red) | SOLAR #1 | 5 - 55 | |
| DFE101BM (Black EPDM) | MULTI CABLE | 12 X 4-8MM | |
| DSK200RES (Red Silicon) | SOLAR KIT | 0 - 35 | |
| DFA050G (Grey) | ADHESIVE | | |
| DFE050RE (Red) | ADHESIVE | | |

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# Dektite Shingle Flashings

## Perfect for flashing pipes and cables on shingle roofs

### Dektite SHR

For Shingle Roof Retrofit Applications on Electrical Masts, Re-Roofing etc.

- ✔ Pipe OD range 0-150mm (clearly marked cutting grooves).
- ✔ Available in black, made from proprietary polymer material compatible with asphalt shingles.
- ✔ Slide down the pipe without cutting, or cut along the zipper and use the clips supplied for retrofitting.
- ✔ Aluminum flange nails securely to the roof.
- ✔ Twenty year warranty. Just fit it and forget it - we've got you covered.

| CODE | TO FIT PIPE SIZE | BASE SIZE | ROOF PITCH |
|---|---|---|---|
| DSR103B | 0 - 150mm | 380 x 380mm | 10 - 45° |

### Dektite SHT

- ✔ Thermoplastic hard base with elastomer collar. Compatible with asphalt shingles. No caulk, self-sealing.
- ✔ 85°C continuous heat.

| CODE | TO FIT PIPE SIZE | BASE SIZE | ROOF PITCH |
|---|---|---|---|
| DST101B | 32 - 40mm | 330 x 235mm | Up to 45° |
| DST102B | 50mm | 330 x 235mm | Up to 45° |
| DST103B | 75mm | 380 x 285mm | Up to 45° |
| DST104B | 100mm | 405 x 305mm | Up to 45° |

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# Dektite Combo

## Flash over or around, a standard Dektite and Retrofit all in one

- ✔ The unique cone design makes the combo range suitable for both standard and retrofit applications.
- ✔ When retrofit is required just cut and apply clips for ease of application. **Clips included.**
- ✔ Provides 10 - 20mm continuous contact with flashed pipe providing a watertight seal.
- ✔ Clear markings makes for easier cutting to pipe size.
- ✔ Size ranges - Numbers 1 - 10 (5 - 750mm)
- ✔ Availiable in black EPDM.
- ✔ Just fit it and forget it - we've got you covered.
- ✔ EPDM withstands temperatures from -50°C to 115°C and up to 150°C intermittently.

20 YEAR WARRANTY

## Combo Selection Guide

| CODE | DESCRIPTION | PIPE (MM) | BASE (MM) | ROOF PITCH |
|---|---|---|---|---|
| DC101BC | Dektite Combo #1 | 5-60 | 139 x 139 | Up to 40° See foot note |
| DC102BC | Dektite Combo #2 | 45-85 | 177 x 177 | |
| DC103BC | Dektite Combo #3 | 5-127 | 221 x 221 | |
| DC104BC | Dektite Combo #4 | 75-175 | 285 x 285 | |
| DC105BC | Dektite Combo #5 | 108-190 | 366 x 366 | |
| DC106BC | Dektite Combo #6 | 125-230 | 366 x 366 | |
| DC107BC | Dektite Combo #7 | 150-280 | 454 x 454 | |
| DC108BC | Dektite Combo #8 | 175-330 | 454 x 454 | |
| DC109BC | Dektite Combo #9 | 240-508 | 705 x 705 | |
| DC110BC | Dektite Combo #10 | 400-750 | 965 X 965 | |

## Combo Square Selection Guide

| CODE | DESCRIPTION | PIPE (MM) | BASE (MM) | ROOF PITCH |
|---|---|---|---|---|
| DCS103BC | Dektite Combo Square | 20-125 | 221 x 221 | Up to 40° |

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# Dektite Combo

## Flash over or around, a standard Dektite and Retrofit all in one

## Installation Instructions

### Standard Application

1 Trim the cone to suit pipe size using sharp tin snips.

2 Slide down pipe using water as a lubricant.

3 Apply a liberal bead of silicone sealant on underside of flexible aluminium base.

4 Press base to the roof profile by hand. Smooth out any awkward creases. Don't fully extend to allow for vibration.

5 Fasten using self drilling washered screws or sealed rivets.

### Retrofit Application

1 Trim cone to suit pipe size then cut seam and aluminium base using sharp tin snips.

2 Apply a liberal bead of neutral cure 100% silicone sealant (roof and gutter approved) to one side of the cut seam.

3 With seam in downstream position wrap cone around pipe and engage 1st double clip at top of seam using multigrips.

4 Engage remaining clips working down from top of cone to base making sure that you do not over crimp.

5 Apply liberal bead of neutral cure 100% silicone sealant (roof and gutter approved) to underside of Dektite Combo and shape to roof by hand. Screw down using self drilling washered screws or sealed rivets.

6 Fasten flashing down by placing a fastener either side of seam first then secure rest of base working outwards in opposing pairs.

7 Apply sealant to top of base closure and any other potential leak areas.

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# Dektite Flatseal

## For flat and low pitch roofs

- ✔ For flat and low pitch roofs with single ply or bitumen coverings.
- ✔ No special tools or fittings are needed.
- ✔ Flatseal EPDM snaps tight to pipe without clips.
- ✔ Seals to roof with hot or cold liquid bitumen.
- ✔ Black EPDM for maximum UV and ozone resistance.

| CODE | BASE (MM) | PIPE (MM) | COLOUR |
|---|---|---|---|
| FS25-175 | 345 | 25-175 | BLACK (EPDM) |

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# Dektite Soaker

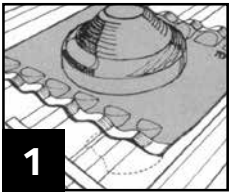
## The perfect flashing for all tray roofs

- ✔ The large base of the Dektite Soaker dramatically reduces rainwater back up on very low or very high roof pitches and deep ribbed roofing profiles.
- ✔ Dektite Soakers are ready to use straight from the box.
- ✔ Engineered to eliminate damning.
- ✔ Faster to flash than old fashioned methods.
- ✔ The unique corrosion resistant aluminium flange is ideal for low pitch and deep profile roofs, providing a positive leak-proof seal.
- ✔ EPDM withstands temperatures from -50°C to 115°C and up to 150°C intermittently.

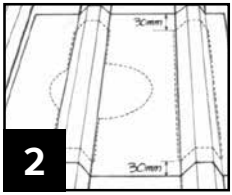
**IMPORTANT:**
**For any pitch above 40° do not cut below the first three sizing ribs on the 603, 605 and 606**

| CODE | BASE (MM) | PIPE (MM) | ROOF PITCH | PIPE (MM) | ROOF PITCH |
|---|---|---|---|---|---|
| DF 602 | 410 x 360 | 75-160 | Up to 60° | | |
| DF 603 | 485 x 460 | 114-165 | Up to 60° | 165-255 | Up to 40° |
| DF 605 | 708 x 635 | 250-358 | Up to 60° | 358-410 | Up to 40° |
| DF 606 | 1006 x 905 | 380-470 | Up to 60° | 470-610 | Up to 40° |

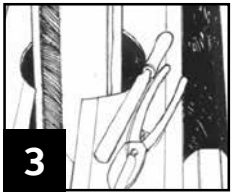
## Installation Instructions:



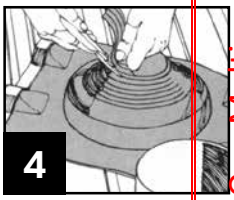

Mark position of pipe on roofing sheet, centre Dektite Soaker over mark ensuring word "top" is towards highest part of roof, and form Dektite Soaker flanges to roof profile.



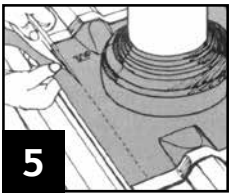

Mark ribs or corrugations to be removed to allow adequate drainage around cone. Allow at least 30mm all round to fasten Dektite Soaker's aluminium strips to roofing sheet.



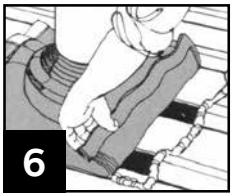

Cut out marked portions of roof, filing away sharp edges and install pipe securely in place. Where required, support cut sections of sheet with additional framing to support base.



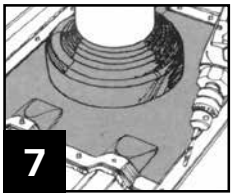

Trim Dektite Soaker cone to suit pipe size with sharp tin snips and slide down pipe using water as lubricant.




Form Dektite Soaker base into contours of roofing sheet, positioning loose strips on either side of cone in best position to ensure drainage of pan or tray. Trim excess EPDM from outside of loose strips. Trimming should be considered prior to cutting of the roof sheet.




Apply a generous bead of neutral cure 100% silicone sealant (roof and gutter approved) to the underside of Dektite Soaker base along entire perimeter.




Fasten flashing to roof using washered self-drilling screws or sealed rivets, ensuring Dektite Soaker forms flat trough for water run-off. Fix integral aluminium strips from centre outwards before attaching loose strips provided.

20 YEAR WARRANTY

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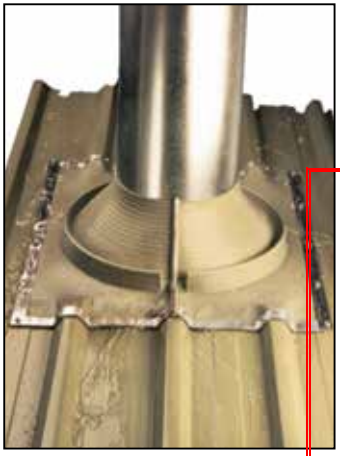
# Dektite Retrofit Soaker

## Designed to flash where access to installation is restricted

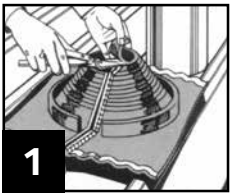
- ✔ Like Dektite Retrofit, they are designed to flash where access to installation is restricted.
- ✔ The unique crimp closure mechanism makes pipe or vent flashing an elementary wrap and seal procedure requiring no soldering or special tools.
- ✔ The Dektite Retrofit Soaker will flex with the roof decking without cracking or leaking and their smooth tray area means water run-off is super efficient.
- ✔ EPDM withstands temperatures from -50°C to 115°C and up to 150°C intermittently.



**One Standard Size: for 235 - 425mm pipes**

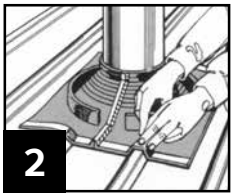
| CODE | BASE (MM) | PIPE (MM) | ROOF PITCH |
|---|---|---|---|
| RFS 4 | 750 x 660 | 235-425 | Up to 45° |

## Installation Instructions:



1

Measure outside pipe diameter and trim cone exactly where indicated.

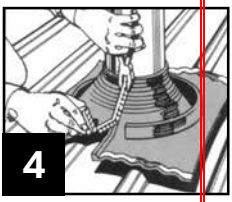


2

Mark out area where ribs of roof panel are to be removed. Where necessary support cut sections of sheet with additional roof framing.

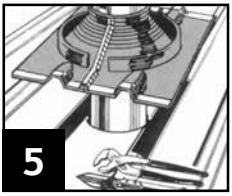
3

With clip in down-stream position tension top of cone around pipe and engage metal teeth in opposing pockets.



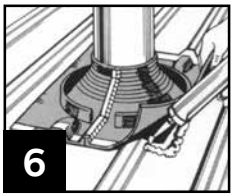
4

Crimp the top three clips with pliers.To assist in completion of crimp, place hand behind the seam for support and continue crimping. Do not overcrimp.



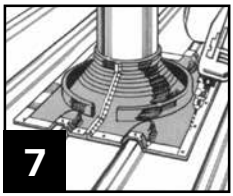
5

Form Dektite base into contours of roofing sheet, positioning loose strips on either side of cone in best position to ensure drainage of pan or tray and trim sides if necessary. Trimming should be considered prior to cutting of the roof sheet.



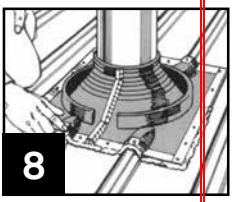
6

Apply a generous bead of neutral cure 100% silicone sealant (roof and gutter approved) to underside of Dektite base and press to contour of sheet profile.



7

Fasten flashing to roof using washered self drilling screws or sealed rivets. Secure clip by placing a fastener either side of the clip. Fix integral aluminium strips from centre outwards before attaching loose strips provided.



8

Apply neutral cure 100% silicone sealant (roof and gutter approved) to the top of crimp closure and any other potential leak areas.

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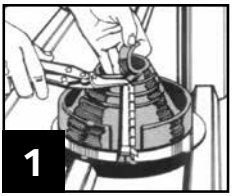
# Dektite Retrofit

## When it has to flash around and not over

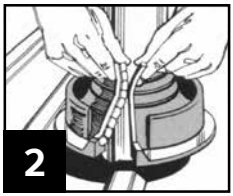
- ✔ Wraps around existing or difficult to access pipes, installations are a breeze.
- ✔ The built-in crimps mean no loose clips or rivets, snaps together in seconds.
- ✔ Made from quality polymer compounds, grips tight and stays tight.
- ✔ The supple aluminium base conforms like magic for easy profile moulding.
- ✔ Can also be used to flash square penetrations. Just add 30% to the pipe diameter and trim the cone to suit.
- ✔ EPDM withstands temperatures from -50°C to 115°C and up to 150°C intermittently.
- ✔ Red silicone will withstand constant temperatures at the roofline of -50°C to 200°C and up to 250°C intermittently.
- ✔ For pipes over 100mm Ø use a stainless steel support / hose clamp.

| CODE: GREY EPDM | CODE: RED SILICONE | BASE (MM) | PIPE (MM) | ROOF Pitch |
|---|---|---|---|---|
| RF 801G | RF901 | 160 | 20-70 | Up to 40°* See foot note |
| RF 802G | RF902 | 273 | 50-185 | |
| RF 803G | RF903 | 369 | 85-255 | |

## Installation Instructions:

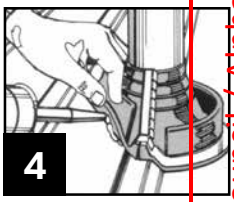



Measure outside pipe diameter and trim cone exactly where indicated. **For square pipes add 30%.**

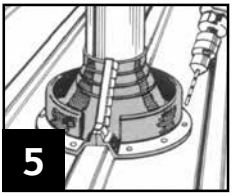



With clip in down-stream position, tension top of cone around pipe and engage metal teeth in opposing pockets.

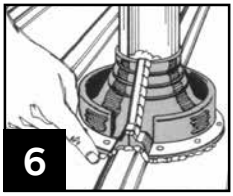
To assist in locating clip into pocket, place hand behind the seam. Fasten clip with pliers or multi-grips, working from top to base. **Do not overcrimp.**




Press the Dektite base to contour of roof sheet profile then apply a generous bead of neutral cure 100% silicone sealant (roof and gutter approved) to the underside.




Fasten flashing with washered self drilling screws. As per diagram, secure clip by placing a fastener either side of the clip first.




Apply sealant to top of crimp closure and any other potential leak areas.

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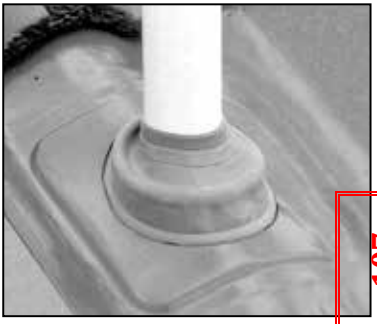
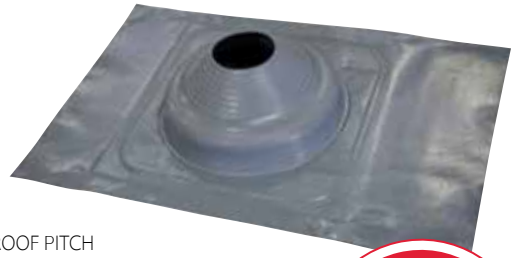
# Acrylead Tile Flash

## For tiled and slate roofs

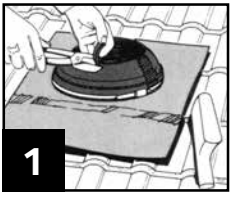
- Acrylead offers the benefit of a thermo baked acrylic primer coating to both surfaces of the lead apron, ready for finish coating to match surrounding roof or trim colours.
- Acrylead flashings comply with AS1804 and have a minimum unit mass of 17kg/m$^2$.
- The potential for lead oxides to leach from the apron and cause staining is now virtually eliminated.
- EPDM withstands temperatures from -50$^o$C to 115$^o$C and up to 150$^o$C intermittently.
- Easy to install - no messy sealants required or sticky backing used.



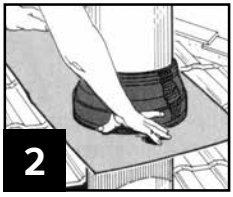


| CODE | BASE (MM) | PIPE (MM) | ROOF PITCH |
|---|---|---|---|
| TFL0-35 | 300 x 600 | 0-35 | Up to 45$^o$ |
| TFL0-35 TWIN | 300 x 600 | 0-35 x 2 | Up to 45$^o$ |
| TFL5-55 | 300 x 600 | 5-55 | Up to 45$^o$ |
| TFL50-70 | 300 x 600 | 50-70 | Up to 45$^o$ |
| TFL5-127 | 400 x 600 | 5-127 | Up to 45$^o$ |
| TFL75-175 | 450 x 600 | 75-175 | Up to 45$^o$ |
| TFL150-300 | 600 x 900 | 150-300 | Up to 45$^o$ |

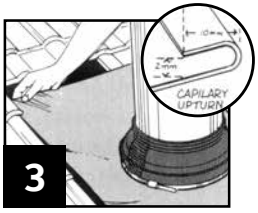
## Installation Instructions for Lead and Aluminium Flashing:



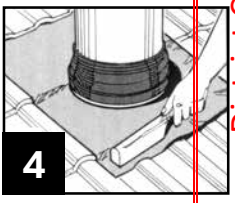

Trim Tileflash cone to suit pipe size.




After first lubricating the flue with water, slide Tileflash down to tile level.




Flatten the Acrylead and form an anti-cappillary fold. Then place the upper edge of the base underneath the tiles up stream.




Finally, dress the apron to the surrounding tile area.

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# Dektite Aluminium

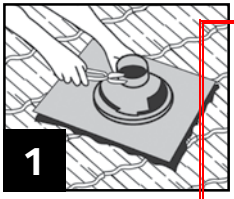
## The best solution for stone chip and pressed metal tiles

- ✔ The base is 99.9% pure grade aluminium making it strong, malleable and easy to install.
- ✔ Environmentally friendly, ideal where potable water is collected.
- ✔ The best solution for stone chip and pressed metal tiles.
- ✔ EPDM withstands temperatures from -50°C to 115°C and up to 150°C intermittently.

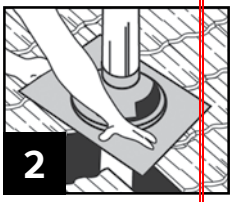
| CODE | BASE (MM) | PIPE (MM) | ROOF PITCH |
|---|---|---|---|
| TFA 12-70 | 500 x 600 | 12-70 | Up to 45° |
| TFA 50-170 | 600 x 600 | 50-170 | Up to 45° |
| TFA 110-200 | 764 x 764 | 110-200 | Up to 45° |
| TFA 160-300 | 600 X 900 | 160-300 | Up to 45° |
| TFA 300-450 | 965 x 965 | 300-450 | Up to 45° |

20 YEAR WARRANTY

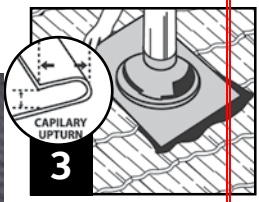
## Installation Instructions:



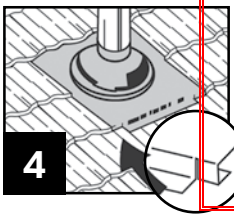

Trim Dektite cone to suit pipe size using sharp tin snips.




After lubricating the flue with water, slide Dektite down to the tile level.




Form an anti-capillary fold then place upper edge of base under up-stream tiles.




Dress base to profile, cut tabs on the bottom corners and fold under to stop wind lift .

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# Dekform

## Lead free alternative to suit all tiled roof flashing applications

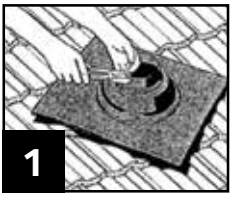
Dekform is the lead free alternative of the future. Designed to suit all tiled roof flashing applications. A great product choice when rain water harvesting is in use. Keep your water clean from lead contamination when diverting water from roof tank.

- ✔ Environmentally friendly. No leaching of chemical or colouring agents.
- ✔ Light weight. Dekform is 1/3 the weight of lead.
- ✔ Great form stability. Easily applied and shaped to required roof profile.
- ✔ Available in Grey EPDM.
- ✔ EPDM will withstand constant temperatures at the roofline of -50°C to 115°C and up to 150°C intermittently.
- ✔ Easy painting. Able to be painted with 100% Acrylic Low Sheen exterior paint.
- ✔ Twenty year warranty. Just fit it and forget it - we've got you covered.

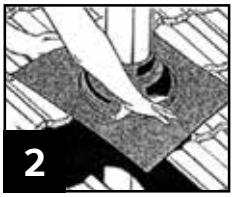
| Code (Grey) | Pipe OD (mm) | Apron Sheet Size (mm) | Pitch | Carton Qty |
|---|---|---|---|---|
| 100 | 0-35 | 410 x 490 | Up to 40° | 5 |
| 101 | 12-70 | 410 x 490 | Up to 40° | 5 |
| 102 | 50-70 | 600 x 450 | Up to 40° | 5 |
| 103 | 50-170 | 600 x 450 | Up to 40° | 5 |
| 108 | 175-330 | 850 x 550 | Up to 40° | 5 |

## Installation Instructions:

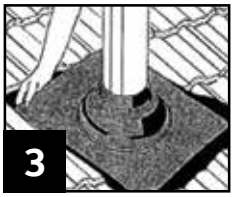
Use PERFORM hammer to dress down leading edges.
When installing Dekform we recommend ZBOND Metal and Masonry silicone V4 for adhesion.
If painting is required, we recommend 100% Acrylic Low Sheen exterior paint for the Dekform base.
If painting is required for the Dektite the surface needs to be weathered for 3 weeks in its installed position then washed with warm water and prepared by coating with a small amount of mild solvent. Then apply 100% Acrylic Low Sheen exterior paint.



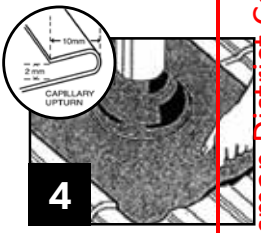

Trim the cone to suit pipe size using sharp tin snips.




Slide down pipe using water as a lubricant.




Flatten the Dekform sheet and then place upper edge of base underneath the tiles to form a return edge.




Hand dress the apron for a professional finish with a perform hammer.

Lift sheet and apply spot adhesion technique using Z Bond Metal and Masonry Silicone V4.

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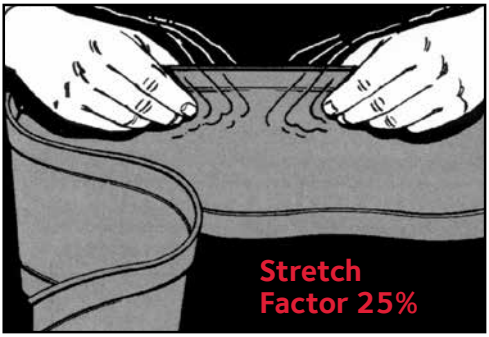
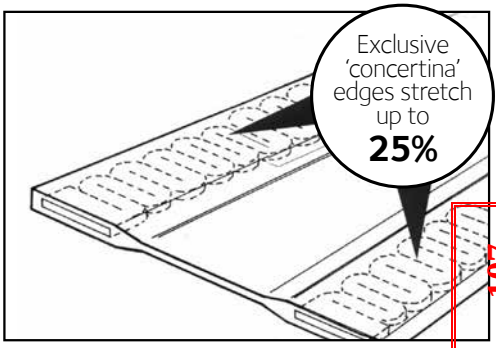
# Dekstrip Flashing

## With the amazing stretch edge



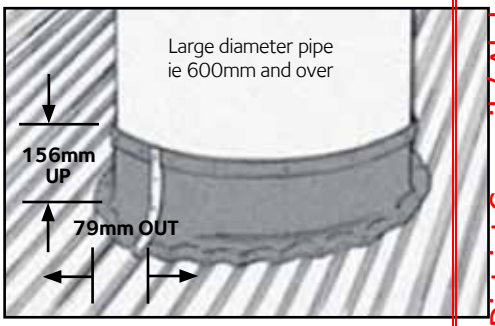

- ✔ The Dekstrip edges contain an expanding aluminium strip (in concertina form) totally encased by the EPDM flashing.
- ✔ Dekstrip can be stretched and formed around most roof profiles and maintain that shape.
- ✔ Typical applications include bullnosing, where two different profiles intersect, curved parapet flashing, expansion joints in gutters, change of pitch and large round pipe penetrations.
- ✔ Fastening is done through the aluminium strip using suitable fasteners with a minimum 10mm head. In case of rivets use a 10mm washer under head.
- ✔ EPDM based thermoplastic elastomer (TPE) will withstand temperatures from -50°C to 115°C and up to 150°C intermittently.
- ✔ Dekstrip can be painted (contact DLM for technical advice).

| CODE | LENGTH (M) | WIDTH (MM) | MATERIAL |
|---|---|---|---|
| DS3-235 | 3.1 | 235 | EPDM based grey Thermoplastic Electomer (TPE) |
| DS10-180 | 10 | 180 | |
| DS10-235 | 10 | 235 | |
| DS10-305 | 10 | 305 | |
| DS23-180 | 23 | 180 | Price and availability on application |
| DS23-235 | 23 | 235 | |
| DS23-305 | 23 | 305 | |
| DS15-450 | 15 | 450 | |

### Large Round Pipes

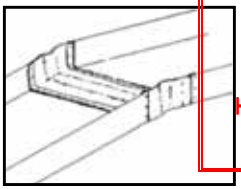
1. Mark a line on the pipe,156mm above the roof. Take this mark from the valley. Circle the pipe.
2. Fasten Dekstrip at this line, after applying neutral cure 100% silicone sealant (roof and gutter approved). Overlap ends by 50mm.
3. Stretch the entire unfastened bottom edge.
4. Seal and fasten bottom edge,allowing same overlap at bottom as at top - suggest valley fixing.

All listed measurements are for 235mm wide strip flash. If using other widths use a ratio of 2/3 up the pipe 1/3 over the roof profile.




### Expansion Joints

The flexibility of Dekstrip makes it ideal for joining box guttering. No problems with movement or leaking.



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# Fast Flash

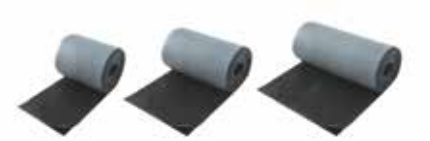
## Self adhesive and very workable lead free flashing

20 YEAR WARRANTY

- ✔ Easy to install being light weight, easy to trim and fully self-adhesive.
- ✔ Slower set adhesive allows time for repositioning.
- ✔ Flexible, malleable and expandable making Fast Flash very workable and able to dress well to all profiles.
- ✔ Product range includes rolls in three standard sizes in grey or black.
- ✔ Environmentally friendly aluminium stretch netting cast in polymer rubber.
- ✔ Other sizes and colours available on request.

### Fast Flash - quick weatherproof flashing

Fast Flash consists of aluminium expandable mesh cast in environmentally friendly polymer rubber. Fast Flash is self-adhesive on the reverse and protected by cover foil that is removed before installation. Fast Flash is available in rolls in two standard sizes and comes in grey or black.

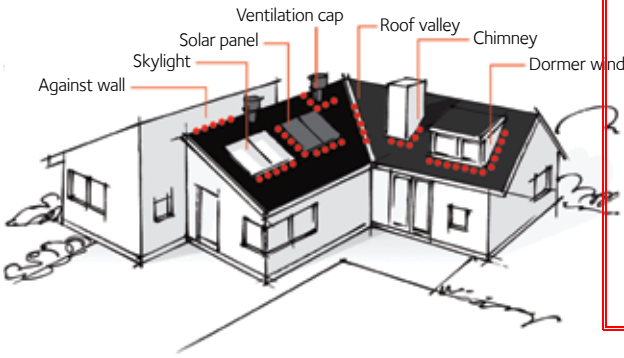


280mm 370mm 560mm

| Code | LENGTH (M) | WIDTH (MM) | WEIGHT (KG) | COLOUR |
|---|---|---|---|---|
| FFR5-280G<br>FFR5-280B | 5 | 280 | 4.7 | GREY<br>BLACK |
| FFR5-370G<br>FFR5-370B | 5 | 370 | 5.9 | GREY<br>BLACK |
| FFR5-560B<br>FFR5-560G | 5 | 560 | 9.2 | GREY<br>BLACK |

### Self-adhesive flashing

Fast Flash is ideal for a quick and secure flashing solution. Fast Flash can be installed on roofs with a slope of minimum 10° and on almost all roof materials. Fast Flash is environmentally friendly and easy to install as the reverse is self- adhesive, as well as being flexible and very workable.

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# Perform

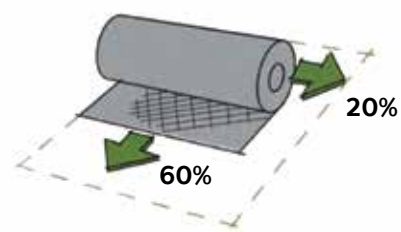
## Flexible lead free roof flashing

20 YEAR WARRANTY

- ✔ Environmentally friendly with no leaching of chemical or colouring agents.
- ✔ Perform is light weight being 1/3 the weight of lead.
- ✔ Great form stability for fast and easy mounting
- ✔ Range of rolls in various sizes are available in Grey and Black.

Stretching ability:

60% lengthwise and
20% breadthwise




### Rolls

| Code | LENGTH (M) | WIDTH (MM) | WEIGHT (KG) |
|---|---|---|---|
| PFR4-300G | 4 | 300 | 4.32 |
| PFR4-300B | 4 | 300 | 4.32 |
| PFR4-450G | 4 | 450 | 6.48 |
| PFR4-450B | 4 | 450 | 6.48 |
| PFR4-600G | 4 | 600 | 8.64 |
| PFR4-600B | 4 | 600 | 8.64 |

### Important

- Remember to place flashing material correctly according to the actual need for stretching ability.
- Cut the flashing using a trade knife or sheet metal shears.
- When pre-fixing and shaping joints are required, use adhesive if deemed necessary.
- Use the Perform hammer to dress down leading edges.
- If painting is required, we recommend 100% Acrylic Low Sheen exterior paint.
- When lapping joints, 150mm overlap is recommended.
- Perform has the ability to expand and contract, thus allowing minimal joints.

### Installation Information

1 Perform flexible flashing is fixed easily and fast. The light weight and excellent stretching properties ensure simple handling and shaping of the flashing. To obtain a perfect fit use a perform hammer.

2 The side with the protection film is the visible or upper side of the material. This is to prevent the flashing material from getting dirty.

3 By folding the bottom edge it becomes significantly stronger and the roof cover then becomes even more stable in shape.

4 Being self-contained, Perform flexible flashing does not require adhesives. A self contained flashing is porus/ breathable and prevents formation of humidity and condensation under the area covered.

5 When ever deemed necessary you can make terminations against walls, roofs, valley, gutters etc. For adhesive process use Z BOND Metal & Masonry Silicone V4. Spot adhesion technique is recommended.

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# Silicone Sealants

The following silicones have been trialled and have been found to provide a satisfactory bond between the EPDM and Silicone Dektites and most commonly used roofing materals.

- **OCI Professional Roof and Gutter Prosil 10, Silicone Sealant**
- Sikasil AP Multipurpose Silicone Sealant.
- Selleys Roof & Gutter Silicone Sealant.
- Bostik Findley Roof & Gutter Silicone Sealant.
- Dow Corning 791 Silicone Weatherproofing Sealant.

| CODE | DESCRIPTION | BOX | COLOUR |
|---|---|---|---|
| Prosil10 | All purpose neutral cure silicone | 20 | TRANSPARENT |

- For adequate bonding all surfaces must be clean and dry.
- The base of the Dektite should be moulded by hand to form a snug fit to the roof profile.
- The Dektite should then be lifted clear and a continuous bead of neutral cure 100% silicone sealant (roof and gutter approved) applied to the whole of the ribbed underside of the Dektite. For an effective seal a 1 - 3mm bead of silicone is sandwiched between the two surfaces.
- Pull the Dektite down to sit snugly on the roof profile and fasten with washered screws / Hex screws. NB: Screw coatings of class 4 or 5 are required.
- Remove excess silicon and collect any swarf.

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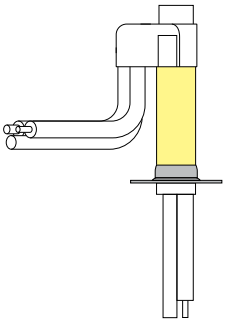
# Top Hat Roof Penetration Kit

## For use with air conditioning units, heat pumps and solar panels

Top Hat Roof Kit

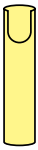


Compliant Penetration

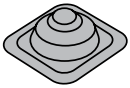
| CODE | SIZE (MM) |
|---|---|
| RF PN 50 | 50 |
| RF PN 65 | 65 |
| RFPN80SC | 80 |
| RFPN110FC | 110 |

For other options on solar penetrations refer to Dektite premium solar products on page 4.

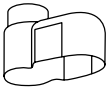
## Installation Instructions:



Position the PVC tube. Fix it to a batten or rafter.

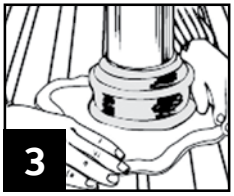


Fit the Dektite flexible flashing as per the installation instructions.

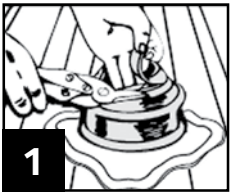


Install all pipe work and secure the cap with stainless steel self tapping screws.

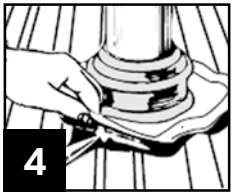
For more effective drainage always fit the Dektite on the diamond as shown.



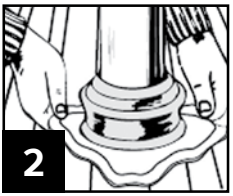

Press base to the roof profile by hand, smooth out any awkward creases. Don't fully extend to allow for vibration.



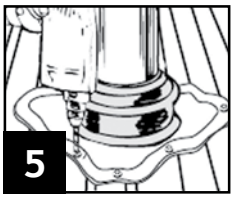

Cut a neat hole in the roofing sheet with minimum clearance for pipe and insert pipe through hole. Trim the cone to suit pipe size using sharp tin snips (where necessary, support cut sections of sheet with additional timber framing). Secure pvc pipe within ceiling space to Purlin, rafter or truss to ensure pvc pipe does not drop or move over time.




Apply a neutral cure 100% silicone sealant (roof and gutter approved) by turning back the flexible flange.




Slide Dektite flashing down over pipe. Lubricating the pipe with water allows the pipe to slide snuggly into position.




Fasten using class 4 coating washered screws. Fit fasteners progressively outward in opposing pairs.

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# Sheet Lead and Acrylead

## Time proven reliability

- ✔ Conforms to AS/NZ1804 – 1976
- ✔ 50 year warranty (on base metal)
- ✔ Extremely malleable
- ✔ Proven quality and performance

### DLM Sheet Lead

- Sheet Lead is the softest of all the common metals, it is extremely malleable; it is capable of being shaped to most profiles at ambient temperatures.
- Sheet lead is a tried and proven product used in the construction industry for hundreds of years, mainly used as weatherings and flashings.
- The most important feature of any well designed roof is the flashing detail. The use of Sheet Lead will ensure that quality and performance are not compromised.
- DLM Sheet Lead is ideal for applications of radiation shielding, sound proofing, chimney flashings, lead slate for pipe penetrations, apron and abutment flashing, canopies and projections, curved parapets, windows and door flashings.

### DLM Acrylead

- Acrylead has a factory applied thermo baked acrylic primer coating on both sides of the sheet The process developed by DLM inhibits the contact of water runoff with the lead and its oxides, reducing the potential of the run off staining adjacent materials, and entering ground water systems.
- Acrylead allows you to improve the look of exposed flashings by finish coating of your choice to match roof or surrounding trim colours.

### E2 / AS1 Compliance

- DLM Sheet Lead and Acrylead are the only apron/abutment flashings that can meet and exceed the 50 YEAR WARRANTY offered by Concrete, Clay, and Slate Tile manufacturers and is a must for compliance with E2/AS1.

### Standard Roll Sizes

**Sheet lead:** **Both 3m and 6m rolls:** 150, 300, 375mm
**3m rolls only:** 450, 600, 750, 900mm

**Acrylead:** **6m rolls:** 150, 300, 340, 375mm
**3m rolls only:** 450, 600mm

### Range of thickness and weight

| Weight (Kg/m²) | Nominal Thickness (mm) | Typical Uses |
|---|---|---|
| 6 | 0.50 | Strip edge for metal flashing, sound proofing. |
| 12 | 1.0 | Sound and radiation proofing. |
| 17<br>20<br>25 | 1.50<br>1.80<br>2.25 | Apron and cover flashings, hip and ridge flashings, pitched valley gutters, lead slates, chimney flashings and weatherings to cornices, parapets etc. Full roof cladding. |
| 30<br>35<br>40 | 2.65<br>3.15<br>3.55 | Parapet, box and tapered gutters or situations that demand extra length. |

### Recommended maximum sizes of individual pieces of lead for all applications

| Weight (Kg/m²) | Maximum Length (mm) | Maximum overall girth (mm) |
|---|---|---|
| 17 | 1300 | 600 |
| 20 | 1500 | 750 |
| 25 | 2000 | 800 |
| 30 | 2250 | 850 |
| 35 | 2500 | 900 |
| 40 | 3000 | 1000 |

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# Plascourse DPC

## An effective moisture barrier

- ✔ Plascourse may be used as a damp course in brick or block work.
- ✔ Plascourse may be used as a concealed flashing under timber, window frames or door frames.
- ✔ Plascourse may be used when separation between different materials is required.
- ✔ Plascourse MUST NOT be used in applications where it is exposed to direct sunlight.

An effective moisture barrier for use as a dampcourse material and concealed flashing.

Plascourse is a thick, high impact low density black polyethylene strip with an embossed surface on both sides that reduces slippage in use.

Plascourse will provide an effective moisture barrier for use as a dampcourse material and also as a concealed flashing.

Plascourse is manufactured to Australian and New Zealand Standard 2904 - 1995.

Plascourse meets the test requirements for impact resistance AS/NZ 4347.6.

Plascourse is embossed both sides with dimensions between 3mm - 10mm maximum in both machine and transverse direction and it's thickness is measured in accordance with AS/NZ 4347.9.

| Code | Length (m) | Width (mm) | Carton Qty |
|---|---|---|---|
| DPC50 | 30 | 50 | 24 |
| DPC75 | 30 | 75 | 16 |
| DPC90 | 30 | 90 | 12 |
| DPC100 | 30 | 100 | 12 |
| DPC140 | 30 | 140 | 8 |
| DPC150 | 30 | 150 | 8 |
| DPC200 | 30 | 200 | 4 |
| DPC250 | 30 | 250 | 4 |
| DPC300 | 30 | 300 | 4 |
| DPC1000 | 30 | 1000 | 1 |

# Malthoid

## Damp proof course

- ✔ Malthoid Damp Proof Course is a Kraft saturated in multiple layers of a bituminious coating then a light sand coating.
- ✔ Malthoid may be used when separation between different materials is required.
- ✔ Malthoid may be used as a damp couse in brick or block work or aluminium.
- ✔ Malthoid may be used as a flashing under timber jack studs and timber piles.

Malthoid is manufactured to meet the following provisions of the NZBC:

**NZBC Clause E2 External moisture**
Malthoid Damp Proof Course satisfies the requirements of E2/AS1 Table 23, NZBC 3604 2.3(b).

**NZBC Clause B2 Durability**
Malthoid Damp Proof Course will meet the durability requirements of NZBC E2/AS1 Table 1 - Damp Proof Course. Malthoid must not be exposed to extended periods of direct sunlight, or prolonged contact with chemicals or solvents.

| Code | Length (m) | Width (mm) | Carton Qty |
|---|---|---|---|
| MAL50 | 20 | 50 | 8 |
| MAL75 | 20 | 75 | 8 |
| MAL90 | 20 | 90 | 6 |
| MAL100 | 20 | 100 | 6 |
| MAL150 | 20 | 150 | 4 |
| MAL200 | 20 | 200 | 2 |
| MAL250 | 20 | 250 | 2 |
| MAL300 | 20 | 300 | 2 |
| MAL1000 | 20 | 1000 | 1 |

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# FLASHGUARD

## The original edge flashing

✔ **EXTREMELY MALLEABLE**
Flashguard is so easy to install, it can be dressed down using finger pressure only, so there is no need for special tools. There is no need for hammering into roof profile, no need for cutting or forcing into shape and hence no risk of scratching, denting or paint damage to the roof.

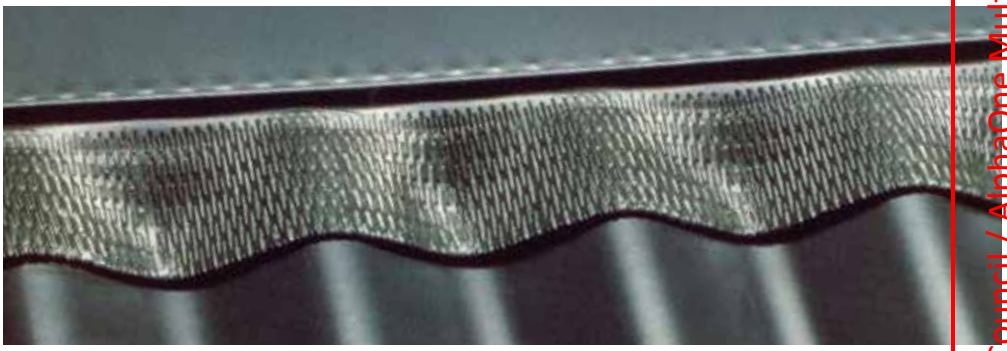
✔ **VERY QUICK TO INSTALL**
Because of the ease of fitting Flashguard, reduced installation time will result in major savings in labour costs.

✔ **COLOUR MATCHED**
Flashguard is made in over 40 colours available to match the many colours available from metal roof manufacturing suppliers.

✔ **WEATHERPROOF**
The special backing provides a weather sealing membrane with excellent elastic characteristics and resistance to moisture. Flashguard perfectly hugs the contour of the roof profile, preventing birds from gaining access.

✔ **COMPATIBLE**
Compatible with Zincalume®, aluminium and galvanised steel roofing materials, pressed metal tiles and long run metal roofs.

✔ **POTABLE WATER**
Flashguard is approved for installation when collecting potable water off the roof structure.



FLASHGUARD Z

CODEMARK CMA-CM40106

- ✔ Proven 20 years in the field.
- ✔ Codemark certification.

FLASHGUARD VZ

CODEMARK CMA-CM40215

- ✔ Allows passive ventilation through exposed expansion points on the weathering surface of the edge.
- ✔ Protected leading edge prevents abrasion against roofing eliminating possible roof damage during service and installation.

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BC220134 Tasman District Council - APPROVED DOCUMENT 2022 RM220278

15 YEAR DURABILITY

NEW ZEALAND MADE

Designed and manufactured in NZ by DLM from imported materials

Flashguard is the original soft edged roof flashing, for lock seaming to Zincalume®, galvanised or aluminium roof flashings. It replaces the traditional soft lead that was historically used on galvanised steel roof flashings. As roofing materials have changed, the requirement to meet these changes saw the design and creation of the original Flashguard soft edge by DLM over 20 years ago. This unique product expands and readily shapes snugly to the contours of the metal roofing profile, creating a waterproof barrier without scratching and damaging the paint finish of the roof.

Flashguard-z is suitable for installation over pressed metal tiles and long run metal roofing profiles, which do not exceed 32mm in height. Flashguard is available in standard sizes 43mm, 63mm, 75mm in width. If a wider strip is required (up to 103mm) this is available on request. Flashguard-vz is only available in standard 63mm width.

## Installation

1. Before placing the flashing into position, fold the Flashguard out by hand, using minimal force. Do not remove paper backing.
2. As is normal trade practice, ensure that on the top edge of the long run sheets, the pans are "turned up" to provide a stop end.
3. Affix the flashing to the roof before dressing Flashguard into the roof profile.
4. Dress the lower edge of the Flashguard into the roof profile, using finger pressure only. Start from the centre of the pan and work towards the ribs on either side.

NO TOOLS REQUIRED

## Maintenance

Flashguard should be maintained for the duration of the life of the roof. Normal rain washing will remove most of the accumulation of dirt and salt. It is recommended, as it is with the rest of the roof, that Flashguard should be cleaned with a soft bristle nylon brush and clean water at least once a year, and more often in severe environments. When installed correctly and maintained, Flashguard satisfies the 15 years durability requirement of the NZ Building Code.

*For maintenance guide please visit our website: www.dlm/flashguard.html and download the brochure.

| | |
|---|---|
| Aluminium Mill Finish | Permanent Green |
| BasaltBase™ | Pioneer Red |
| Bone White | Rivergum |
| Cloud | SandScape™ |
| Dark Grey Primer | Sandstone Grey |
| Desert Sand | Scoria |
| Ebony | Slate |
| FernFrond™ | Slate Blue |
| FlaxPod™ | Smokey |
| Grey Flannel | Smooth Cream |
| Greyfriars | Stone |
| Gull Grey | Storm Blue |
| Ironsand | TernStyle™ |
| Karaka | Terracotta |
| KowhaiGlow™ | Threadbow White |
| Lichen | Thunder Grey |
| Light Grey Primer | Titania |
| Lignite | TuiTuft™ |
| Mist Green | Weather Copper |
| New Denim Blue | Windsor Grey |
| Nimbus | Zinc Metallic |

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220134 Tasman District Council - APPROVED DOCUMENT 28/07/2022

# Specialist Tapes

## DANCO Flashband 820/822 Flashtapes

**Self-adhesive sealing strip that bonds instantly to provide a watertight seal**

Aluminium foil backing with bitumous mastic and paper release liner. Instant, permanent and watertight, bonds to a wide range of substrates. Ideal for a wide variety of construction applications including permanent repairs to all types of gutters and flashings. Easily applied.

- ✔ Quick and easy application by hand.
- ✔ No special equipment required for cutting, forming or fixing.
- ✔ Proven performance in NZ conditions for over 30 years.
- ✔ Bonds to a wide variety of building materials.
- ✔ Provides lasting protection in all climates.

**Instructions for use:**

1. Thoroughly clean and dry surfaces prior to applying flashing tape.
2. If surface is porous or crumbling, prime with Duram Bituflex.
3. Apply Flashing Tape firmly to substrate, smooth down and mould in place.
4. Overlap adjoining strips by a minimum of 25mm.
5. Application temperature 5°C to 40°C. May be warmed to aid adhesion if cold.

**Silver 820**
**Grey 822**
**Roll Sizes:**

48mm x 10m
72mm x 10m
96mmx 10m
150mm x 10m
225mm x 10m
300mm x 10m

## DANCO 830 Pure Aluminium Foil Tape

**Provides a flexible migration barrier between bituminous materials and construction sealants**

A 30 micron pure aluminium foil coated with a rubber adhesive and a paper release liner. DANCO 830 offers excellent thermal insulation and heat reflection properties. Suitable for use in the HVAC and construction markets. Ideal for sealing foil lined insulation products in fire rated areas and joining and fixing pipe/duct work.

- ✔ Fully synthetic rubber resin based adhesive.
- ✔ UV and ozone resistant.
- ✔ Excellent water vapour barrier.
- ✔ Conformable, durable and easy to work with.
- ✔ Excellent thermal reflection properties.
- ✔ High adhesion to foils for strong overlap joints.

**Roll Sizes:**

48mm x 45m
72mm x 45m

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BC120134 Tasman District Council - APPROVED DOCUMENT 28/07/2022

# Stop Leak Flashing Tape

**A polyester fused aluminium foil coated with thick Butyl rubber adhesive.**

Uses include repairs to roofing, guttering, downpipe or water tank tops, sealing joints around skylights, doors or adjoining building surfaces and weathersealing seams in caravans, trucks, toolsheds etc. Stop Leaks is not a permanent solution in replacing existing weather flashings on the home.

### Instructions for use:

1. Thoroughly clean and dry surfaces prior to applying flashing tape.
2. If surface is porous or crumbling, prime with Duram primeseal.
3. Apply Flashing Tape firmly to substrate, smooth down and mould in place.
4. Overlap adjoining strips by a minimum of 25mm.
5. Application temperature is 5°C to 40°C. May be warmed to aid adhesion if cold.

**Handy Pack Sizes:**

50mm x 3m
75mm x 3m

**Roll Sizes:**

50mm x 10m
75mm x 10m
100mm x 10m
150mm x 10m

# Leak Seal Tape

**An open weave polyester reinforced fabric tape with Butyl adhesion.**

Used for waterproofing and sealing joints, cracks and gaps in most building substrates in conjunction with waterproofing membranes.

### Instructions for use:

1. Surfaces must be even and smooth without texture, spikes or similar.
2. Peel backing paper, place Leak Seal Tape centred over joint, crack or corner with hands.
3. Overlaps should be at least 100mm.
4. Waterproofing membranes can be applied directly to Leak Seal Tape.

**Roll Size:**

80mm x 15m

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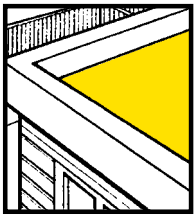
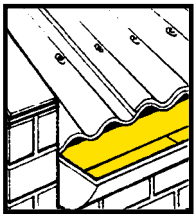
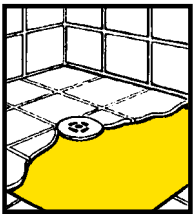
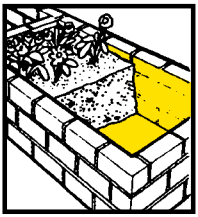
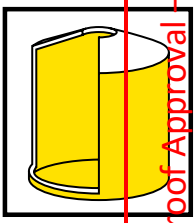
BC220134 Tasman District Council - APPROVED DOCUMENT 28/07/2022

# COATINGS AND WATERPROOF MEMBRANES

## WATERPROOFING

### Decks and roof terraces
- AZCOFLEX TR for trafficable areas
- White or Grey
- Available in Tintable Accent base
- Highly durable
- UV resistant

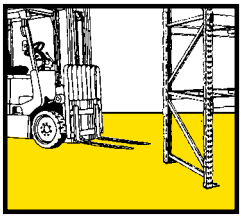
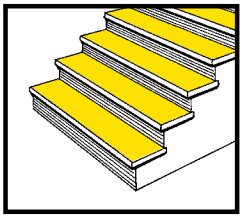
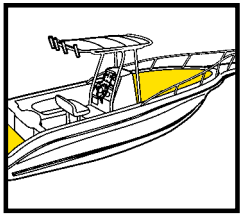
### Roofs and gutters
- AZCOTHANE REO Microfibre reinforced membrane
- Standard Grey
- Highly durable
- UV resistant

### Showers and bathrooms
- DURABIT EF Latex based Membrane
- EF (Extra Flexible)
- Non Staining (Tiles, Grout)
- Resists hydrostatic pressure

### Retaining walls and planter boxes
- DURAM 195
- Fast curing
- Permanently flexible
- Self levelling and seamless membrane

### Water tanks ponds and water features
- CRYSTOFLEX 2 pack Cementitous + polymer Membrane sealing water tanks, ponds, pools, planter boxes internally
- CRYSTOSEAL Waterproofing by Crystalisation
- Suitable for waterproofing both the positive and negative sides of the substrate
- UV resistant

## ANTI-SLIP COATINGS

### Commercial flooring
- ROCKTUFF single pack polyurethane
- Hard wearing
- Anti slip
- Chemical resistant
- Flexible
- Available in 8 colours

### Domestic applications
- VIROTUFF single pack water based polyurethane polymer
- Environmentally friendly
- Anti slip
- Hard wearing
- Attractive
- Available in 20 colours

### Marine applications
- ROCKTUFF or VIROTUFF
- Boat decks and trailers
- General protective coating
- Steps and ramps
- Marinas
- Pontoons

**Email:** enquiries@duram.co.nz **Web:** www.duram.co.nz

Tasman District Council / AlphaOne Multiproof Approval – 107

**BRANZ Appraised**
Appraisal No. 846 [2019]

# SUPER-STICK FLEXIBLE FLASHING TAPE

**Appraisal No. 846 (2019)**

This Appraisal replaces BRANZ Appraisal No. 846 (2013).

Tasman District Council / AlphaOne Multiproof Approval – 107

**BRANZ Appraisals**

Technical Assessments of products for building and construction.

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Tel: 04 237 1170
branz.co.nz

## Product

1.1 SUPER-STICK is a flexible flashing tape used around framed joinery openings as a secondary weather resistant barrier.

1.2 SUPER-STICK is installed into and around the framed joinery opening over the building wrap and exposed frame to cover both the face and edge of the opening framing. SUPER-STICK is also used at joinery heads to seal flashing upstands to the building wrap.

## Scope

2.1 SUPER-STICK has been appraised as a flexible flashing system for use around window and door joinery openings for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- with wall cladding systems complying with NZBC Acceptable Solution E2/AS1 or a valid BRANZ Appraisal that specifies a flexible flashing tape system; and,
- with wall underlays compatible with the flexible flashing tape; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.

2.2 SUPER-STICK has also been appraised as a flexible flashing system for use around window and door joinery openings for steel framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, with regards to building height and floor plan area; and,
- constructed with steel framing complying with the NZBC; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- with wall cladding systems covered by a valid BRANZ Appraisal that specifies a flexible flashing system; and,
- with wall underlays compatible with the flashing tape and steel frame; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.

*Note: Marshall Innovations Ltd offer SUPER-STICK as a jointing and flashing tape for use with rigid air barrier systems that do not require a flexible wall underlay, but this aspect is outside the scope of this Appraisal. Contact the rigid air barrier system proprietor for system details including recommended jointing and flashing tapes.*



Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

## Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, SUPER-STICK, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:**

**Clause B2 DURABILITY:** Performance B2.3.1 (b), 15 years and B2.3.2. SUPER-STICK meets these requirements. See Paragraphs 8.1 and 8.2.

**Clause E2 EXTERNAL MOISTURE:** Performance E2.3.2. SUPER-STICK contributes to meeting this requirement. See Paragraphs 7.1 - 7.4 and 11.1.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. SUPER-STICK meets this requirement and will not present a health hazard to people.

## Technical Specification

4.1 SUPER-STICK is a multi-layered silver polyester faced, copolymer, self-adhesive tape. The tape is supplied in rolls of 75 mm x 22.86 m, 150 mm x 22.86 m and 200 mm x 22.86 m.

## Handling and Storage

5.1 Handling and storage of all materials supplied by Marshall Innovations Ltd, whether on or off site, is under the control of the installer. Rolls must be stored under cover, in clean, dry conditions away from direct exposure to sunlight.

## Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for SUPER-STICK. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

## Design Information

### General

7.1 SUPER-STICK meets the requirements of AC148: 2001 which is an alternative solution to the version of AC148 referenced by NZBC Acceptable Solution E2/AS1, Paragraph 9.1.5 (b). The installation method for SUPER-STICK is an alternative solution to the installation method shown within NZBC Acceptable Solution E2/AS1, Figure 72A and 72B.

7.2 The use of flexible flashing tape systems around window and door joinery openings is critical to assist the overall weathertightness performance of window and door joinery installations.

7.3 SUPER-STICK is suitable for use over flexible wall underlays compatible with the flashing tape in NZS 3604 Wind Zones up to and including Extra High. In the Extra High Wind Zone, the flexible underlay must be installed over a rigid underlay complying with NZBC Acceptable Solution E2/AS1, Table 23.

7.4 SUPER-STICK is designed to prevent air leakage and water penetration around window and door openings at framing junctions (e.g. at the sill trimmer and opening stud junction), and to keep any water that gets past the cladding, or through the joinery, from direct contact with the framing timber.

7.5 SUPER-STICK is not designed to overcome poor detailing and workmanship of the window or door joinery installation. The system must not be considered in isolation, but be considered as part of the wall cladding system. SUPER-STICK flashing tape is designed to be used in conjunction with air seals and joinery flashing systems, not as a substitute.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

7.6 When SUPER-STICK is used in conjunction with LOSP [light organic solvent preservative] treated timber, the solvent from the timber treatment must be allowed to evaporate [generally at least one week] prior to the installation of the system.

## Durability

8.1 Assessment of durability to meet the NZBC is based on difficulty of access and replacement, and the ability to detect failure of SUPER-STICK both during normal use and maintenance of the building.

**Serviceable Life**

8.2 Provided it is not exposed to the weather or ultra-violet light for a total of more than 90 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather resistant, SUPER-STICK is expected to have a serviceable life equal to that of the cladding. The maximum exposure period may however be limited by the requirements of the substrate supplier.

## Maintenance

9.1 No maintenance is required for SUPER-STICK. Regular checks, at least annually, must be made of the junctions between the joinery and wall cladding to ensure that they are maintained weathertight and that the primary means of weather resistance for the junction e.g. flashing, sealant, etc continues to perform its function, to ensure that water will not penetrate the cladding.

## Prevention of Fire Occurring

10.1 Separation or protection must be provided to SUPER-STICK from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

## External Moisture

11.1 Where a cladding manufacturer specifies the use of generic flashing tapes around window and door joinery openings at framing junctions as part of their system, or they specify the use of flexible flashing tapes that comply with NZBC E2/AS1, Paragraph 9.1.5 (b), SUPER-STICK may be used.

# Installation Information

## Installation Skill Level Requirements

12.1 Installation must always be carried out in accordance with the SUPER-STICK Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant Licence Class.

## General

13.1 The selected building wrap must be installed in accordance with the manufacturer's instructions, and must completely cover the joinery opening. The wrap is then cut on a 45° angle away from each corner of the opening so the flaps can be folded into the opening and secured to the interior face of the timber framing.

13.2 Before SUPER-STICK is applied, the substrate surfaces must be clean, dry and free from any surface contaminants such as dust and grease that may cause loss of adhesion.

13.3 A 75 mm wide x 150 mm long sealing tape 'butterfly' must be installed at 45° across the corner of the jamb/sill junction overlapping the corner by 3 mm to create a seal at the corner junction. A length of SUPER-STICK is then cut to the length of the sill plus 300 mm. The tape is installed flush with the interior face of the opening and is applied along the entire length of the sill and 150 mm up each jamb. The overhanging tape is cut at the corner of the opening to allow the tape to be folded onto the face of the building wrap and "butterfly" installed across the corner. Cut another length of SUPER-STICK the exact length of the sill and overlay onto the already installed Tape to ensure nail sealability requirements are met.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

13.4 A 300 mm length of SUPER-STICK must be installed 150 mm down the jamb and 150 mm along the lintel at each of the top corners of the window or door joinery opening. A 75 mm wide x 150 mm long sealing tape 'butterfly' must be installed at 45° across the corner of the head/jamb junction overlapping the corner by 3 mm to create a seal at the corner junction.

13.5 SUPER-STICK must not be stretched. When joining two sections of tape, the overlap must be 100 mm minimum.

13.6 If SUPER-STICK is exposed to the weather or UV light for more than 90 days, it must be replaced with new material.

**Installation Temperature**

13.7 SUPER-STICK must not be installed where temperatures are less than -5°C *(Note: Marshall Innovations Ltd approve the installation of SUPER-STICK down to -20°C. This has not been addressed by this Appraisal and is outside its scope.)*

**Inspections**

13.8 The Technical Literature must be referred to during the inspection of SUPER-STICK installations.

## Basis of Appraisal

The following is a summary of the technical investigations carried out:

### Tests

14.1 Testing of SUPER-STICK has been completed by BRANZ to the requirements of ICC Evaluation Service Acceptance Criteria for Flashing Materials AC148. The adhesion of SUPER-STICK to black bituminous Kraft building paper complying with the requirements of NZBC Acceptable Solution E2/AS1, Table 23 and selected other synthetic wall underlays have been tested and found to be satisfactory.

### Other Investigations

15.1 An assessment was made of the durability of SUPER-STICK by BRANZ technical experts.

15.2 Site inspections were carried out by BRANZ to examine the practicability of installation.

15.3 The Technical Literature has been reviewed by BRANZ and found to be satisfactory.

### Quality

16.1 The manufacture of SUPER-STICK has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory. BRANZ undertakes an ongoing review of product quality on an inwards goods basis.

16.2 The quality of supply to the market is the responsibility of Marshall Innovations Ltd.

16.3 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and building wraps in accordance with the instructions of the designer.

16.4 The quality of installation, handling and storage on site is the responsibility of the installer in accordance with the instructions of Marshall Innovations Ltd.

### Sources of Information

- ICC Evaluation Service, Inc, AC148 Acceptable Criteria for Flexible Flashing Materials, July 2001.
- NZS 3604: 2011 Timber-framed buildings.
- Acceptable Solutions and Verification Methods for New Zealand Building Code External Moisture Clause E2, Ministry of Business, Innovation and Employment, Third Edition July 2005 (Amendment 8, 30 November 2018).
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Tasman District Council / AlphaOne Multiproof Approval – 107



Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

BRANZ

In the opinion of BRANZ, SUPER-STICK is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to Marshall Innovations Limited, and is valid until further notice, subject to the Conditions of Appraisal.

## Conditions of Appraisal

1. This Appraisal:
   a) relates only to the product as described herein;
   b) must be read, considered and used in full together with the Technical Literature;
   c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
   d) is copyright of BRANZ.
2. Marshall Innovations Limited:
   a) continues to have the product reviewed by BRANZ;
   b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
   c) abides by the BRANZ Appraisals Services Terms and Conditions;
   d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
   a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
   b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
   c) any guarantee or warranty offered by Marshall Innovations Limited.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to Marshall Innovations Limited or any third party.

**For BRANZ**

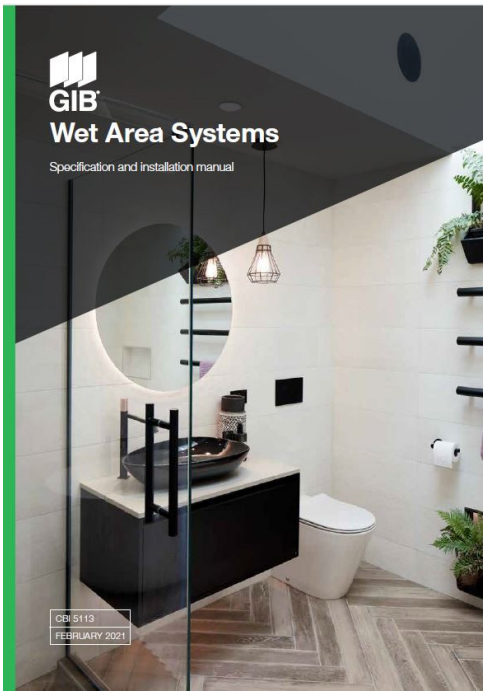
**Chelydra Percy**
Chief Executive

Date of Issue:
7 June 2019

Tasman District Council / AlphaOne Multiproof Approval – 107

**BRANZ Appraised**
Appraisal No. 427 [2021]

# GIB® WET AREA SYSTEMS




**Appraisal No. 427 (2021)**

This Appraisal replaces BRANZ Appraisal No. 427 (2007)

**BRANZ Appraisals**

Technical Assessments of products for building and construction.

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Email: info@gib.co.nz
Web: www.gib.co.nz

**BRANZ**
1222 Moonshine Rd,
RD1, Porirua 5381
Private Bag 50 908
Porirua 5240,
New Zealand
Tel: 04 237 1170
branz.co.nz

## Product

1.1 GIB® Wet Area Systems are for the interior lining of timber and steel-framed walls and ceilings in wet areas such as bathrooms, laundries, kitchens and toilets where a water-resistant lining material is desirable.

## Scope

2.1 GIB® Wet Area Systems have been appraised for use as a wet area wall and ceiling lining in buildings within the following scope:

- on timber-framed walls and ceilings within the scope limitations on NZS 3604; or,
- on steel-framed walls and ceilings within the scope limitations of NASH Standard Part 2, or,
- on timber and light gauge steel-framed walls and ceilings subject to specific design.

## Building Regulations

**New Zealand Building Code (NZBC)**

3.1 **In the opinion of BRANZ, GIB® Wet Area Systems, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:**

**Clause B1 STRUCTURE:** Performance B1.3.1, B1.3.2 and B1.3.4. GIB® Wet Area Systems meet the requirements for loads arising from self-weight and impact [i.e. B1.3.3 (a) and (j)]. See Paragraphs 8.1-8.3.

**Clause B2 DURABILITY:** Performance B2.3.1 (b) 15 years and B2.3.1 (c) 5 years. GIB® Wet Area Systems meet these requirements. See Paragraphs 9.1-9.5.

**Clause E3 INTERNAL MOISTURE:** Performance E3.3.4 and E3.3.5. GIB® Wet Area Systems meet these requirements. See Paragraphs 12.1-12.3.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. GIB® Wet Area Systems meet this requirement.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

# Technical Specification

4.1 The GIB® plasterboards and accessories used in GIB® Wet Area Systems, and supplied by Winstone Wallboards Ltd are as follows:

**GIB® Plasterboards**

- **GIB Aqualine®** is a paper-bound, modified water-resistant gypsum-plaster core sheet lining material. It is available in 10 and 13 mm sheet thicknesses. Sheets are available in various edge profiles and lengths from 2,400 mm to 4,800 mm. Refer to Table 1. The nominal sheet weights are 8 kg/m² and 11 kg/m² for 10 mm and 13 mm thick sheets respectively. GIB Aqualine® face paper is green in colour.
- **GIB Toughline® Aqua** is a paper-bound, modified water-resistant gypsum-plaster core sheet lining material. It is available in a sheet thickness of 13 mm. Sheets are available in various edge profiles and lengths from 2,400 mm to 3,000 mm. Refer to Table 1. The nominal sheet weight is 11.4 kg/m². GIB Toughline® Aqua face paper is mauve in colour.
- **GIB Weatherline®** is an exterior-grade, glass-fibre fleece-wrapped modified-gypsum core sheet material. The product is available in 10 mm and 13 mm thicknesses and a board width of 1,200 mm. Standard sheet lengths are 2,450, 2,700 and 3,000 mm. Custom sheet lengths are also available. The nominal sheet weights are 9 kg/m² and 11.5 kg/m² for 10 mm and 13 mm thick sheets respectively.

**Table 1: GIB® Wet Area Plasterboard Available Sheet Sizes**

| Plasterboard Type | Sheet Thickness (mm) | Sheet Edge Profile | Sheet Width (mm) | Sheet Length (mm) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2,400 | 2,450 | 2,700 | 3,000 | 3,600 | 4,800 |
| GIB Aqualine® | 10 | TE/TE | 1,200 | ✓ | | ✓ | ✓ | ✓ | |
| | | TE/SE | 1,200 | ✓ | | | | | ✓ |
| | | TE/SE | 1,350 | ✓ | | | | ✓ | |
| | 13 | TE/TE | 1,200 | ✓ | | ✓ | ✓ | ✓ | |
| GIB Toughline® Aqua | 13 | TE/TE | 1,200 | ✓ | | ✓ | ✓ | | |
| GIB Weatherline® | 10 | SE/SE | 1,200 | | ✓ | ✓ | ✓ | | |
| | 13 | SE/SE | 1,200 | | | ✓ | ✓ | | |

TE = Tapered Edge SE = Square Edge

**Fastenings**

- GIB® Grabber® High Thread Drywall screws for fixing to timber: 6 g x 25 mm and 32 mm.
- GIB® Grabber® Self Tapping Drywall screws for fixing to light gauge steel: 6 g x 25 mm and 32 mm.

**Adhesive and Sealants**

- GIBFix® One (Acrylic).
- GIBFix® All-Bond (Solvent).

**GIB® Accessories**

- Corner Support Angle - GIBFix® Angle or GIB® Rondo® NZ18. Minimum 32 x 32 x 0.55 mm galvanised metal angle.

**GIB® Jointing Compounds**

- As specified in the GIB® Wet Area Systems and GIB® Site Guide Technical Literature.

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4.2 System components and accessories for the GIB® Wet Area Systems, which are supplied by the building contractor are:

**Waterproofing**

- A waterproofing system complying with AS/NZS 4858.

**Finishes**

- Finishes such as tiling, flexible sheet vinyl, paints and wallpapers have not been assessed and are outside the scope of this Appraisal.

## Handling and Storage

5.1 The best results are achieved when GIB® plasterboards are treated as a finishing material and protected from damage. Sheets must be stacked flat and kept dry at all times. For limits on stack heights see the GIB® Site Guide. Sheets must be carried on edge and not dragged.

5.2 All accessories must be kept dry.

## Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for GIB® Wet Area Systems. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

## Design Information

### General

7.1 GIB® Wet Area Systems provide a water-resistant lining as a base for finishing systems in wet areas such as bathrooms, toilets, laundries and kitchens. The typical finishes are ceramic tiles and flexible sheet vinyl to walls, and paint and wallpaper to walls and ceilings. [*Note: GIB Weatherline® is a suitable substrate for ceramic tiles and sheet vinyl. For paint or wallpaper finishes use GIB Aqualine® or GIB Toughline® Aqua.]*

7.2 GIB® Wet Area Systems must not be used in the following situations:

- For bracing applications in shower areas or adjacent baths [See Paragraphs 7.4 and 8.2].
- In areas of high humidity [above 90% RH] or continually wet areas such as group showers, steam rooms, or swimming pools.
- Installed over a vapour barrier.
- Applied directly to masonry, concrete or solid plaster.
- Applied over other sheet lining materials.
- Used externally of the building envelope.
- Exposed to temperatures of 52°C or greater for prolonged periods. [Refer to appliance and fitting manufacturers for installation details.]

7.3 GIB Aqualine® may be substituted for some other GIB® plasterboard products in specific GIB® Bracing Systems, GIB® Fire Rated Systems and GIB® Noise Control Systems. Refer to the relevant systems technical literature for details.

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**Wet Areas**

7.4 Wet areas are spaces where sanitary fixtures and sanitary appliances are located such as bathrooms, toilets, laundries and kitchens. There are two general categories of wet areas as follows:

- Water Splash – These are areas subject to intermittent splashing of water such as around baths, vanities, tubs and sinks.
- Shower Areas – These are areas subject to frequent and heavy water splash such as enclosed showers, unenclosed shower zones and showers over baths.

7.5 Both the above wet area categories must be finished with surfaces and joints that are impervious and easily cleaned. In addition, shower areas must be waterproofed. This can be achieved using proprietary rigid shower lining systems, flexible vinyl shower wall finishes, or tiling. Tiled shower areas must include a wet area waterproofing membrane system under the tiles.

**Intertenancy Walls – Wet Areas**

7.6 Intertenancy construction that incorporates fire resistance and noise control must be protected from water splash. In shower areas, GIB® Wet Area plasterboards must not be substituted for other GIB® plasterboards but must be an extra lining layer. Refer to the Technical Literature.

**Tiling**

7.7 GIB® Wet Area Systems are suitable as a substrate for tiling up to the following weights:

- 10 mm GIB Aqualine® and GIB Weatherline® - up to 26 kg/m$^2$.
- 13 mm GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® - up to 40 kg/m$^2$.

*[Note: Most ceramic and porcelain wall tiles weigh less than 20 kg/m$^2$. For further information on tiling consult the BRANZ Good Practice Guide – Tiling.]*

**Framing**

7.8 Supporting framing must comprise one of the following, subject to the minimum sizes, dwang centres and all other frame requirements of GIB® Wet Area Systems Technical Literature:

- Timber framing must be designed and constructed in accordance with NZS 3604, or to a specific design using NZS 3603 and AS/NZS 1170. Refer to Paragraph 15.2 regarding recommended moisture content of timber framing.
- Steel framing must be designed and constructed in accordance with NASH Standard Part 2, or to a specific design in accordance with AS/NZS 1170.

## Structure

**Bracing**

8.1 GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline®can be used in GIB EzyBrace® Systems. Refer to BRANZ Appraisals Nos. 928 [2016] and 1048 [2019].

8.2 GIB Wet Area Systems must not be used for bracing in shower areas or behind baths.

**Impact Resistance**

8.3 GIB® plasterboards provide adequate resistance to soft body impact, based upon experience of use in domestic and light commercial applications. GIB Toughline® Aqua is recommended by Winstone Wallboards Ltd where higher impact resistance is desired.

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## Durability

**Serviceable Life**

9.1 GIB® Wet Area Systems have a serviceable life of at least 15 years as a fully protected shower or water splash lining. As a general wall and ceiling lining, GIB® Wet Area Systems will have a serviceable life in excess of 50 years. The ability of GIB® plasterboards to remain durable is dependent on being protected and remaining dry in service, and being maintained in accordance with this Appraisal.

**Maintenance**

9.2 The building must be maintained weathertight and all lining systems protected from internal and external moisture.

9.3 Finishes to water splash and shower areas, including tiles, grout, waterproof membranes, sealants and flexible sheet vinyl must be checked to ensure the integrity of the system is maintained. They must be repaired or replaced if necessary. When repairing or replacing finishes, the GIB® plasterboard substrate must be checked for defects and repaired or replaced, as required.

9.4 For flexible sheet vinyl, particular attention must be paid to joints, especially at corners. Checks should be made to ensure the vinyl has not been punctured. Where damage has occurred, repairs must be made immediately.

9.5 Impact damage to GIB® plasterboard, resulting in small holes and cracks, may be patched, stopped and finished. For larger areas of damage, expert advice on repair must be sought from Winstone Wallboards Ltd.

## Prevention of Fire Occurring

10.1 Separation or protection must be provided to the GIB® Wet Area Systems from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 and C/AS2, and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

## Fire Affecting Areas Beyond the Fire Source

**Control of Internal Fire and Smoke Spread**

11.1 The gypsum plasterboard used in GIB® Wet Area Systems without an applied paint or wallpaper finish has been tested in accordance with ISO 5660 and achieved a Material Group Number of 1-S.

11.2 The gypsum plasterboard used in GIB® Wet Area Systems with an untested applied finish of a waterborne or solvent borne paint coating ≤ 0.4mm thick achieves a Material Group Number of G2-S in accordance with Table A1 of NZBC Verification Method C/VM2.

11.3 A lower Material Group Number may be achieved when used with a tested finishing system. The Material Group Number for the complete lining system must be obtained from the supplier of the finish product or system.

**Fire Resistance Ratings (FRRs)**

11.4 GIB® Wet Area plasterboards, when used as part of GIB® Fire Rated Systems, can be used to provide FRRs as determined by NZBC Acceptable Solutions C/AS1 and C/AS2 and NZBC Verification Method C/VM2. Refer to BRANZ Appraisal No. 289 (2018) and relevant technical literature.

## Internal Moisture

12.1 When installed in accordance with this Appraisal, GIB® Wet Area Systems will provide wall surfaces adjacent to sanitary fixtures and sanitary appliances that are impervious and easily cleaned.

12.2 The construction methods in the Technical Literature meet with the internal moisture requirements of the NZBC Acceptable Solution E3/AS1.

12.3 To minimise internal condensation, adequate levels of ventilation and thermal resistance must be provided to all spaces where moisture may be generated.

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## Airborne and Impact Sound

13.1 GIB® Wet Area plasterboards, when used as part of GIB® Noise Control systems, can be used to provide acoustic ratings as required by NZBC Acceptable Solution G6/AS1. Refer to BRANZ Appraisal No. 394 (2017) and relevant technical literature.

# Installation Information

## Installation Skill Level Requirement

14.1 Installation of GIB® Wet Area Systems must be completed by, or under the supervision of, a Licensed Building Practitioner with the relevant Licence Class, in accordance with the Technical Literature and this Appraisal.

## General

15.1 GIB® Wet Area Systems must be installed in accordance with the Technical Literature. For inspection, reference must be made to the Technical Literature.

**Framing**

15.2 To achieve an acceptable decorative finish, the walls must not be lined unless the moisture content of timber framing is less than 18%. Winstone Wallboards Ltd recommend a moisture content of 8–12% where buildings are to be air conditioned or centrally heated.

**Cutting**

15.3 GIB® Wet Area plasterboards are easily cut by scoring the face paper with a sharp short-bladed trimming knife, and then snapping the plasterboard away from the cut face and cutting the back paper or by sawing. Use of a metal straightedge facilitates clean straight cuts. Cut edges can be tidied up by using a knife. Paper dags should be removed.

## Fixing Sheets

**Non-Tiled Areas**

16.1 GIB® Wet Area plasterboards may be installed vertically or horizontally. Sheets are fixed with GIB® Grabber® screws at 300 mm centres around the perimeter of the sheet, and with GIBFix® adhesive on all intermediate studs and dwangs. Adhesive must not be used under fasteners. A 5-10 mm gap must be left between the floor and the bottom of the sheet.

**Tiled Areas**

16.2 Control joints must be provided at maximum 4 m centres.

16.3 Internal corners in shower areas must be reinforced with a minimum 32 x 32 x 0.55 mm galvanised metal angle (i.e. GIBFix® Angle or GIB® Rondo® NZ18) prior to lining the walls.

16.4 GIB® Wet Area plasterboards may be installed vertically or horizontally. Sheets are fixed with GIB® Grabber® screws at 150 mm centres to the perimeter of wall and to all intermediate studs. Adhesive must not be used in place of screws.

**Ceilings**

16.5 Supports of timber or steel battens or ceiling joists must be 450 mm centres for 10 mm GIB Aqualine®, or 600 mm centres for 13 mm GIB Aqualine® or GIB Toughline® Aqua.

16.6 GIB Aqualine® and GIB Toughline® Aqua sheets must be fixed with GIB® Grabber® screws at 600 mm centres around the perimeter of the ceiling and at 200 mm centre along supports. Alternatively, sheets are screw fixed at 600 mm centres along the supports and GIBFix® adhesive placed at 200 mm centres between the screws.

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### Penetrations and Sealants

17.1 All cut-outs for pipe penetrations must be made neatly using a hole saw. Cut-outs should be made approximately 12 mm diameter greater than the pipe.

17.2 A bead of sealant must be placed to the full thickness of the plasterboard sheet around all pipe penetrations, at bath rims and preformed shower bases and where an impervious junction is required at the floor/wall line.

17.3 In tiled areas, a bead of sealant 6 mm wide must also be placed to the full thickness of the tiles where the above situation occurs. The sealant manufacturer's technical literature must be followed for installation.

### Jointing and Finishing

18.1 Jointing must be carried out in accordance with GIB® Site Guide Technical Literature.

18.2 Tiled shower areas must incorporate a waterproofing membrane over GIB® Wet Area Systems. Waterproofing membranes are outside the scope of this Appraisal and must otherwise be specified and approved.

### Health and Safety

19.1 Dust resulting from the sanding of stopping and finishing compounds may be a respiratory irritant, and the use of a suitable facemask is recommended.

## Basis of Appraisal

The following is a summary of the technical investigations carried out:

### Tests

20.1 Winstone Wallboards Ltd GIB® plasterboards have been assessed for the following properties: MOR, MOE, paper tensile strength, paper shear strength, nail pull resistance, edge hardness, water resistance, hard and soft body impact tests and humidified deflection.

20.2 Cone calorimeter tests to ISO 5660 have been carried out by BRANZ.

### Other Investigations

21.1 An assessment was made of the durability of the systems by BRANZ technical experts and found to be satisfactory.

21.2 Site inspections were carried out by BRANZ to assess the practicability of the installation of the systems, and to view completed installations.

21.3 The GIB® Wet Area Systems and GIB® Site Guide Technical Literature have been examined by BRANZ and found to be satisfactory.

### Quality

22.1 Winstone Wallboards Ltd's manufacturing process and details of the quality and composition of the materials, have been examined by BRANZ and found to be satisfactory.

22.2 The quality management systems of Winstone Wallboards Ltd have been assessed and registered by TELARC as meeting the requirements of ISO 9001: 2015, Registration No. 581.

22.3 Winstone Wallboards Ltd is responsible for the quality of the product supplied.

22.4 The quality of the application and finish on site is the responsibility of the installation, stopping and finishing contractors.

22.5 Designers are responsible for the design of buildings.

22.6 Building owners are responsible for the maintenance in accordance with the instructions of Winstone Wallboards Ltd.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

## Sources of Information

- AS/NZS 1170: 2002 Structural design actions - General principles.
- AS/NZS 2588: 2018 Gypsum plasterboard.
- BRANZ Good Practice Guide: Tiling (3rd edition), April 2015.
- ISO 5660-1:2002 Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method).
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of Amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

BRANZ

In the opinion of BRANZ, GIB® Wet Area Systems are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to Winstone Wallboards Ltd, and is valid until further notice, subject to the Conditions of Appraisal.

## Conditions of Appraisal

1. This Appraisal:
   a) relates only to the product as described herein;
   b) must be read, considered and used in full together with the Technical Literature;
   c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
   d) is copyright of BRANZ.
2. Winstone Wallboards Ltd:
   a) continues to have the product reviewed by BRANZ;
   b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
   c) abides by the BRANZ Appraisals Services Terms and Conditions;
   d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
   a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
   b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
   c) any guarantee or warranty offered by Winstone Wallboards Ltd.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to Winstone Wallboards Ltd or any third party.

**For BRANZ**

**Chelydra Percy**
Chief Executive

Date of Issue:
15 February 2021

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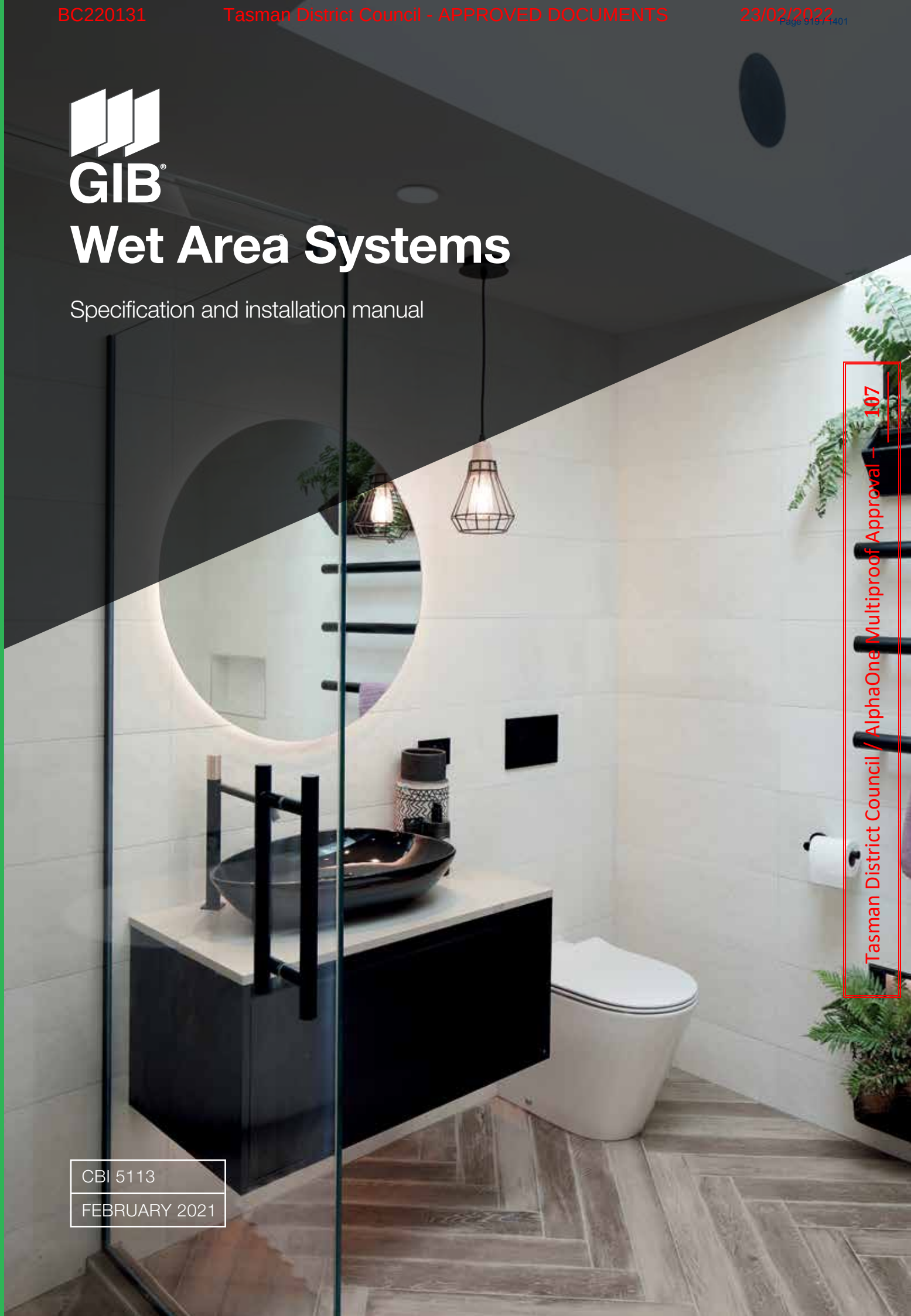
GIB®

# Wet Area Systems

Specification and installation manual



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FEBRUARY 2021

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## NATIONAL SUPPORT

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## GIB® HELPLINE

0800 100 442

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# RESIDENTIAL AND NON-RESIDENTIAL APPLICATIONS. BATHROOMS, LAUNDRIES, TOILETS AND KITCHENS.

## Protection from internal moisture is an important consideration when designing interior lining systems for homes, multi-unit apartments, educational, healthcare and commercial applications.

The New Zealand Building Code sets out minimum standards for wet area spaces in residential dwellings. However, often higher levels of performance and protection from internal moisture is demanded.

The GIB® Wet Areas System specification and installation manual provides internal lining options and details for specifiers, builders and building owners.

### USE ONLY THE CURRENT SPECIFICATION

This manual supersedes the publication GIB Aqualine® Wet Area Systems March 2007. Winstone Wallboards Ltd accepts no liability for reliance upon publications that have been superseded.

If you are unsure whether this is the current publication, call the GIB® Helpline on 0800 100 442 or go to gib.co.nz

### BEWARE OF SUBSTITUTION

The performance of GIB® Wet Area Systems requires accurate design detailing and construction practices. All GIB® Systems have been developed specifically for New Zealand conditions and independently tested, assessed or appraised, to ensure the required level of performance. It is important to use GIB® components where specified and to closely follow the specified design details and construction practices, to be confident that the required level of performance and quality is achieved on site.

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# This publication

This publication is a best practice guide to the design and construction of wall and ceiling linings in wet areas with intermittent water exposure within residential and non-residential buildings, as covered by NZ Building Code Clause E3 Internal Moisture.

The information is designed to be helpful to designers, contractors and home-owners wishing to achieve a result that is easy to incorporate into modern design, simple and clear to construct, and that will satisfy the needs, requirements and expectations of both the NZ Building Code and the end user.

Wet areas in the home often require relatively frequent and expensive renovation or repair, often because of the ingress of water to the structure of the building.

To form a complete wet area system it is important to specify compatible materials and systems, designed to cope with conditions that are common in wet areas, and to ensure correct installation using best practice.

## WET AREAS

Generally, wet areas are described as spaces to where fresh water is reticulated, such as bathrooms, toilets, laundries and kitchens. Within wet areas the following requirements apply;

1. NZBC Clause E3.3.4 states that wall surfaces adjacent to sanitary fixtures or sanitary appliances must be impervious and easily cleaned.
2. NZBC Clause E3.3.6 states that surfaces of building elements likely to be splashed must be constructed in a way that prevents water splash from penetrating behind linings or into concealed spaces.

NZ Building Code Clause E3 also refers to other requirements not covered in this publication, such as ventilation, condensation control and overflow management. Ongoing maintenance of wet areas is also important to maximise service life.

## GIB AQUALINE®, GIB TOUGHLINE® AQUA AND GIB WEATHERLINE®

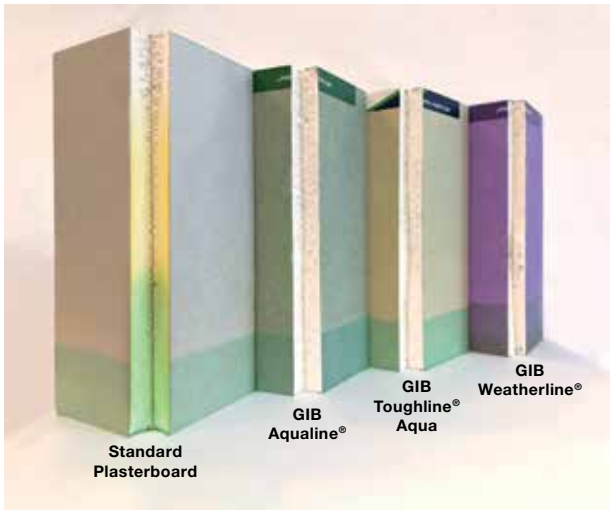
Although able to cope with infrequent short-term exposure, standard gypsum plasterboard will have a shortened life expectancy when frequently exposed to water or a high moisture environment.

The NZ Building Code does not call for water resistant linings in wet areas but it is desirable to specify lining materials which will maintain their integrity longer when exposed more frequently to moisture, and to one-off events such as leaks or flooding.

GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® feature a water-resistant polymer impregnated core, designed for wet area applications. These core formulations not only resist penetration of moisture through the lining into the framing behind, but also resist water “wicking” up the core, a common cause of long-term damage where a water-resistant lining has not been used.

## WATER ABSORPTION TEST

The illustrations below show how GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® compare with standard plasterboard after soaking for two-hours in green dye.

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## WHERE TO USE GIB® WET AREA LININGS

In order to prolong the life expectancy of the space it is highly desirable to include wet area linings in situations where there is an increased risk of water or moisture damage. Applications include walls and ceilings in bath and shower rooms, and walls in laundries, toilets and kitchens.

## BENEFITS

- Water resistant and durable linings help protect against water damage
- Proven substrate for paint, wallpaper, waterproofing membranes, tiles, sheet vinyl and rigid sheet shower linings
- Suitable for both residential and non-residential applications
- Dimensionally stable and an excellent substrate for ceramic tiles
- Conventional jointing methods
- Easy to cut and form openings
- Contains glass fibres and other additives to increase strength and fire resistance
- May be used in GIB® Bracing, GIB® Fire Rated and GIB Noise Control® Systems (see Compliance with the NZ Building Code, Clauses B1, C3 and G6). Consult the appropriate GIB® literature for installation details

## HANDLING AND STORAGE

- GIB® plasterboard must be stored under cover, stacked flat and clear of the floor with sufficient support to avoid sagging
- GIB® plasterboard must be handled as a finishing material

## LIMITATIONS

- GIB® wet area linings must not be used for bracing purposes in shower cubicles or above baths. For more information refer to page 9 of this manual
- Do not use GIB® wet area linings where exposed for extended periods to humidity levels above 90% RH, such as in group shower or steam rooms, or where exposed to moisture and chlorine rich environments such as in indoor swimming pools
- GIB® wet area linings used in a bathroom or other high humidity environment must not be directly applied to solid plaster (gypsum or cement), wood-based sheet linings or similar materials, masonry or concrete, without strapping or steel furring channels
- GIB® wet area linings must not be installed over a vapour barrier or a wall acting as a vapour barrier
- Cracked or damaged sheets must never be used
- GIB Aqualine® or GIB Toughline® Aqua must not be used in external applications
- GIB® plasterboard must not be exposed to temperatures in excess of 52°C for prolonged periods. Heat-generating devices may include halogen lighting, cooking elements, radiant heating, solid fuel exhausts and fire surrounds. Consult the appliance manufacturer for installation details

**Table 1: GIB® Wet Area linings sheet dimensions and weights**

| Product | Sheet face colour | Thickness (mm) | Sheet width (mm) | Edge Type | Sheet length (mm) | | | | | | Max. Weight (kg/m²) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2400 | 2450 | 2700 | 3000 | 3600 | 4800 | |
| **GIB Aqualine®** | Green | 10 | 1200 | TE/TE | ■ | | ■ | ■ | ■ | | 8.0 |
| | | | 1200 | TE/SE | ■ | | | | | ■ | |
| | | | 1350 | TE/SE | ■ | | | | ■ | | |
| | | 13 | 1200 | TE/TE | ■ | | ■ | ■ | ■ | | 11.0 |
| **GIB Toughline® Aqua** | Mauve | 13 | 1200 | TE/TE | ■ | | ■ | ■ | | | 11.4 |
| **GIB Weatherline®** | Purple | 10 | 1200 | SE/SE | | ■ | ■ | ■ | | | 9.0 |
| | | 13 | 1200 | SE/SE | | | ■ | ■ | | | 11.5 |

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## BOARD SUBSTITUTION OPTIONS

| Acceptable GIB Aqualine® alternatives | |
|---|---|
| 10mm GIB Aqualine® can be replaced with: | 10mm GIB Weatherline®<br>13mm GIB Toughline® Aqua |
| 13mm GIB Aqualine® can be replaced with: | 13mm GIB Weatherline®<br>13mm GIB Toughline® Aqua |

GIB® Wet Area System construction details in this manual refer to the use of GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® sheets may also be used in place of GIB Aqualine®.

## FLEXIBLE SHEET VINYL – SHOWERS AND OTHER WET AREAS

- GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® are suitable substrates for flexible vinyl wall finishes in wet areas of residential, commercial or institutional buildings
- Framing requirements and installation procedures are presented in this literature, except that the lining gap at the floor is no more than 5mm when a pencil cove detail is used
- The installation of galvanised steel reinforcing angles behind internal lining corners is recommended for sheet vinyl applications in showers or shower over bath situations
- The lining must be jointed and stopped to a paint quality finish (Level 4) – trowel marks can telegraph even through a commercial grade 2mm vinyl
- A commercial grade vinyl is recommended in commercial or institutional bathrooms and showers
- In areas directly exposed to liquid water, all joints in flexible sheet vinyl must be heat welded
- Installation of flexible vinyl must be carried out strictly in accordance with the specifications provided by the suppliers/ manufacturers of the vinyl

## RIGID SHEET SHOWER LININGS

- The wall surface must be free of dust before installation of the lining
- Avoid lining joints as much as possible and where necessary flush with plaster to achieve a level surface
- Do not preseal or paint areas which are to be covered by the rigid shower linings
- The suppliers of thin (usually 2-3mm) and rigid acrylic shower linings commonly recommend direct adhesive fixing to wall linings using solvent-based adhesives
- Care must be taken to ensure that rooms are adequately ventilated
- Water temperature changes will cause movement of the thin acrylic sheet, which in turn will stress the adhesive and wall lining substrate
- Consult the supplier of the shower lining for full installation details
- Suppliers of rigid sheet acrylic shower linings recommend a minimum of 24 hours for the adhesive to cure fully prior to the shower being put into service

## WATERPROOF MEMBRANE SYSTEMS AND TILING

- A waterproof membrane system must be applied to lining materials used as a substrate for ceramic tiles in a shower or shower over bath situation
- The wall surface in a shower or shower over bath situation is not complete and ready for tiling until coated with a waterproof membrane system over the lining and once penetrations for shower mixers, taps and associated fittings are sealed
- The installation of galvanised steel reinforcing angles behind internal lining corners is required for tiled wall applications in showers or shower over bath situations
- In-situ waterproofing membrane materials manufactured to AS/NZS 4858:2004 “Wet Area Membranes” are recommended and must be applied to manufacturer’s recommendations. Typically, these types of membrane systems are not suitable for paint and wallpaper finishes
- Waterproof membrane systems must be fully cured and dry prior to application of tiling adhesives
- Preformed sheet membranes are also available and may be more suitable where curing times or specialist skills are an issue
- The details shown in this manual are generic in nature. For accurate detailing, follow the specifications provided by the supplier of the proprietary waterproof membrane system

For further information on tiling consult the BRANZ Good Practice Guide – Tiling.

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## PENETRATIONS AND SEALANTS

As leaks and water ingress typically occur at junctions between building elements and at penetrations, it is essential that particular attention is given to these details at the time of installation. Lack of attention to detail can result in water damage that could remain undetected for a long time.

- Ensure that all cut-outs for pipe penetrations are made neatly, and slightly oversize, with a hole saw. These penetrations should be of a diameter no more than 12mm greater than that of the pipe
- Ensure shower mixer and tap penetrations are sealed with a proprietary flange system to prevent the passage of moisture into the wall cavity
- Sealants should be of a mould inhibiting type and be paintable. Neutral cure silicones will generally meet these requirements
- Surfaces should be dry and free from dust before application, a minimum of a 4mm joint width provided and the depth should not exceed the width
- Apply a bead of sealant to the full depth of the lining in the following locations:
  - Around all tap/pipe bodies
  - The gap between the bath rim and the bottom edge of the wet area lining
  - Between the upstand of preformed shower bases and the bottom edge of the lining
  - Where an impervious junction is required at the floor/wall line, carefully seal the gap between the bottom edge of the board and the finished floor. Leave a 5-10mm gap at the bottom of the wall lining for this purpose, ensuring the gap is free from dirt and dust
- Do not locate shower heads or taps on fire rated or intertenancy walls. Should this be unavoidable always use tested and approved proprietary penetration seals

## RENOVATIONS

Bathrooms, kitchens and laundries are the most renovated rooms in the house, partly due to fashion considerations and partly because of damage sustained by ingress of water and moisture.

When renovating these rooms it is often easier and more cost-effective to remove the existing linings and replace them. This allows for a new start in the room and offers sound substrates for new surfaces such as tiling and painting, where otherwise flaking paint or damaged plasterboard may compromise good and sound finish or practice. At the very least re-lining will:

- Allow for inspection of framing where damage may have occurred and provide the opportunity to repair such damage
- Allow plumbing and electrics to be checked and altered or replaced where required
- Provide the opportunity to install thermal and acoustic insulation, water-resistant linings, and propriety plumbing penetration flange systems where appropriate
- Make the job easier

## MAINTENANCE

Lack of maintenance is frequently the cause of premature and often expensive failure of components and building elements within wet areas.

It is important to regularly inspect and repair any potential problem before it becomes expensive to reinstate. Good maintenance should include:

- Ongoing ventilation. At the very least, good passive ventilation (e.g. window vents); but good active ventilation (e.g. extraction fans) of an appropriate size for the room is recommended
- Impervious coatings and surfaces should be checked for wear and damage and maintained and re-coated before ingress of water to the substrate occurs
- Regular cleaning with appropriate cleaners so that build-up of matter, such as mould, is well controlled
- Sealants at junctions and penetrations should be checked for adhesion on a regular basis and replaced where adhesion failure to substrates occurs
- Where pipe leaks have become evident, however small, they should be repaired promptly and any area around such leaks dried out completely before any other repairs are carried out

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# Compliance with the NZ Building Code

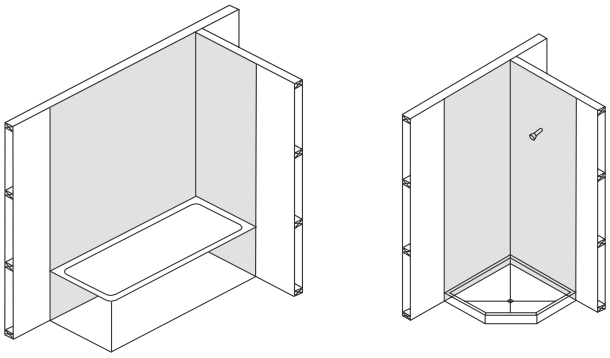
## STRUCTURE – CLAUSE B1

The design and material specification for steel and timber framing used in GIB® Wet Area systems must be in accordance with the performance requirements of NZ Building Code Clause B1 (Structure).

Bracing elements are required to have a durability of 50 years. GIB® bracing elements are not to be located in shower cubicles or behind baths because of durability requirements, the likelihood of renovation, and practical issues associated with fixing bracing elements to perimeter framing members, such as at bath and shower tray locations.

Otherwise, GIB® Bracing Systems can be used in water-splash areas, provided these are maintained impervious for the life of the building.

GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® can be used in place of GIB® Standard plasterboard in GIB® bracing elements. They can also be used in place of GIB Braceline® in GIB® bracing elements 900mm or longer, provided the perimeter of the element is fixed with GIB® Grabber 32mm x 6g screws at 100mm centres, using the GIB Braceline® corner fixing pattern. Refer to the GIB® Bracing System literature.



**No bracing in the shaded areas.**

## DURABILITY – CLAUSE B2

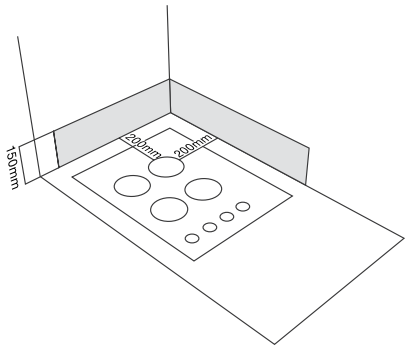
When installed and maintained in accordance with this literature, GIB® Wet Area systems tiled or vinyl covered have a serviceable life of at least 15 years. They comply with the requirements of NZ Building Code Clause B2 (Durability) for use in wet areas directly exposed to liquid water, e.g. showers, showers over baths and splash-backs.

When used as a general wet area lining and maintained under normal dry internal conditions, GIB® Wet Area Systems have a serviceable life of at least 50 years and comply with NZ Building Code Clause B2 (Durability) for use within toilets, kitchens, bathrooms and laundries not directly exposed to liquid water.

## FIRE AFFECTING AREAS BEYOND THE SOURCE – CLAUSE C3

GIB® Fire Rated Systems provide passive fire protection in accordance with the requirements of NZ Building Code Clause C3. When GIB Aqualine® or GIB Toughline® Aqua is substituted into fire rated systems in place of the equivalent thickness GIB Fyreline®, the Fire Resistance Rating (FRR) of that system will be maintained.

The protection of combustible surfaces surrounding gas cooking appliances is covered by the latest version of AS/NZS 5601.1.




As a guide the following options are acceptable for wall surfaces within 200mm of the periphery of a gas element to a height of 150mm above the element for the full dimension (width and depth) of the cooktop surface area:

- 5mm tiles on GIB® plasterboard
- 5mm toughened glass on GIB® plasterboard
- or any system that can be demonstrated to meet the specific requirements of AS/NZS 5601.1

GIB® plasterboard products must not be exposed to temperatures in excess of 52°C for sustained periods. Check with the appliance manufacturer that this requirement will be met. It would be unusual for surfaces outside 200mm to exceed 52°C for sustained periods.

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## INTERNAL MOISTURE – CLAUSE E3

The New Zealand Building Code Clauses that relate to wall surfaces are;

E3.3.4 - Wall surfaces adjacent to sanitary fixtures or sanitary appliances must be impervious and easily cleaned.

E3.3.5 - Surfaces of the building elements likely to be splashed or become contaminated in the course of the intended use of the building, must be impervious and easily cleaned.

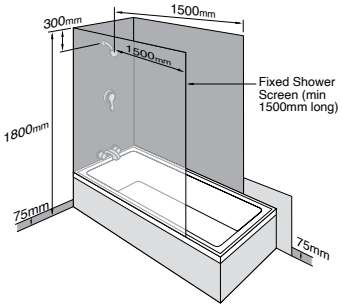
E3.3.6 - Surfaces of building elements likely to be splashed must be constructed in a way that prevents water splash from penetrating behind linings or into concealed spaces.

New Zealand Building Code Acceptable Solution E3/AS2 substantially refers to the Waterproof Membrane Association Incorporated (WMAI) Code of Practice for Internal Wet Area Membrane Systems (IWAM), August 2020.

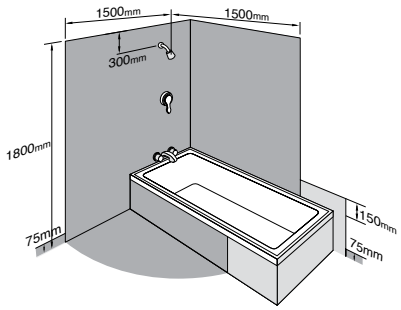
The IWAM Code of Practice refers to wet area membranes and over-surfaces that are easy to clean and suggests an extent as outlined below for a typical bathroom application. For further details refer to the IWAM Code of Practice which also lists suitable rigid sheet materials and tiling membranes.

**Shaded areas in the diagrams below represent the minimum extent of wall surfaces requiring impervious sheet materials or waterproof membrane systems prior to tiling.**

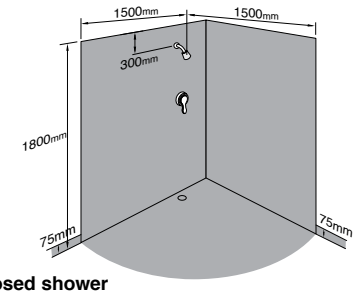
**Enclosed shower over bath**



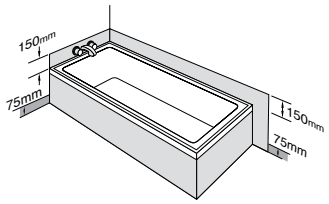

**Unenclosed shower over bath**



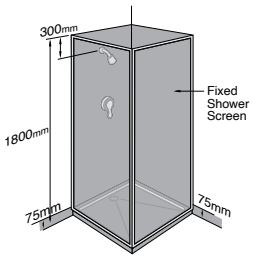

**Unenclosed shower**




**Bath**




**Enclosed shower**

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## HAZARDOUS BUILDING MATERIALS – CLAUSE F2

At no stage during its serviceable life does GIB Aqualine® constitute a health hazard. It therefore meets the provisions of NZ Building Code Clause F2 (Hazardous Building Materials). Dust resulting from the sanding of stopping compounds may be a respiratory irritant and the use of a suitable facemask is recommended.

## VENTILATION – CLAUSE G4

NZ Building Code Clause G4 (Ventilation) requires buildings to have a means of collecting or otherwise removing steam generated from laundering, utensil washing, bathing or showering. To prolong the life of interior linings and surface finishes and to minimise the risk of moisture related problems such as condensation and mould growth, adequate heating, thermal insulation and mechanical ventilation must be provided in kitchens, bathrooms and laundries.

## AIRBORNE AND IMPACT SOUND – CLAUSE G6

GIB® Noise Control Systems can be used to provide ratings for Sound Transmission Class (STC) and Impact Insulation Class (IIC) in accordance with the requirements of NZ Building Code Clause G6 (Airborne and Impact Sound). When GIB Aqualine®, GIB Toughline® Aqua or GIB Weatherline® is substituted into GIB® Noise Control systems in place of the equivalent thickness GIB® Standard plasterboard or GIB Fyreline®, the STC and IIC rating of that system will be maintained. When GIB Aqualine®, GIB Toughline® Aqua or GIB Weatherline® is substituted in place of the equivalent thickness GIB Noiseline®, a small performance loss may occur. For further information refer to the GIB Noise Control® Systems literature or contact the GIB® Helpline 0800 100 442.

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## TIMBER WALL FRAMING

Framing dimensions must comply with the requirements of NZS 3604:2011.

- The moisture content of timber framing shall be 18% or less at the time of lining
- Studs shall be spaced at 600mm centres maximum for both 10mm and 13mm GIB® plasterboard
- Nogs to be evenly spaced with a maximum spacing of 1350mm. Alternatively, nogs may be staggered 150mm maximum either side of a horizontal joint line
- Nogs are not required behind horizontal joints except in shower situations or specific fire or noise control systems

## FASTENERS

- Minimum 32mm x 6g GIB® Grabber® High Thread screws.

## FASTENER CENTRES

- 300mm centres to top and bottom plates and to perimeter studs
- Single fasteners to each stud where the horizontal joint crosses the studs
- Place fasteners 12mm from sheet edges and 18mm from sheet ends
- Daubs of GIBFix® adhesive at 300mm centres to intermediate studs
- Do not place adhesive at sheet edges or under fasteners. Sheet edges at door or window openings can be adhesive fixed unless forming part of the perimeter of a bracing element

For bracing, noise control or fire rating applications including fastener lengths consult the relevant GIB® technical publication.

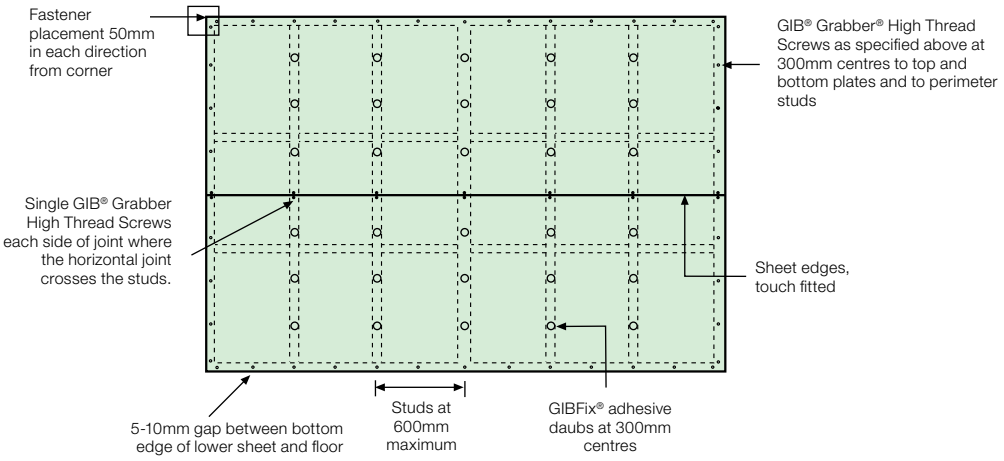
## LINING

- Use minimum 10mm GIB® plasterboard
- Install the sheets leaving a 5-10mm gap at the floor line to allow for movement of the framing members and to allow for cleaning dirt and rubbish before sealing
- Sheets to be touch fitted.

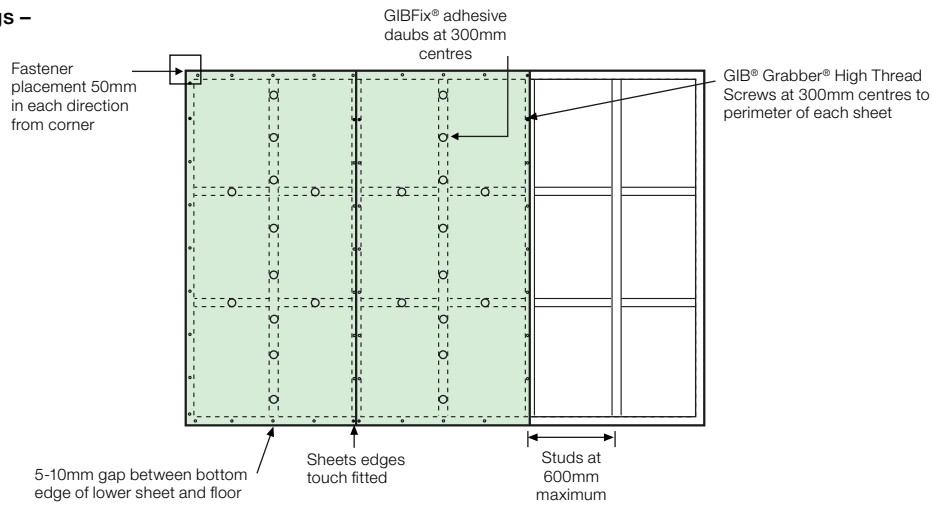
## JOINTING

- Jointing shall be carried out in accordance with the instructions in the GIB® Site Guide.

**Fastening the Linings – Horizontal Fixing Only**




**Fastening the Linings – Vertical Fixing Only**

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## STEEL WALL FRAMING

The minimum sheet thickness for fixing on light gauge 0.55mm base metal thickness (BMT) steel framing is 13mm GIB® plasterboard. For bracing, noise control or fire rating applications consult the relevant GIB® technical publication.

Steel frame for residential construction is in accordance with NZBC B1/AS1 9.1 NASH Standard Part 2 Light Steel Framed Buildings, or by specific design. 10mm GIB plasterboard is commonly used on minimum 0.75mm BMT residential steel framing.

## FASTENERS

- Minimum 25mm x 6g GIB® Grabber® Self Tapping Screws.

## FASTENER CENTRES

- 300mm centres to top and bottom channels and to end studs
- Single screws to each stud where the horizontal joint crosses the studs
- Place fasteners 12mm from sheet edges and 18mm from sheet ends
- Daubs of GIBFix® All-Bond adhesive or screws at 300mm centres to intermediate studs
- Do not place adhesive at sheet edges or under fasteners.
- Sheet edges at door or window openings can be adhesive fixed.

For bracing, noise control or fire rating applications including fastener lengths consult the relevant GIB® technical publication.

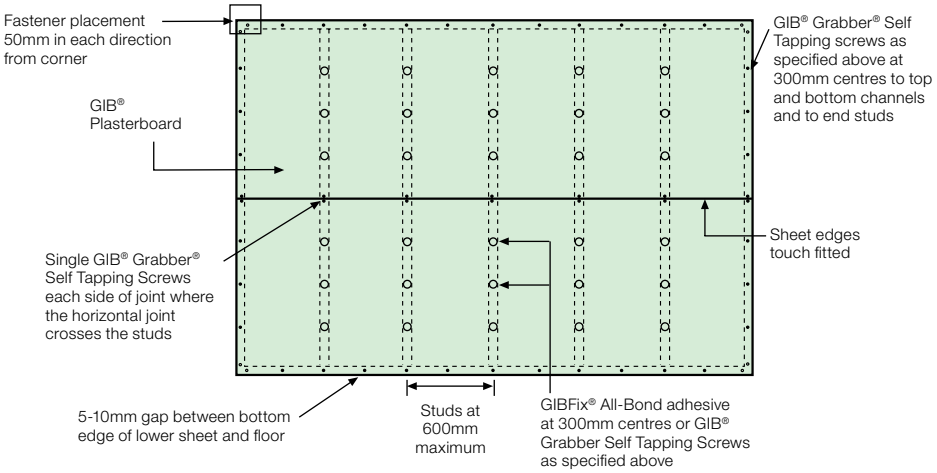
## LINING

- Lay the sheets, leaving a 5-10mm gap at the floor line. Note: If friction fitted steel studs have been used, sheets must be fitted hard to the floor. Ensure floor is cured and dry
- Sheets to be touch fitted.

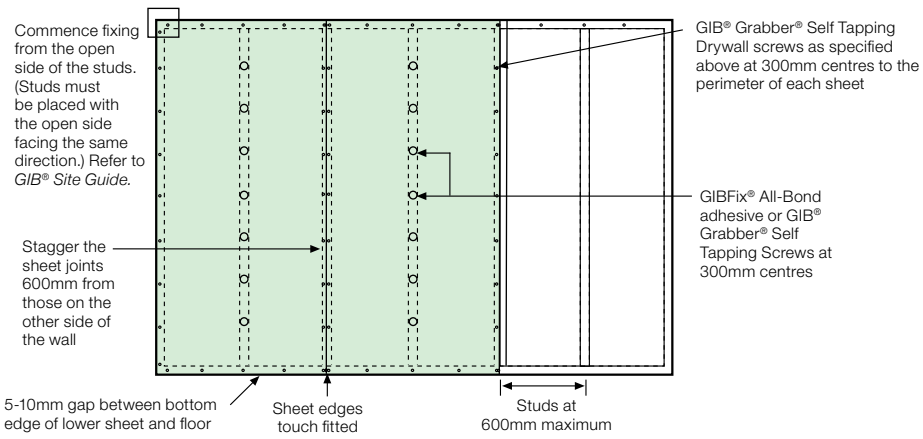
## JOINTING

- Jointing shall be carried out in accordance with the instructions in the GIB® Site Guide

**Fastening the Linings – Horizontal Fixing Only**




**Fastening the Linings – Vertical Fixing Only**

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## TIMBER WALL FRAMING

Framing dimensions and spacing must be appropriate for the tile weight and comply with the requirements of NZS 3604:2011 Timber Framed Buildings, or relevant specific design Standard.

## NOGS

For impact protection in shower cubicles or shower over bath situations it is important that all sheet joints are made on solid framing. This may require vertical fixing or the installation of additional nogs. Also provide nogs:

- Adjacent to each pipe penetration and behind sink and tub flashings
- Between all studs above bath flanges and preformed shower bases

## CORNER REINFORCING

- Prior to lining in tiled areas (shower cubicles and shower over bath only) the internal corners shall be reinforced with a minimum
- 32 x 32 x 0.55mm NZ18 or 45 x 45 x 0.55mm GIBFix® Angle. Each leg shall be fastened to the framing at 300mm centres

## FASTENERS

- Minimum 32mm x 6g GIB® Grabber® High Thread Screws

## FASTENER CENTRES

- 150mm centres to perimeter of wall and all intermediate studs
- Adhesive is not to be used in place of mechanical fasteners
- Place fasteners 12mm from sheet edges and 18mm from sheet ends
- Single fasteners to each stud where the horizontal joint crosses the studs
- Where relevant, fastener lengths must comply with the requirements of GIB® Fire Rated Systems or GIB® Noise Control Systems

For bracing, noise control or fire rating applications including fastener lengths consult the relevant GIB® technical publication.

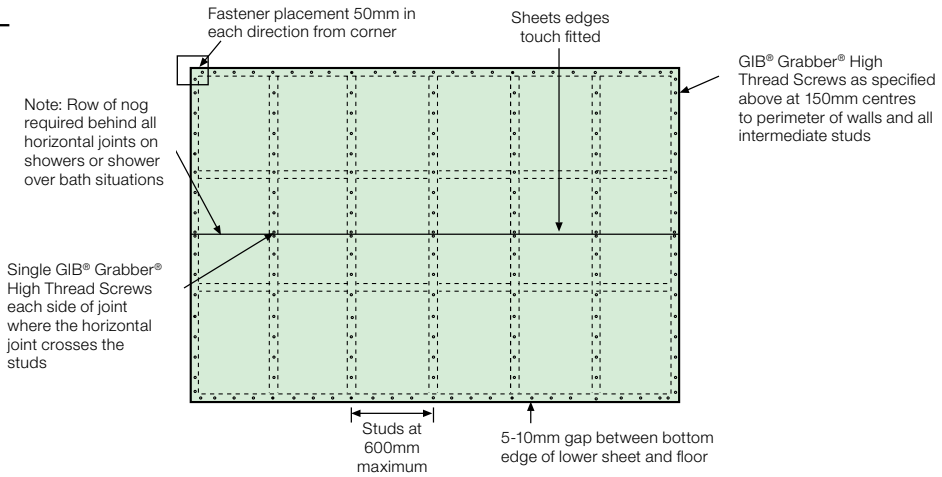
## LINING AND TILE WEIGHTS

- Use minimum 10mm GIB® plasterboard
- For maximum permitted tile weights refer to pg 16 of this manual
- GIB® Wet Area linings may be fixed vertically or horizontally
- Sheets are touch fitted
- Provide a 5-10mm gap at the wall/floor junction and between the bottom edge of the lining and any bath rim or preformed shower base to allow for placement of sealant
- Do not tile on the resilient side of GIB Rail® or STWC Acoustic Clip (ST001) and channel noise control system
- GIB® Wet Area linings are suitable for tiling full height of walls, but if a wall is to be partially tiled (e.g. half high), only the area of wall under the tiles needs to be fixed as required for tiled areas. The remainder of the wall may be fixed as for non-tiled areas

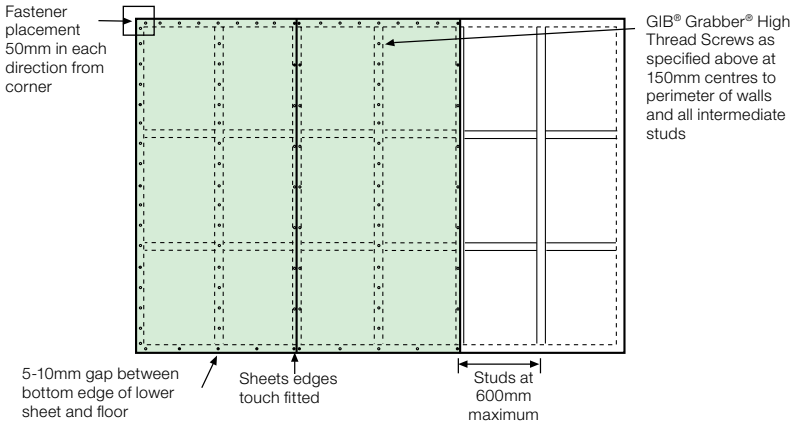
## JOINTING

- Jointing shall be carried out in accordance with the instructions of the GIB® Site Guide

**Fastening the Linings – Horizontal Fixing Only**




**Fastening the Linings – Vertical Fixing Only**

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## STEEL WALL FRAMING

Framing dimensions and spacing must be appropriate for the tile weight and comply with the requirements of NASH Standard Part 2:2019 Light Steel Framed Buildings, or relevant specific design Standard.

- Linings are placed hard to floor, bedded into a sealant bead
- Steel framing for tiling to have a minimum base metal thickness (BMT) of 0.75mm

## NOGS

For impact protection in shower cubicles or shower over bath situations it is important that all sheet joints are made on solid framing. This may require vertical fixing or the installation of additional nogs. Also provide nogs:

- Adjacent to each pipe penetration and behind sink and tub flashings
- Between all studs above bath flanges and preformed shower bases

## CORNER REINFORCING

- Prior to lining in tiled areas (shower cubicles and shower over bath only) the internal corners shall be reinforced with a minimum
- 32 x 32 x 0.55mm NZ18 or 45 x 45 x 0.55mm GIBFix® Angle. Each leg is fastened to the framing at 600mm centres

## FASTENERS

- Minimum 32mm x 6g GIB® Grabber® Self Tapper screws

## FASTENER CENTRES

- 150mm centres to perimeter of wall and all intermediate studs
- Adhesive is not to be used in place of mechanical fasteners
- Single screws to each stud where the horizontal joint crosses the studs
- Place fasteners 12mm from sheet edges and 18mm from sheet ends.

For bracing, noise control or fire rating applications including fastener lengths consult the relevant GIB® technical publication.

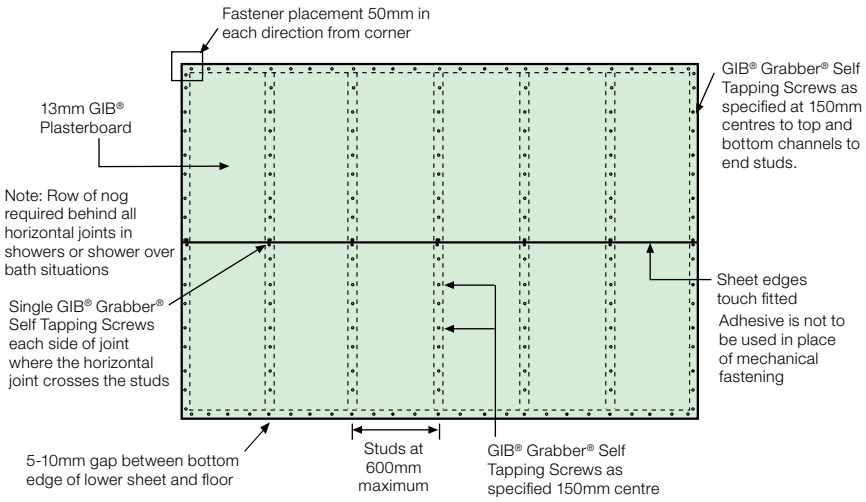
## LINING AND TILE WEIGHTS

- Use minimum 13mm GIB® plasterboard
- For maximum permitted tile weights refer to pg 16 of this manual
- GIB® Wet Area linings may be fixed vertically or horizontally
- Sheets are touch fitted
- Provide a 5-10mm gap at the wall/floor junction and between the bottom edge of the lining and any bath rim or preformed shower base to allow for placement of sealant
- Do not tile on the resilient side of GIB Rail® or STWC Acoustic Clip (ST001) and channel noise control system
- GIB® Wet Area linings are suitable for tiling full height of walls, but if a wall is to be partially tiled (e.g. half high), only the area of wall under the tiles needs to be fixed as required for tiled areas. The remainder of the wall may be fixed as for non-tiled areas

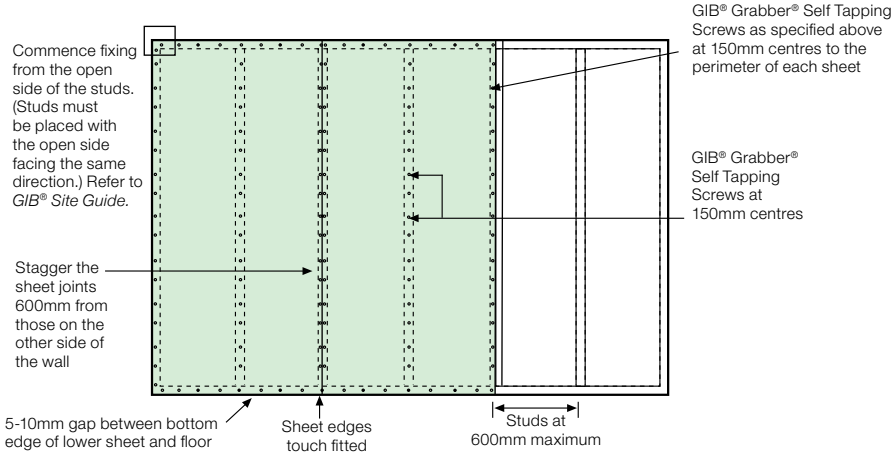
## JOINTING

- Jointing shall be carried out in accordance with the instructions of the GIB® Site Guide

**Fastening the Linings – Horizontal Fixing Only**




**Fastening the Linings – Vertical Fixing Only**

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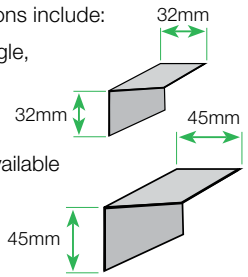
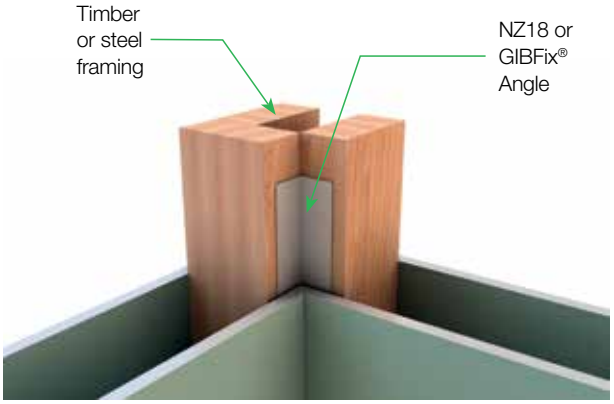
## METAL ANGLES FOR TILED INTERNAL CORNERS

- Prior to lining in tiled areas (shower cubicles and shower over bath only) the internal corners shall be reinforced with a minimum 32 x 32 x 0.55mm galvanised metal angle.
- Suitable GIB® metal angle options include:
  - GIB® Rondo® NZ18 metal angle, available length: 3.0m
  - GIBFix® Angle metal angle, available lengths: 2.4m and 2.7m




- Each side of the angle is secured to the framing with at 600mm centres
- Minimum height of the metal angle is 1800mm




## WATERPROOF MEMBRANE SYSTEMS

A waterproof membrane system must be applied to all lining materials used as a substrate for ceramic tiles in a shower or shower over a bath application, or any other tiled application exposed to frequent water splash.

For further information see p10.

## TILES AND TILE WEIGHTS

In areas likely to be directly exposed to water, tiles may be ceramic, porcelain or stone must comply with the over-surface finish requirements of the IWAM Code of Practice and be bedded with a suitable tile adhesive on the waterproof membrane system. See page 10 for the minimum extent of wall surfaces requiring impervious sheet materials or waterproof membrane systems prior to tiling.

Smaller mosaic tiles are often lighter, but the integrity of grout joints might be more prone to impact, whilst heavier tiles are larger and have less and deeper grout and sealant joints. For more information also see AS 3958:2007 Ceramic tiles – Guide to the installation of ceramic tiles.

**Table 2: Recommended maximum tile weights**

| Maximum Tile Weights for GIB Aqualine®, GIB Toughline® Aqua or GIB Weatherline® | | | |
|---|---|---|---|
| **Stud Centre (maximum)** | **Fasteners Centre (maximum)** | **Lining Thickness** | **Tile Weight** |
| 600mm maximum | 150mm maximum | 10mm | 26kg/m$^2$ |
| | | 13mm | 40kg/m$^2$ |

## ADHESIVE AND GROUT WEIGHTS

The weight of adhesive and grout can vary depending on the type of tile and the installation process used. The maximum tile weights stated in table 2 are conservative and refer to the tile weight excluding grout and adhesive used. An additional 3kg/m$^2$ has been factored into tile adhesion testing on top of the above stated tile weights to account for adhesive and grout weight used during the installation of the tile.

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## CEILING FRAMING

Framing dimensions and spacing must comply with the requirements of NZS 3604:2011, NASH for steel or relevant NZ Standard.

For noise control or fire rating applications consult the relevant GIB® technical publication.

## FASTENERS

- Steel battens – 25mm x 6g GIB® Grabber® Self Tapping screws
- Timber battens or Joists – 32mm x 6g GIB® Grabber® High Thread screws

## ADHESIVES

- Steel battens - GIBFix® All-Bond
- Timber battens - GIBFix® All-Bond or GIBFix® One

## FASTENERS CENTRES

- Single screws to the edges and centre of the sheets across each batten
- Single screw at 600mm maximum to the perimeter of the ceiling
- Screws to be 12mm from sheet edges
- Daubs of adhesive at 200mm centres between the screws
- Do not place adhesive at sheet edges or under fasteners, this may lead to screw pops

## LINING

- The lining shall be fixed at right angles to the battens or joists
- Commence fixing from the centre of the sheets outwards.
- Sheets to be touch fitted
- Use long length sheets to minimise sheet end butt joints.
- Back-block sheet end butt joints
- See GIB® Site Guide for sheet edge backblocking requirements

## BATTEN SPACINGS

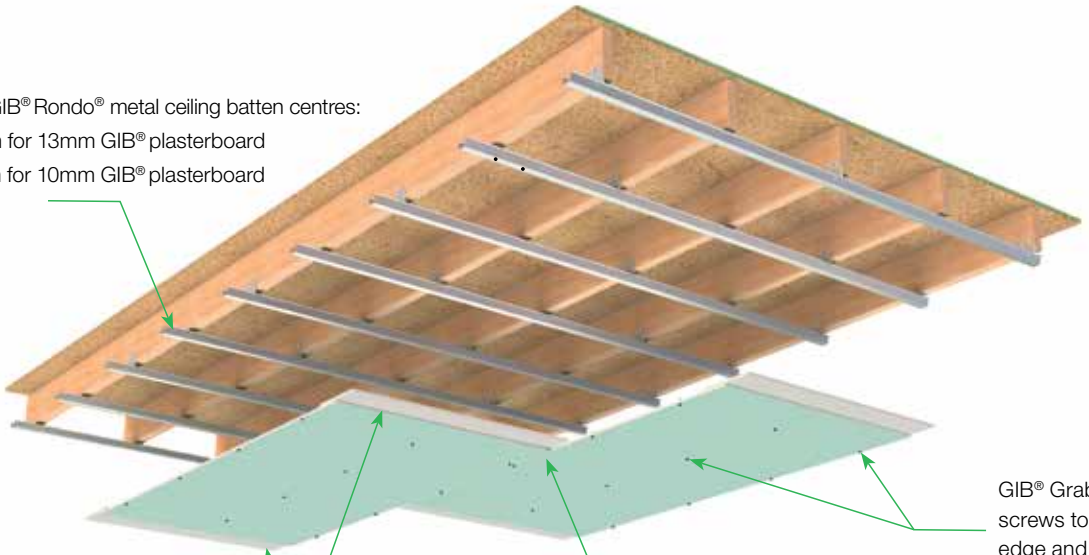
- 13mm GIB® plasterboard – 600mm centres maximum
- 10mm GIB® plasterboard – 450mm centres maximum

## JOINTING

- All sheet joints must be paper tape reinforced and stopped in accordance with instructions in the GIB® Site Guide
- Do not fix tiles to GIB® plasterboard ceilings

Maximum GIB® Rondo® metal ceiling batten centres:

- 600mm for 13mm GIB® plasterboard
- 450mm for 10mm GIB® plasterboard



GIB® Grabber® screws to sheet edge and sheet centre at each batten intersection

Back-block sheet end joints (see GIB® Site Guide)

Stagger sheet end joints by 600mm or nearest batten

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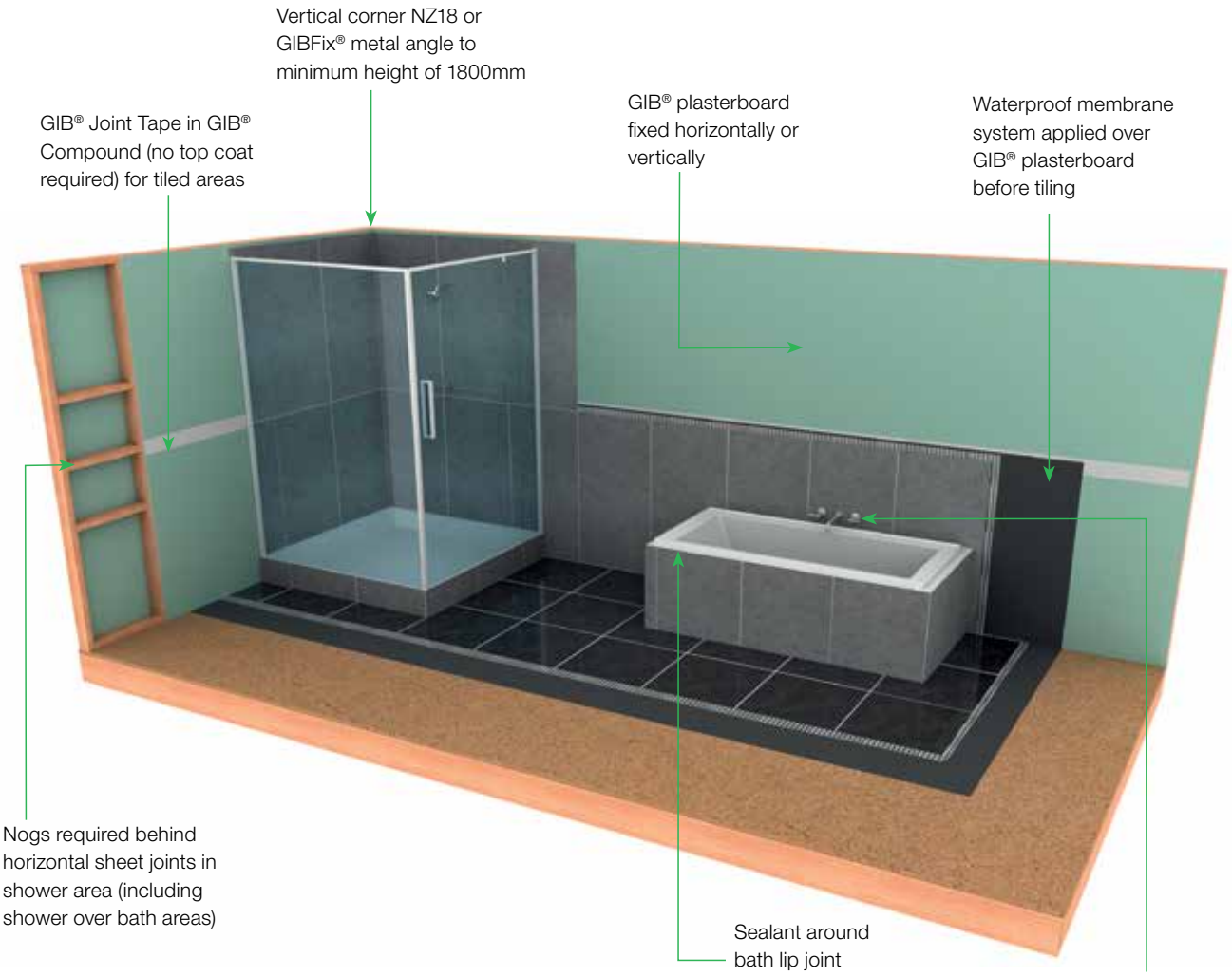


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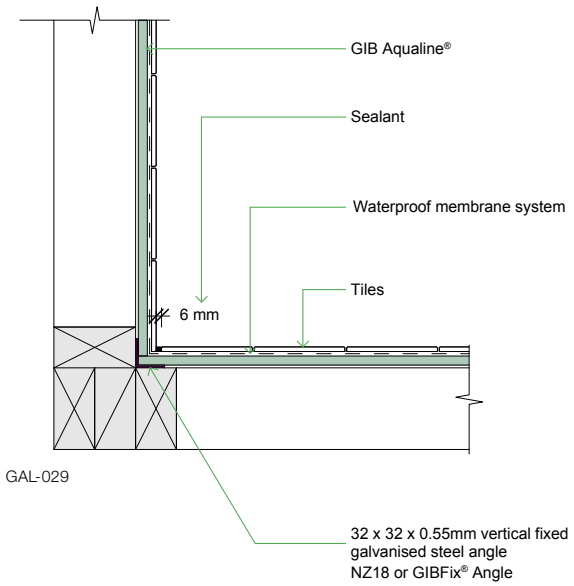
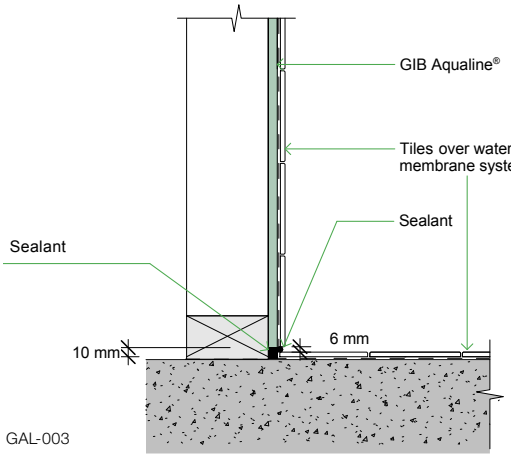
## A: TILED INTERNAL CORNER



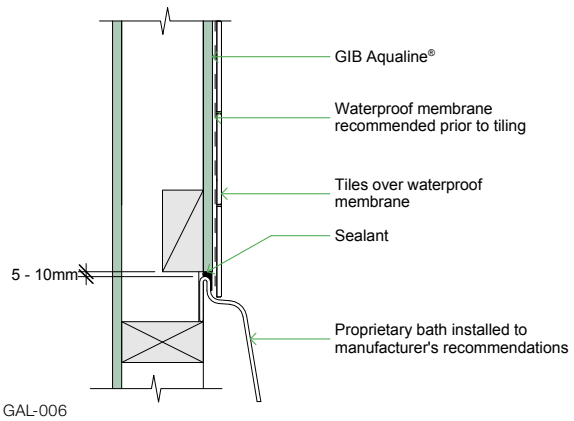

GAL-029

## B: CERAMIC FLOOR LINING JUNCTION



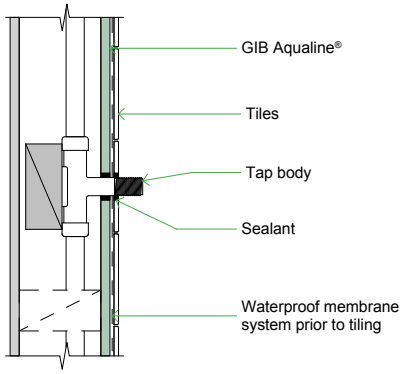

GAL-003

## C: BATH LINING JUNCTION



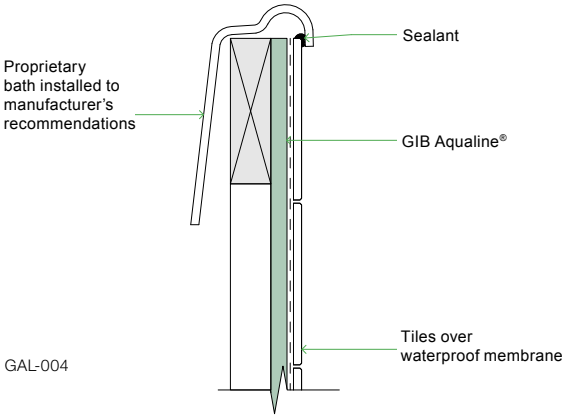

GAL-006

## D: SEALING WET AREA PENETRATION



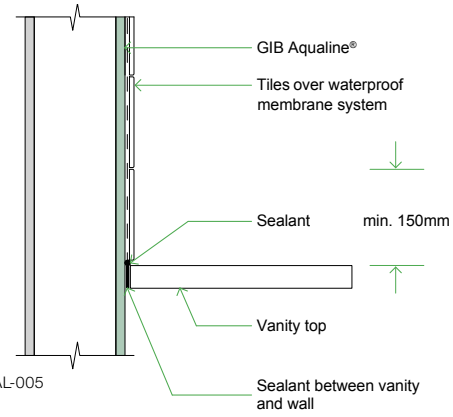

GAL-002

## E: BATH CRADLE LINING DETAIL

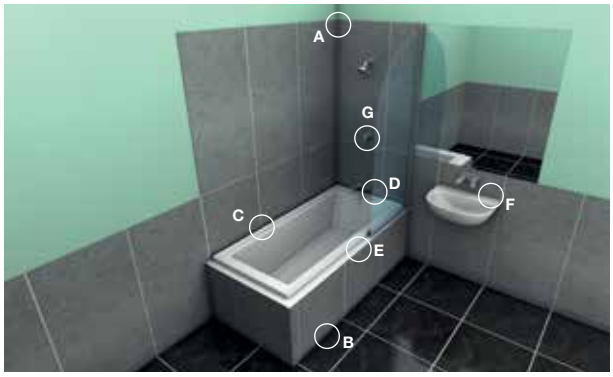



GAL-004

## F: VANITY TOP LINING JUNCTION




GAL-005




## G: SHOWER MIXER PENETRATION IN WET WALL LININGS

Refer to the shower mixer manufacturer for shower mixer installation detailing including the use of proprietary products to prevent water or moisture ingress behind the wet wall lining.

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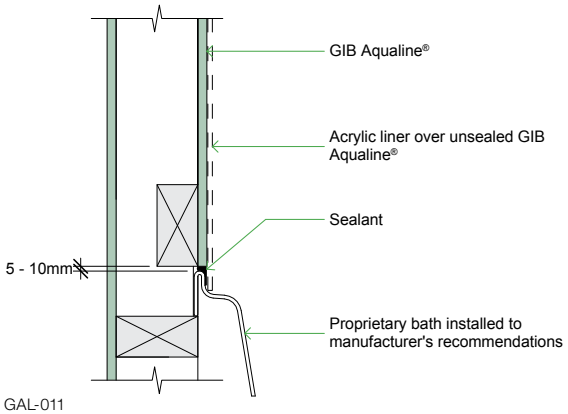
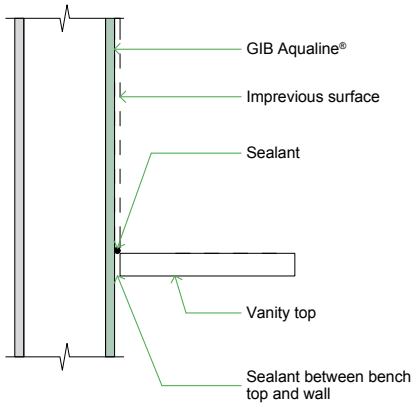
# SHOWER OVER BATH – ACRYLIC LINER DETAILS

## A: BATH LINING JUNCTION



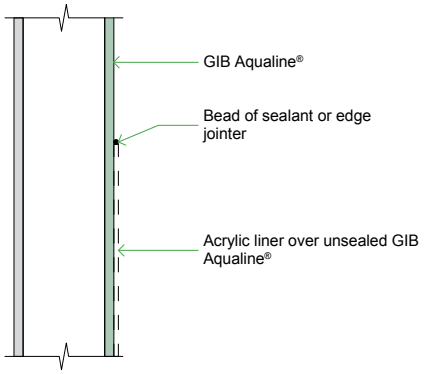

GAL-011

## B: VANITY TOP LINING JUNCTION



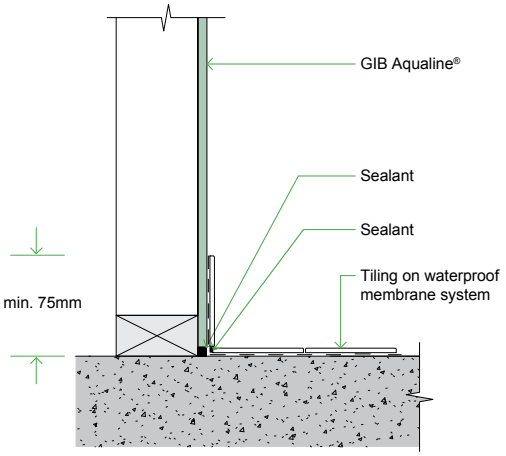

GAL-023A

## C: UNSEALED PLASTERBOARD LINING



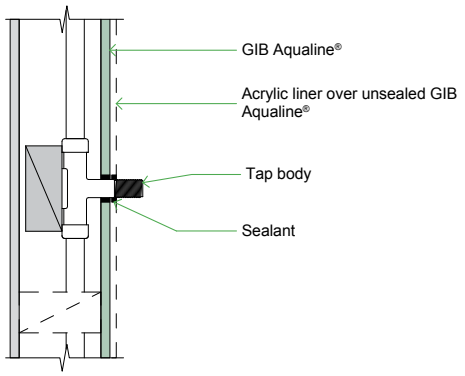

GAL-028

## D: CERAMIC FLOOR SKIRTING LINING JUNCTION




GAL-001

## E: SEALING SEMI WET AREA PENETRATION




GAL-019

## F: SHOWER MIXER PENETRATION IN WET WALL LININGS

Refer to the shower mixer manufacturer for shower mixer installation detailing including the use of proprietary products to prevent water or moisture ingress behind the wet wall lining.

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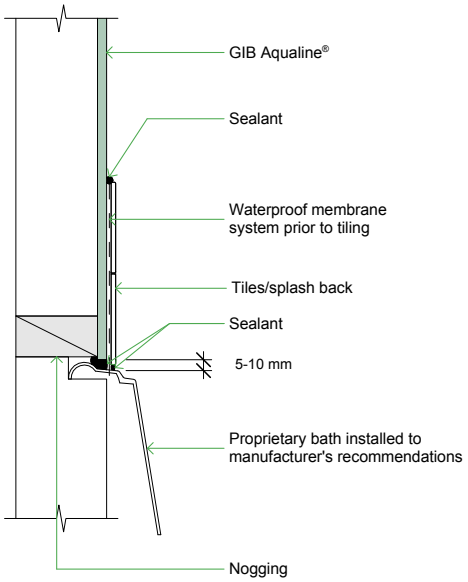
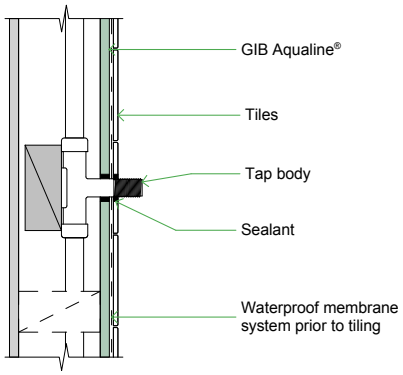
## A: BATH LINING JUNCTION



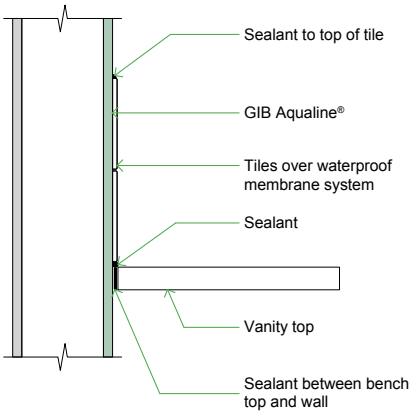

GAL-009

## B: SEALING SEMI WET AREA PENETRATION



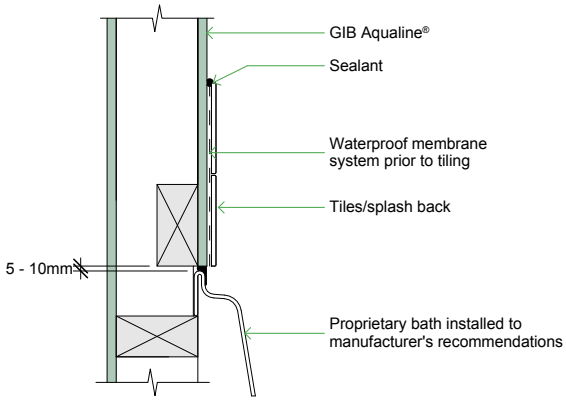

GAL-020

## C: VANITY TOP LINING JUNCTION



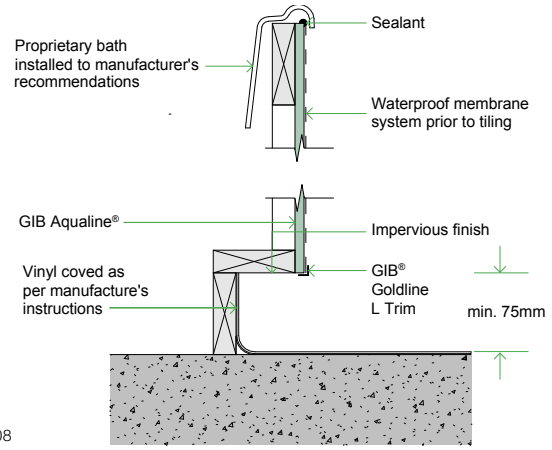

GAL-024

## D: BATH LINING JUNCTION

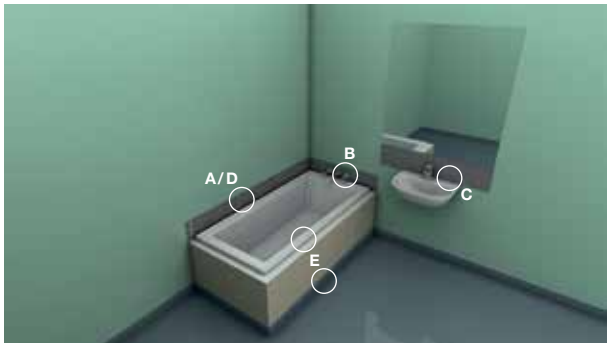



GAL-010

## E: CRADLE VINYL LINING JUNCTION




GAL-008

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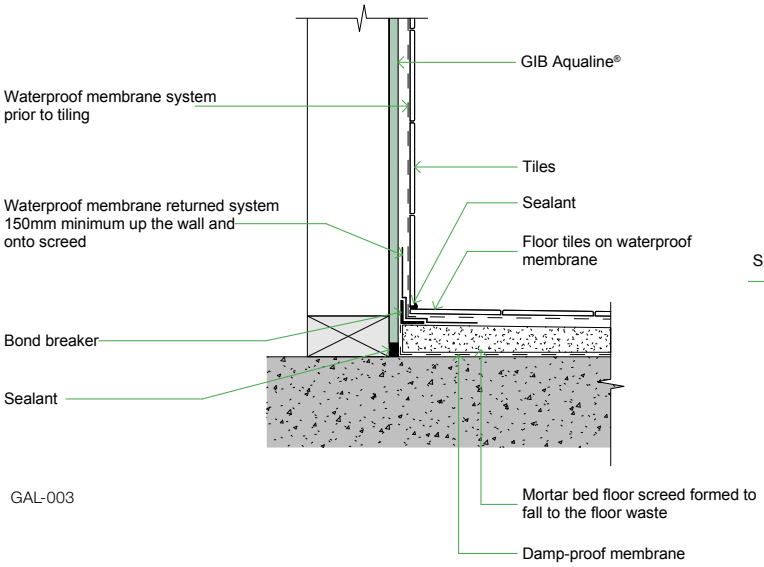
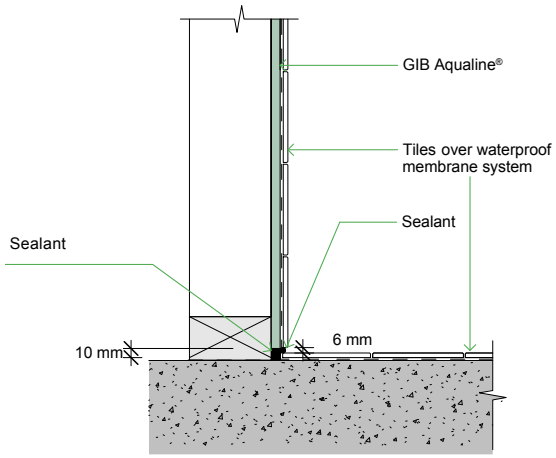
## A: MORTAR UNDER CERAMIC FLOOR LINING JUNCTION




GAL-003

## C: CERAMIC FLOOR LINING JUNCTION

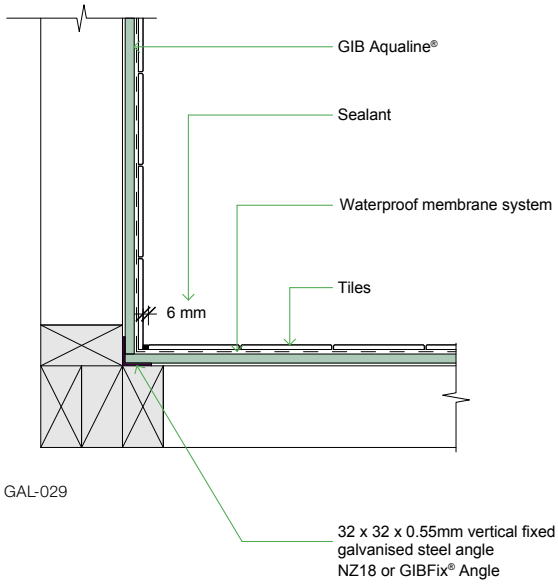



GAL-002A

## PREFORMED SHOWER BASE JUNCTIONS

Refer to the shower base manufacturer for proprietary shower tray installation detailing including wet wall lining junction detailing.

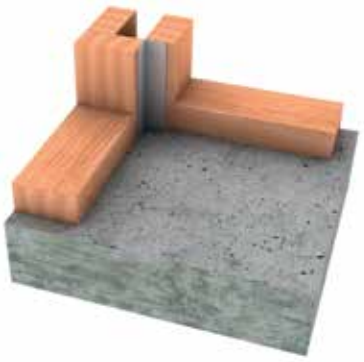
## B: TILED INTERNAL CORNER




GAL-029

## D: TILED INTERNAL CORNER METAL ANGLE POSITION

Refer to page 16 of this publication for specification and installation guidance.



## E: SHOWER MIXER PENETRATION IN WET WALL LININGS

Refer to the shower mixer manufacturer for shower mixer installation detailing including the use of proprietary products to prevent water or moisture ingress behind the wet wall lining.

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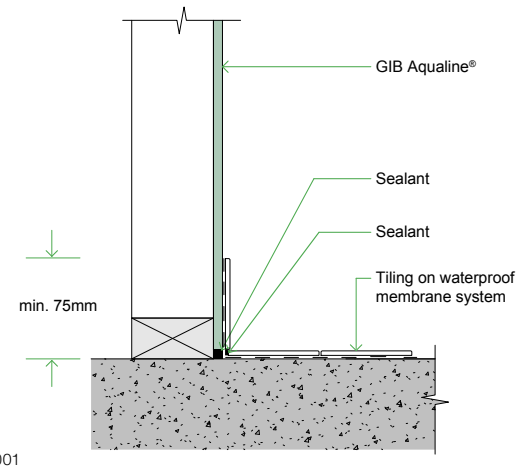
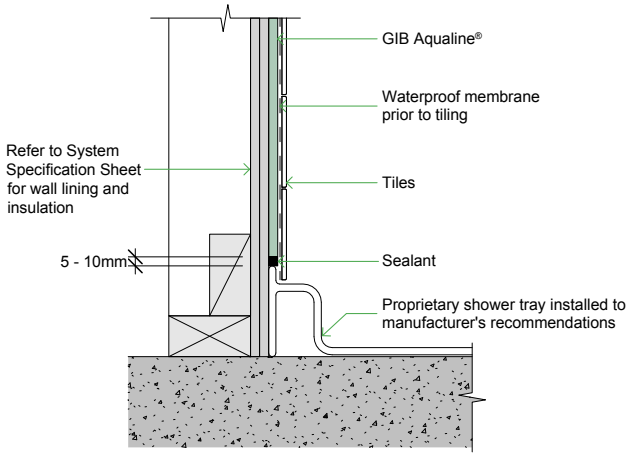
## A: CERAMIC FLOOR SKIRTING LINING JUNCTION



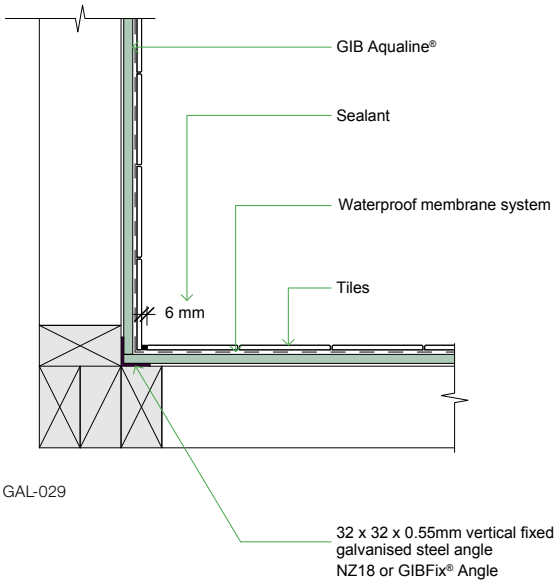

GAL-001

## B: MOULDED SHOWER TRAY DOUBLE LINING JUNCTION




GAL-016

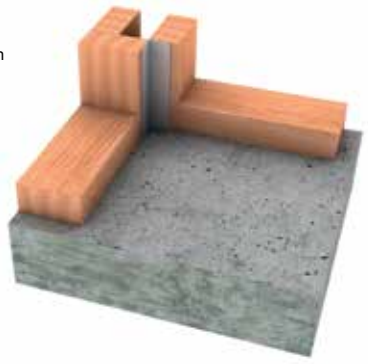
## C: TILED INTERNAL CORNER




GAL-029

## D: TILED INTERNAL CORNER METAL ANGLE POSITION

Refer to page 16 of this publication for specification and installation guidance.



## E: SHOWER MIXER PENETRATION IN WET WALL LININGS

Refer to the shower mixer manufacturer for shower mixer installation detailing including the use of proprietary products to prevent water or moisture ingress behind the wet wall lining.

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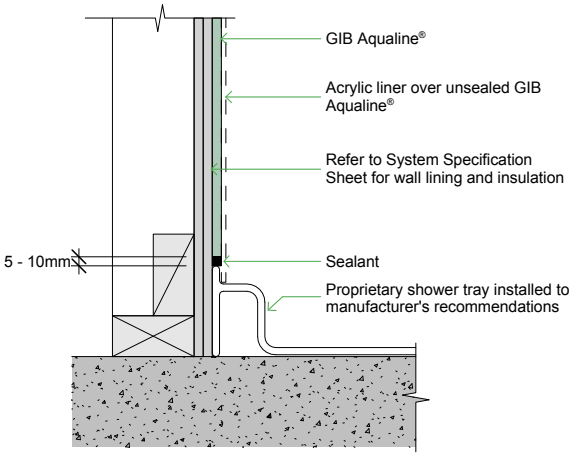
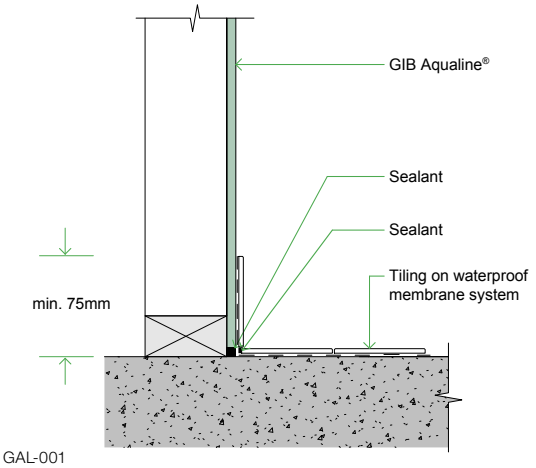
## A: MOULDED SHOWER TRAY DOUBLE LINING JUNCTION



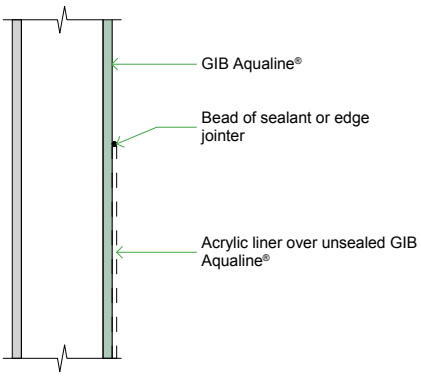

GAL-015

## B: CERAMIC FLOOR SKIRTING LINING JUNCTION




GAL-001

## C: UNSEALED PLASTERBOARD LINING




GAL-028

## D: SHOWER MIXER PENETRATION IN WET WALL LININGS

Refer to the shower mixer manufacturer for shower mixer installation detailing including the use of proprietary products to prevent water or moisture ingress behind the wet wall lining.

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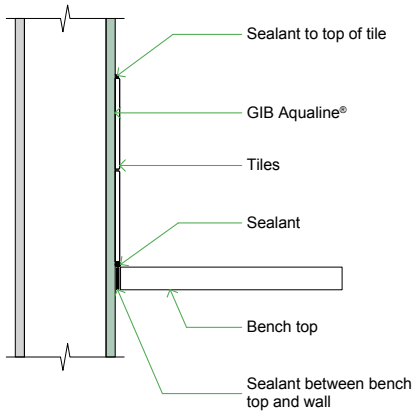
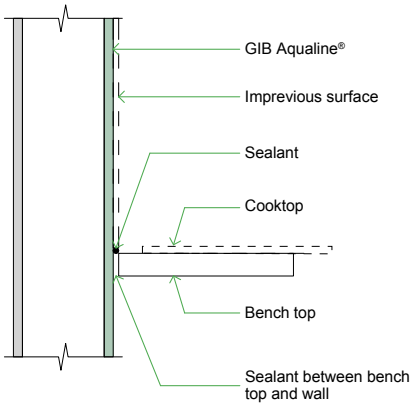
## A: BENCH TOP LINING JUNCTION



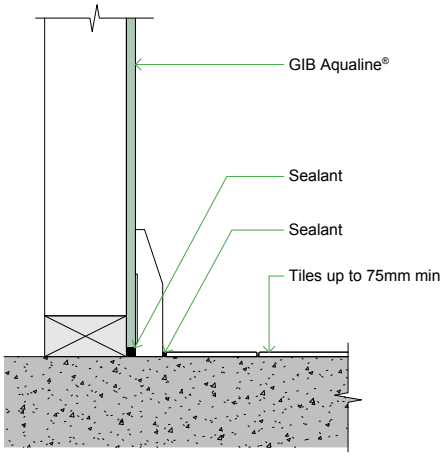

GAL-024

## B: COOKTOP LINING JUNCTION




GAL-023B

## CERAMIC FLOOR SKIRTING LINING JUNCTION




GAL-001A

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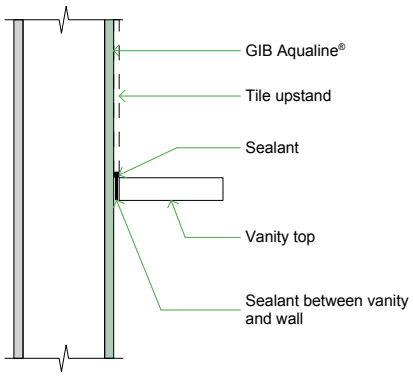
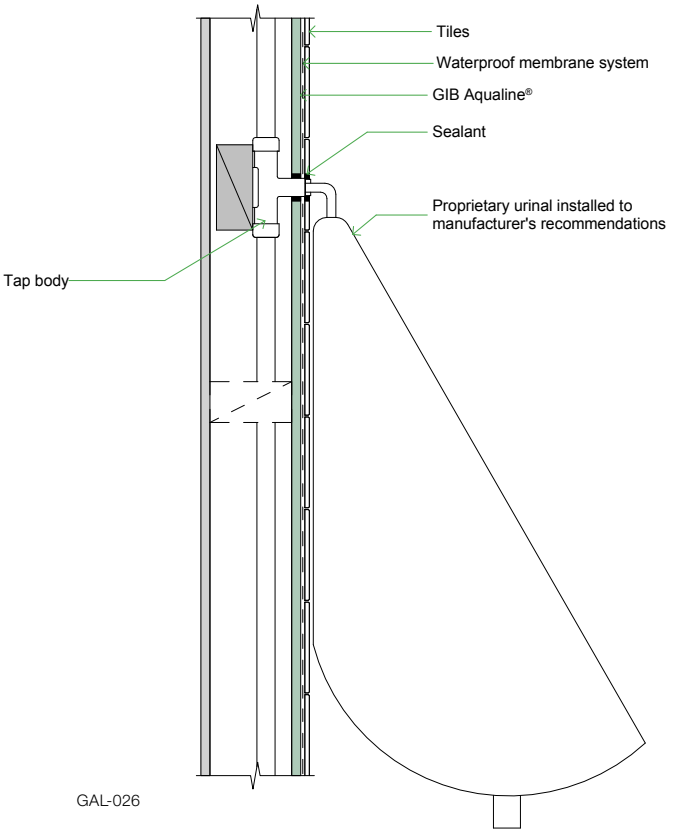
## A: VANITY TOP LINING JUNCTION




GAL-022

## B: SEALING WET AREA PENETRATION LINING JUNCTION




GAL-026

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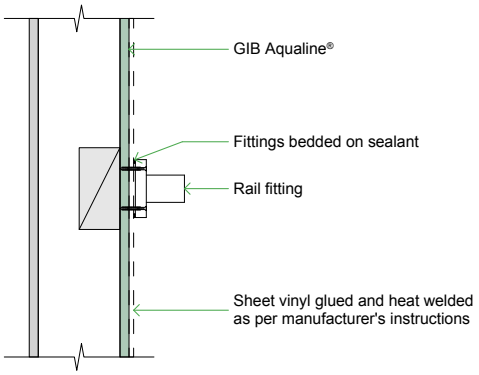
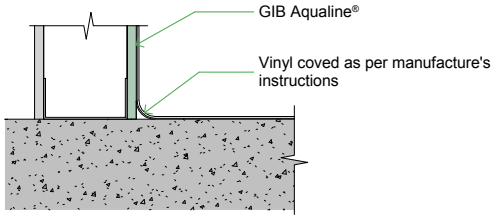
## A: SURFACE MOUNTED WITH NOG



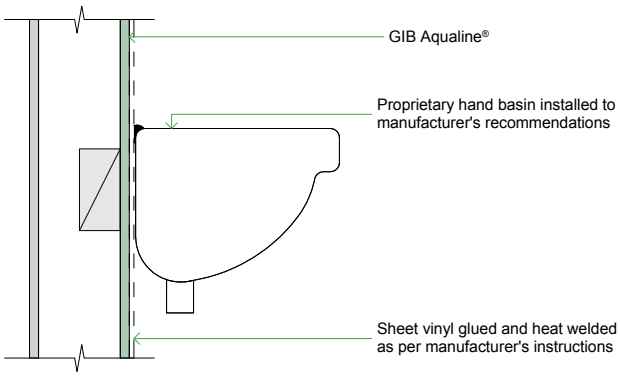

GAL-027

## B: VINYL FLOOR LINING JUNCTION




GAL-006A

## C: BASIN LINING JUNCTION




GAL-025

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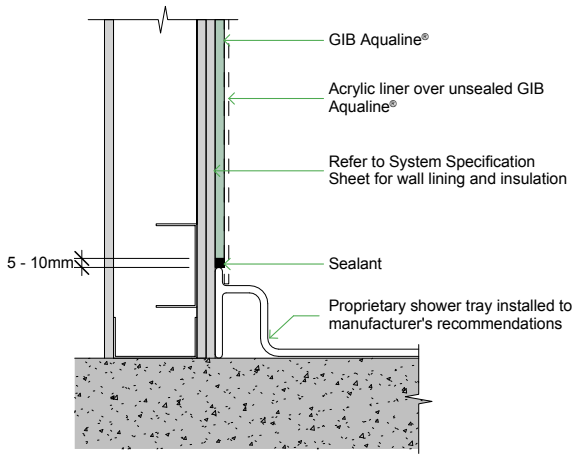
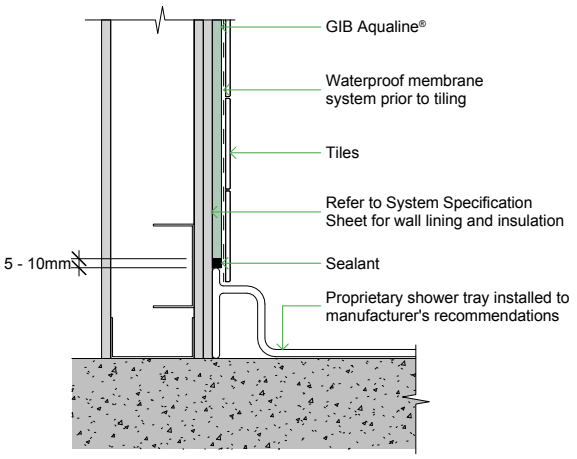
## A: MOULDED SHOWER TRAY DOUBLE LINING JUNCTION



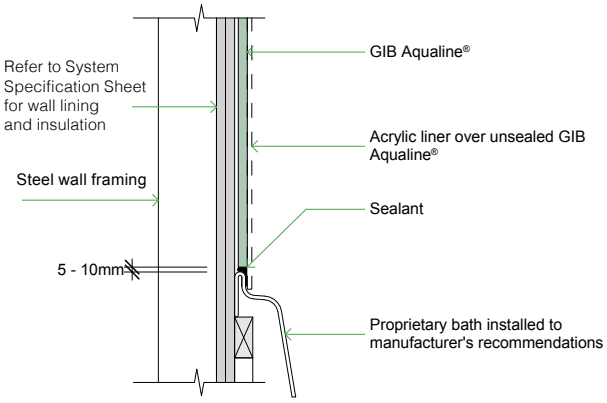

GAL-017

## C: MOULDED SHOWER TRAY DOUBLE LINING JUNCTION



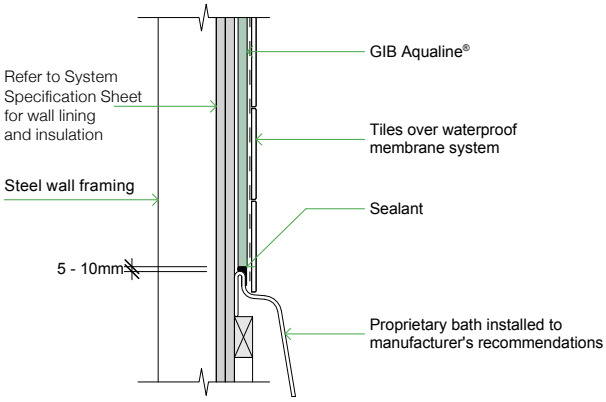

GAL-018

## B: BATH DOUBLE LINING JUNCTION




GAL-013

## D: BATH DOUBLE LINING JUNCTION



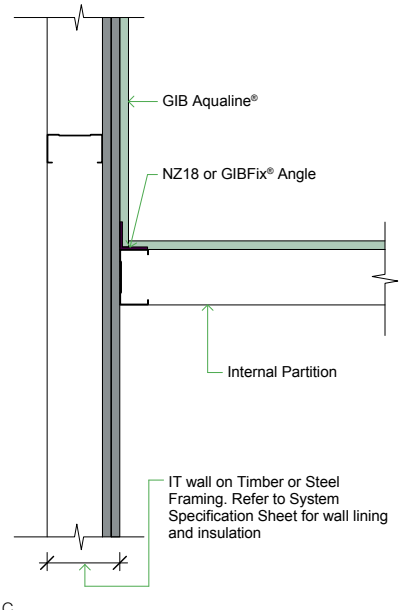

GAL-014

## GIB® WET AREA SYSTEMS FIRE RESISTANCE AND NOISE CONTROL PERFORMANCE

Given recesses required for shower trays, bath upstands, etc., and the likelihood of renovations during the service life of the building, it is recommended that GIB® Wet Area linings in water splash areas are installed in addition to and over required fire and noise control systems in commercial or multi-residential applications.

Do not tile on the resilient side of a GIB Rail® or Acoustic Resilient Mount (ST-001) and channel noise control system.

## E: INTERTENANCY WALL AND WET AREA WALL JUNCTION




GAL-031C

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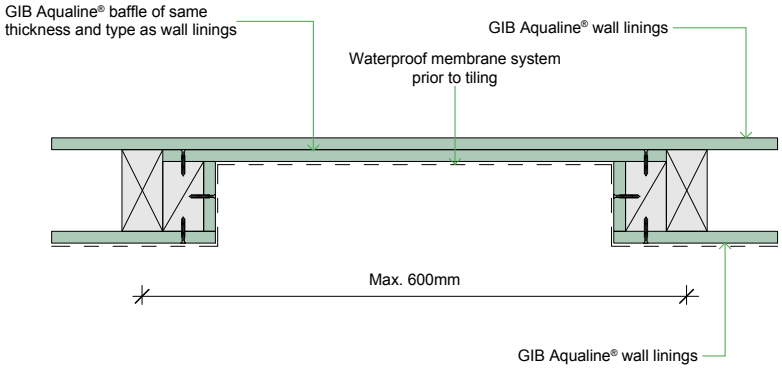
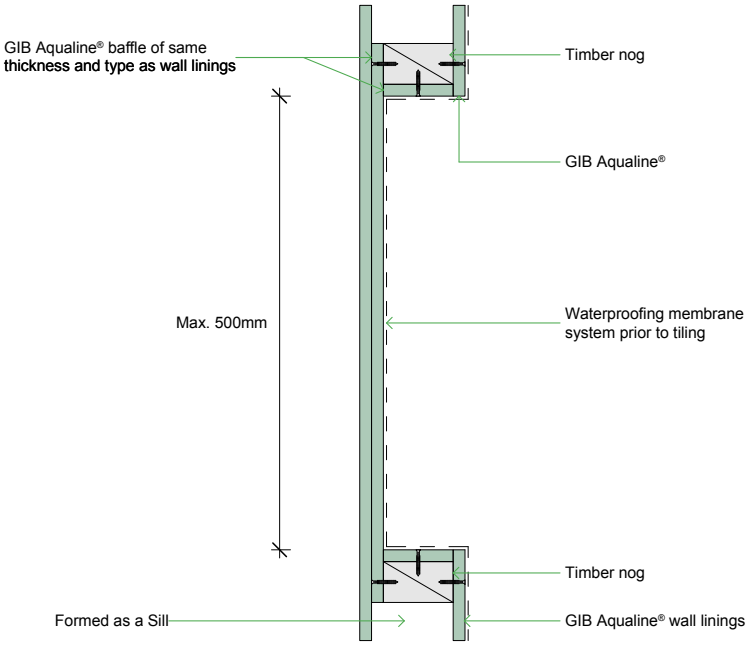
## TIMBER FRAME TILE RECESS




*Larger recesses can be accommodated depending on specific framing layout provided 500mm is not exceeded in at least one direction.*




GAL-029B

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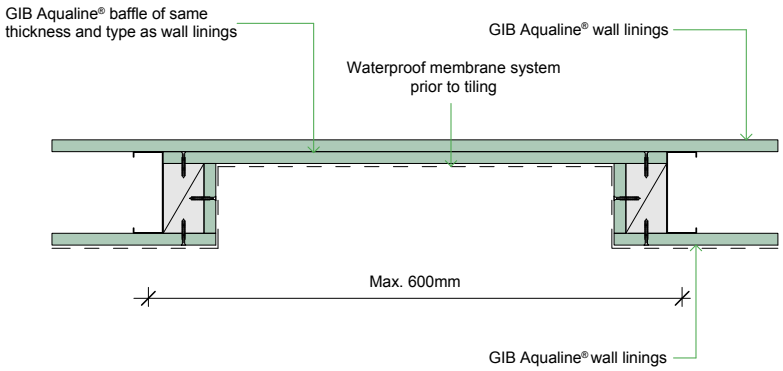
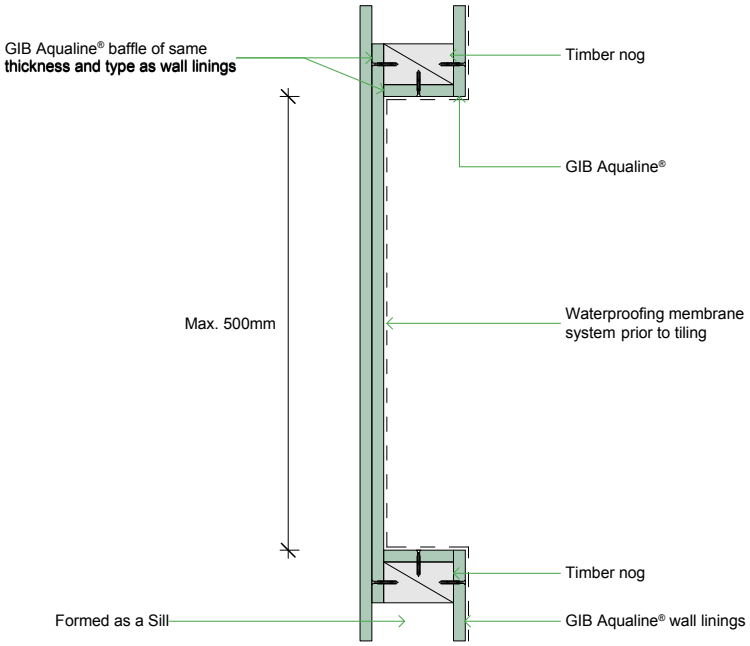
## STEEL FRAME TILE RECESS




*Larger recesses can be accommodated depending on specific framing layout provided 500mm is not exceeded in at least one direction.*




GAL-030

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# GIB® Wet Area Systems, February 2021

## LIMITATIONS

Winstone Wallboards Ltd accepts no liability if the GIB® Wet Area Systems and junction details are not installed in strict accordance with instructions contained within this publication.

## USE ONLY THE CURRENT SPECIFICATION

This publication may be superseded by a new publication. Winstone Wallboards accepts no liability for reliance upon publications that have been superseded. You should check the GIB® website to ensure you are using the current publication. If you are unsure whether this is the current publication, simply call the GIB® Helpline on 0800 100 442.

## SUBSTITUTION

GIB® Wet Area Systems have been specifically designed and tested to achieve the stated performance levels. To maintain the GIB® Product and System Warranty, all system components detailed in this publication must be used when specifying and installing GIB® Wet Area Systems.

## TRADEMARKS

The names GIB®, GIB Fyreline®, GIB Ultraline®, GIB Toughline®, GIB Braceline® GIB Noiseline®, GIB Aqualine®, GIB Weatherline®, GIB Tradeset®, GIB Plus 4®, GIB-Cove®, GIB Lite Blue®, GIBFix®, GIB® Quiet Stud®, GIB Rail®, GIB Barrierline®, GIB X-Block®, GIB Fire Soundseal®, GIB Clip®, the colour mauve for GIB Toughline®, the colour blue for GIB Braceline® GIB Noiseline®, the colour pink for GIB Fyreline®, the colour green for GIB Aqualine®, the colour purple for GIB Weatherline® and the shield device are registered trademarks of Fletcher Building Holdings Limited.

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gib.co.nz

**OR CALL THE GIB® HELPLINE**

0800 100 442

February 2021

**BRANZ Appraised**
Appraisal No. 472 [2017]

# ARDEX UNDERTILE INTERNAL LIQUID WATERPROOFING MEMBRANES

**Appraisal No. 472 (2017)**

This Appraisal replaces BRANZ Appraisal No. 472 (2011)

**BRANZ Appraisals**

Technical Assessments of products for building and construction.

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## Product

1.1 ARDEX Undertile Liquid Membranes are premixed and two-part liquid-applied waterproofing membranes for use under ceramic or stone tile finishes in internal wet areas.

## Scope

2.1 ARDEX Undertile Liquid Membranes have been appraised for use as waterproofing membranes for the internal wet areas of buildings, within the following scope:

- on floor substrates of concrete, flooring grade particleboard, plywood, compressed fibre cement sheet and fibre cement sheet tile underlay, and on wall substrates of concrete, concrete masonry, wet area fibre cement sheet lining systems and wet area plasterboard lining systems; and,
- when protected from physical damage by ceramic or stone tile finishes; and,
- where floors are designed and constructed such that deflections do not exceed 1/360$^{th}$ of the span.

2.2 The use of ARDEX Undertile Liquid Membranes on concrete slabs where hydrostatic or vapour pressure is present from below is outside the scope of this Appraisal.

2.3 Movement and control joints in the substrate must be carried through the membrane and tile finish. The design and construction of the substrate and movement and control joints is specific to each building, and is therefore the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.

2.4 The ceramic or stone tile finishes are outside the scope of this Appraisal.

2.5 The membranes must be installed by trained installers, approved by ARDEX New Zealand Limited.

## Building Regulations

**New Zealand Building Code (NZBC)**

3.1 **In the opinion of BRANZ, ARDEX Undertile Liquid Membranes, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:**

**Clause B2 DURABILITY:** Performance B2.3.1 (b) 15 years and B2.3.2. ARDEX Undertile Liquid Membranes meet these requirements. See Paragraph 9.1.

**Clause E3 INTERNAL MOISTURE:** Performance E3.3.6. Internal wet area floors and walls incorporating **ARDEX Undertile** Liquid Membranes meet this requirement. See Paragraphs 11.1-11.6.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. ARDEX Undertile Liquid Membranes meet this requirement and will not present a health hazard to people.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

## Technical Specification

4.1 Materials supplied by ARDEX New Zealand Limited are as follows:

- **ARDEX WPM 001** is a one part, polymer-based, ready-to-use, liquid-applied membrane containing micro-fibres. It is supplied as a light blue thixotropic paste 20 kg (approximately 15 litres) pails.
- **ARDEX WPM 002** is a fast drying, two part, flexible, cementitious-based, liquid applied membrane containing micro-fibres. It is supplied as ARDEX WPM 002 Part A Liquid in 20 kg pails and ARDEX WPM 002 Part B Powder in 10 kg multi-wall bags. When dry, the membrane is light grey in colour.
- **ARDEX WPM 155 Rapid** is a one part, water-based polyurethane-acrylic, ready-to-use, liquid applied, rapid setting membrane. It is supplied as blue/grey colour in 4 and 15 litre pails.
- **ARDEX STB Tape** is an uncured butyl tape with a fleece layer that is used in the ARDEX WPM 155 Rapid under tile waterproofing system.
- **ARDEX Multiprime** is a water-based primer used to seal substrates and enhance the adhesion of the membranes. It is supplied as a red coloured liquid in 1, 4 and 20 litre plastic containers.

## Handling and Storage

5.1 All materials must be stored inside, up off concrete floors, in dry conditions, out of direct sunlight and freezing conditions. The membrane products have a shelf life of 12 months from date of manufacture in the original unopened packaging. Once opened, the products must be used within 3 months.

## Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the ARDEX Undertile Liquid Membranes. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

## Design Information

### General

7.1 ARDEX Undertile Liquid Membranes are for use in buildings where an impervious waterproof membrane is required to floors and walls to prevent damage to building elements and adjoining areas.

7.2 ARDEX WPM 002 and ARDEX WPM 155 Rapid are designed to be used where a quicker curing time is required, such as in cool or humid conditions.

7.3 The membrane must be protected from physical damage by the application of ceramic or stone tile finishes.

7.4 Movement and control joints may be required depending on the shape and size of the building or room, and the tile finish specified. Design guidelines can be found in the BRANZ Good Practice Guide - Tiling.

7.5 Timber framing systems must comply with NZS 3604, or where specific engineering design is used, the framing shall be of at least equivalent stiffness to the framing provisions of NZS 3604, or comply with the serviceability criteria of AS/NZS 1170. In all cases, framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and all sheet edges are fully supported. Timber framing systems supporting the substrates must be constructed such that deflections do not exceed 1/360$^{th}$ of the span. Where NZS 3604 is used, the allowable joist spans given in Table 7.1 shall be reduced by 20%.

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## Substrates

**Plywood**

8.1 Plywood must be a minimum of 17 mm thick complying with AS/NZS 2269, CD Grade Structural with the sanded C face upwards and treated to H3 (CCA treated). LOSP treated plywood must not be used.

8.2 The plywood must be supported with dwangs or framing with a maximum span of 400 mm in each direction, fixed with 10 g x 50 mm stainless steel countersunk head screws at 150 mm centres along the sheet edges and 200 mm centres through the body of the sheets.

**Fibre Cement Compressed Sheet/ Fibre Cement Sheet Tile Underlay**

8.3 Fibre cement compressed sheet and tile underlay must be manufactured to comply with the requirements of AS/NZS 2908.2 and must be specified by the manufacturer as being suitable for use as a wet area membrane substrate. Installation must be carried out in accordance with the instructions of the manufacturer.

**Particleboard**

8.4 Particleboard must be specified for the end use in accordance with NZS 3602.

**Concrete and Concrete Masonry**

8.5 Concrete and concrete masonry substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101, concrete slab-on-ground to NZS 3604 or NZS 4229, and concrete masonry to NZS 4229 and NZS 4230.

**Wet Area Wall Linings**

8.6 Plasterboard wall linings must be manufactured to comply with AS/NZS 2588 and be suitable for use in internal wet areas.

8.7 Fibre cement sheet must be suitable for use in wet areas and comply with AS/NZS 2908.2.

8.8 Installation of plasterboard or fibre cement wall linings must be carried out in accordance with the instructions of the manufacturer.

## Durability

**Serviceable Life**

9.1 ARDEX Undertile Liquid Membranes, when subjected to normal conditions of environment and use, are expected to have a serviceable life of at least 15 years and be compatible with ceramic or stone tile finishes with a design serviceable life of 15-25 years.

## Maintenance

10.1 No maintenance of the membrane will be required provided significant substrate movement does not occur and the tile finish remains intact. Regular checks must be made of the tiled areas to ensure they are sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately by repairing the tiles, grout and sealant.

10.2 In the event of damage to the membrane, the tiling must be removed and the membrane repaired by removing the damaged portion and applying a patch as for new work.

10.3 Drainage outlets must be maintained to operate effectively, and tile finishes must be kept clean.

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### Internal Moisture

11.1 ARDEX Undertile Liquid Membranes are impervious to water, and when appropriately designed and installed will prevent water from penetrating behind linings or entering concealed spaces.

11.2 Surfaces must be finished with ceramic or stone tiles. A means of compliance with NZBC Clause E3.3.3 and E3.3.4 is given in NZBC Acceptable Solution E3/AS1 Paragraph 3.1.1 (b), 3.1.2 (b) and 3.3.1 (b).

11.3 Falls in showers and shower areas must be a minimum of 1 in 50. In unenclosed showers, falls must extend a minimum of 1500 mm out from the shower rose. Floor wastes and drainage flanges must be provided and the floor must fall to the outlet.

11.4 ARDEX Undertile Liquid Membranes are suitable for use to contain accidental overflow to meet NZBC Clause E3.3.2. A means of compliance for overflow is given in NZBC Acceptable Solution E3/AS1, Section 2.

11.5 The waterproofing membranes must completely cover shower bases, and for unenclosed showers it must extend a minimum of 1500 mm out from the shower rose. Further design guidance on waterproofing wet areas, including waterproofing walls and junctions can be obtained from AS 3740, BRANZ Good Practice Guide - Tiling, and the flooring and wall lining manufacturers.

11.6 Where water resistant wall finishes such as prefinished sheet materials are used, they must overlap the membrane a minimum of 30 mm.

## Installation Information

### Installation Skill Level Requirement

12.1 Installation of the membranes must be completed by trained installers, approved by ARDEX New Zealand Limited.

12.2 Installation of substrates must be completed by, or under the supervision of, licensed Building Practitioners with the relevant Licence Class, in accordance with instructions given within the ARDEX New Zealand Limited Technical Literature and this Appraisal.

### Preparation of Substrates

13.1 Substrates must be dry, clean and stable before installation commences. Surfaces must be even and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents.

13.2 The relative humidity of concrete substrates must be 75% or less before membrane application. The concrete can be checked for dryness by using a hygrometer as set out in BRANZ Bulletin No. 585.

13.3 All voids, cracks, holes, joints and excessively rough areas must be filled to achieve an even and uniform surface. Junctions of substrate abutments, such as at wall/floor and wall/wall junctions must have reinforcements installed as set out in the Technical Literature.

13.4 Substrates must be primed with ARDEX Primer and allowed to dry fully before the membrane is installed.

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## Membrane Installation

14.1 Installation must not be undertaken where the substrate surface temperature is below 10°C or above 35°C.

14.2 ARDEX WPM 002 liquid and dry components must be mixed and left to stand for 5 minutes before re-mixing, then applying. ARDEX WPM 001 and ARDEX WPM 155 Rapid must be thoroughly stirred before application.

14.3 The membranes must be applied in a minimum of two coats at the rates set out in the Technical Literature to give a total finished thickness of 1.0 - 1.5 mm. Subsequent coats must be applied at an opposite direction to the previous coat.

14.4 Application can be made by roller [medium/long nap], brush [long bristle], or a flat steel trowel.

14.5 Reinforcement fabric is bedded into the wet layer between coats to provide movement protection at wall/wall and wall/floor junctions, and at any other areas such as joints in the flooring substrate, floor cracks or around penetrations in the membrane. ARDEX STB Tape must be used with ARDEX WPM 155 to take advantage of the rapid/fast drying features.

14.6 Clean up may be undertaken with water.

## Tiling

15.1 The membrane must be fully cured before tiling. The cured membrane must be protected at all times to prevent mechanical damage, so may require temporary covers until the finishing is completed.

15.2 Tiling must be undertaken in accordance with AS 3958.1 and the BRANZ Good Practice Guide - Tiling. The compatibility of the tile adhesive must be confirmed with the adhesive manufacturer or ARDEX New Zealand Limited.

## Inspections

16.1 Critical areas of inspection are:

- Construction of substrates, including crack control and installation of bond breakers and movement control joints.
- Moisture content of the substrate prior to the application of the membrane.
- Acceptance of the substrate by the membrane installer prior to application of the membrane.
- Installation of the membrane to the supplier's instructions, particularly installation to the correct thickness and use of reinforcement.
- Membrane curing and integrity prior to the installation of tiles including protection from mechanical damage during curing and prior to tile installation.

## Health and Safety

17.1 Safe use and handling procedures for the membrane are provided in the Technical Literature. The materials must be used in conjunction with the relevant Material Safety Data Sheet.

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# Basis of Appraisal

The following is a summary of the technical investigations carried out:

## Tests

18.1 The following testing of ARDEX WPM 001 and ARDEX WPM 002 has been undertaken by ARDEX Australia Pty Ltd research and development laboratory: water vapour transmission; water absorption; tensile strength and elongation before and after UV exposure, immersion in bleach, immersion in industrial detergent and immersion in water. Test methods and results were reviewed by BRANZ and found to be satisfactory.

18.2 The following testing of ARDEX WPM 001 was undertaken by the Commonwealth Scientific Industrial Research Organisation (CSIRO) Australia:

- In accordance with ANSI A118.10 for ICBO Evaluation Service - dimensional stability; waterproofness; shear strength to ceramic tile and cement mortar; and fungal and micro-organism resistance.
- In accordance with AS 1145 - behaviour under cyclic strain.

18.3 Testing of ARDEX WPM 001 and ARDEX WPM 002 has been undertaken by BRANZ for low temperature flexibility and peel adhesion after heat/humidity aging.

18.4 The following testing of ARDEX WPM 155 Rapid was undertaken by various organisations:

- Durability testing to AS/NZS 4858 Appendix A including effect of heat aging, bleach, detergent and water on tensile strength and elongation.
- Cyclic movement resistance requirements of AS/NZS 4858:2004 Appendix B.
- Water Vapour Transmission using both wet and dry cup methods from ASTM E96.
- Water transmission behaviour following the procedures of AS/NZS 4858 Appendix C.

18.5 The above test methods and results have been reviewed by BRANZ and found to be satisfactory.

## Other Investigations

19.1 An assessment was made of the durability of the ARDEX Undertile Liquid Membranes by BRANZ technical experts.

19.2 Site inspections have been carried out by BRANZ to examine the practicability of installation.

19.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

## Quality

20.1 The manufacture of the membrane has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

20.2 The quality management system of membrane's manufacturer has been assessed and found to be satisfactory.

20.3 The quality of supply of the membrane system materials to the market is the responsibility of ARDEX New Zealand Ltd.

20.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing systems and substrate.

20.5 Quality on site is the responsibility of the trained installers, approved by ARDEX New Zealand Ltd.

20.6 Building owners are responsible for the maintenance of the ceramic or stone tiles in accordance with the instructions of ARDEX New Zealand Ltd.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

## Sources of Information

- AS 3740 – 2010 Waterproofing of wet areas within residential buildings.
- AS 3958.1: 2007 Ceramic Tiles - Guide to the installation of ceramic tiles.
- AS/NZS 1170: 2002 Structural design actions
- AS/NZS 2908.2: 2000 Cellulose-cement products - flat sheet.
- AS/NZS 4858 - 2004 Wet area membranes.
- AS/NZS 2269: 2012 Plywood - Structural.
- Good Practice Guide - Tiling, BRANZ, April 2015.
- NZS 3101: 2006 Concrete Structures Standard.
- NZS 3602: 2003 Timber and wood-based products for use in buildings.
- NZS 3604: 2011 Timber framed buildings.
- NZS 4229: 2013 Concrete masonry buildings not requiring specific engineering design.
- NZS 4230: 2004 Code of practice for the design of masonry structures.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

BRANZ

In the opinion of BRANZ, ARDEX Undertile Internal Liquid Waterproofing Membranes are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to ARDEX New Zealand Limited, and is valid until further notice, subject to the Conditions of Appraisal.

## Conditions of Appraisal

1. This Appraisal:
   a) relates only to the product as described herein;
   b) must be read, considered and used in full together with the Technical Literature;
   c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
   d) is copyright of BRANZ.
2. ARDEX New Zealand Limited:
   a) continues to have the product reviewed by BRANZ;
   b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
   c) abides by the BRANZ Appraisals Services Terms and Conditions;
   d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
   a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
   b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
   c) any guarantee or warranty offered by ARDEX New Zealand Limited.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to ARDEX New Zealand Limited or any third party.

**For BRANZ**

**Chelydra Percy**
Chief Executive

Date of Issue:
17 January 2018

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# ARDEX WPM 001

## (Superflex Bathroom and Balcony Premixed)

Single component undertile waterproofing membrane

Low VOC content – meets Green Building Council of Australia Green Star IEQ-13 requirements

Fast drying one part acrylic membrane

Class III membrane, conforms to the requirements of AS4858:2004 Wet Area Membranes

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# ARDEX WPM 001

## (Superflex Bathroom and Balcony Premixed) Single Component Undertile Waterproofing Membrane

### PRODUCT DESCRIPTION

ARDEX WPM 001 (Superflex Premixed) is a tough, ready to use waterproofing membrane specifically designed for use under tiles. ARDEX WPM 001 has been uniquely formulated with synthetic microfibres to increase its strength and eliminate the need for a separate reinforcement mat. ARDEX WPM 001 is based on the most advanced acrylic polymer technology, and is totally resistant to re-emulsification once cured.

ARDEX WPM 001 is flexible, safe to use, low in odour, and is fully compatible with polymer modified tile adhesives. ARDEX WPM 001 is one of the fastest drying one part acrylic membranes on the market – normally ready to tile in 48 hours @ 23°C.

WPM 001 meets the Green Building Council of Australia Green Star IEQ-13 requirements for Architectural Sealant when tested in accordance with SCAQMD Method 304-91 Determination of Volatile Organic Compounds (VOC) in Various Materials as referenced by South Coast Air Quality Management Division (SCAQMD) Rule 1168.

### FEATURES/BENEFITS

- Fast drying ARDEX WPM 001 can be tiled over in 48 hours in non critical areas*.
- Fibre reinforced: Excellent strength, eliminates need for reinforcing mat.
- Flexible: Accommodates normal building movement class 3 membrane as per AS 4858: 2004 Wet Area Membranes.
- Advanced acrylic: Will not re-emulsify once cured.
- Designed for tiling – Fully compatible with ARDEX tile adhesive systems.
- Water based, safe to use, low odour and easy cleaning.
- Conforms to the requirements of Australian Standards 4858: 2004 Wet Area Membranes.

*Critical areas include areas where the membrane is applied at greater than 0.5mm or over impermeable substances such as over bond breakers or incorporating other reinforcement. Longer drying times are necessary in these areas.

### APPLICATION RANGE

#### Performance levels

Commercial and residential.

#### Location

Internal wet areas, balconies, decks, and other areas that will be tiled or otherwise protected from regular foot traffic.

#### Surfaces

Walls and floors.

#### Substrates

| | |
|---|---|
| Concrete | Cured for min. 28 days or sealed when set with one coat of ARDEX HydrEpoxy WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight. External wet concrete should be allowed to dry thoroughly or sealed with one coat of ARDEX HydrEpoxy WPM 300 as above. |
| Renders and screeds | Cured for min. 7 days or sealed when set with one coat of ARDEX HydrEpoxy WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight. Wet render should be allowed to dry thoroughly or sealed with one coat of ARDEX HydrEpoxy WPM 300 as above. |
| Fibre cement | Wet area grade fibre cement. |
| Plasterboard | Wet area grade only. |
| Plywood | Structural plywood (PAA branded), marine grade or other wet area grade only. Special preparation is required – contact ARDEX. Not recommended for external use (refer ARDEX). |
| Particleboard | Wet area grade, internal use only (special preparation is required – contact ARDEX). Not recommended for external use (refer ARDEX). |
| Permanent Immersion | In conditions of permanent immersion, it is recommended that ARDEX WPM 002 (Superflex Two Part) is used. Must be covered with tiles for full immersion. |

Contact ARDEX for use over existing membranes, covering materials, and any other substrates not listed.

### SPECIFICATION CLAUSE

#### ARDEX WPM 001 (Superflex Premixed)

The waterproofing membrane shall be ARDEX WPM 001: a one part acrylic modified fibre reinforced membrane formulated to provide a tough, long lasting water barrier under tiling systems.

### PACKAGING

Single component: 20kg (approx 15 litres) or 6.5kg (approx 5 litres).

### SHELF LIFE

12 months when stored in the original unopened packaging, in a dry place at 23°C. Do not store in direct sunlight. Replace lid tightly after use. Use remaining contents from part used containers within 3 months.

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TABLE 1

| | Thickness per coat | | Total dry film thickness (2 coats) | Theoretical coverage | | Per unit |
|---|---|---|---|---|---|---|
| | Dry film | Wet film | | Per coat | For 2 coats | |
| FLOORS | 0.5mm | 1.0mm | 1.0mm | 15m² | 7.5m² | 20kg(15L) unit |
| WALLS | 0.25mm | 0.5mm | 0.5mm | 30m² | 15m² | 20kg(15L) unit |

## COVERAGE

Two coats are recommended for an effective waterproof membrane.

Coverage will vary depending on the porosity of the surface.

One 20kg (15 litre) unit will cover approximately 7.5–15m² (based on two coats) depending on area requirements between wall and floor surfaces to be treated. Refer Table 1.

## DRYING TIMES

### Recoat time

1–2 hours at (23°C / 50% RH) between first and second coats. Alternatively, if a woven cloth reinforcement mat is used between coats then the second coat can be applied whilst the first coat is still wet.

### Dry through

The slowest drying areas are those where the membrane has been applied over a silicone bond breaker, eg. wall and floor junctions. The membrane cannot be tiled over until these critical areas are completely dry. ARDEX WPM 001 is totally dry in 48 hours at 23°C / 50% RH, but can take up to 72 hours at 10°C / 50% RH in corners or for thick films.

### Fully cured

The shower should not be used until the membrane has reached its full strength. ARDEX WPM 001 membrane is fully cured after 3 days at 23°C, or after 5 days at 10°C.

Drying times will vary depending on humidity, surface temperature and surface porosity.

Do not apply on substrates where the surface temperature is below 10°C or above 35°C.

## CLEANING

Wash hands, brushes, rollers, etc, with water while the membrane is still fresh. Remove cured material with mineral turpentine.

## SAFETY PRECAUTIONS

Do not use the product in the following situations:

- Areas subject to negative hydrostatic pressure or rising damp, unless treated with ARDEX HydrEpoxy WPM 300.
- Where the substrate is wet – wet surfaces can be sealed with one coat of ARDEX HydrEpoxy WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight.
- Where rain is imminent.
- Where the membrane will be left exposed and subjected to regular foot traffic.
- On glazed, glass or other totally impervious surfaces (eg. areas pre-treated with water repellants).
- Where the surface temperature is below 10°C or greater than 35°C.
- All floor areas must have adequate falls either built into the substrate or achieved with a sand/cement screed prior to application of the ARDEX WPM 001.

For substrates or situations other than those listed contact ARDEX.

## SAFETY DATA

ARDEX WPM 001 is non-hazardous and non dangerous. In case of skin contact, flush with running water. In case of irritation seek medical advice. If swallowed, immediately give a glass of water.

Additional information is listed in the Material Safety Data Sheet.

## QUALITY PRODUCT

ARDEX WPM 001 is manufactured and tested to ARDEX procedures which are maintained in accordance with Quality System Standard ISO 9001.

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# ARDEX WPM 001

## (Superflex Bathroom and Balcony Premixed) Single Component Undertile Waterproofing Membrane

### USER NOTES

The technical details and recommendations contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is the responsibility of the user to ensure that the product is used in accordance with ARDEX instructions and in applications for which they are intended.

### APPLICATION

Apply ARDEX WPM 001 by brush or roller. A medium nap (12–15mm pile) paint roller is recommended. New rollers should be dampened with water before being used for the first time.

For best results with a paint brush use a good quality, 50mm long bristle variety.

To achieve the required dry film thickness per coat, application must consist of laying the product onto the surface and lightly finish the surface. Do not try to apply in the same manner as a building paint. A conventional building paint is normally applied at 25–40 micrometers wet film thickness while ARDEX WPM 001 needs to be applied at between 0.5 and 1.0mm per coat depending on product and application (Refer Table 1).

**Critical areas:**

***INTERNAL WET AREAS***

1. Construction should be in accordance with Australian Standards 3740 – 2004 Waterproofing of wet areas within residential buildings.
2. All render and tile bed requirements should be completed before application of the membrane and tiles or other floor coverings should be direct bonded to the membrane.
3. Ensure wall and floor sheets are installed as per sheet manufacturer's recommendations.
4. Ensure suitable brick/concrete hobs are used (do not use timber), and that the top of the hob does not slope outwards.
5. Ensure that falls to the waste are min 1:60 (ie. approx. 30mm in 2mtr) before waterproofing. Ensure outlet pipes are fixed securely and that the waste or drainage flanges are recessed into the floor.
6. Avoid sheet joints in shower recess floor. Ensure that sheets are securely fixed to the wall at the bottom edge, and sheet joints are sealed with a neutral cure silicone sealant spread approximately 6mm on either side of the joint.
7. Treat nail and screw holes with neutral cure silicone sealant.
8. Seal the perimeters of taps, shower outlets and waste outlets with neutral cure silicone sealant.
9. Apply a bead of neutral cure silicone sealant to all horizontal and vertical corners.
10. Apply a bead of neutral cure silicone sealant to the junction of the hob or angle and walls.
11. Waste outlets shall incorporate a puddle flange or similar in accordance with AS 3740 and the top surface shall be set flush with the surface to which the membrane is to be applied. A bead of neutral cure silicone shall be applied across the intersection of the puddle flange and the screed/floor.
12. Apply the membrane to the entire shower recess floor and down into waste or drainage flange. Apply the membrane over the hob and at least 100mm beyond the outside edge of the hob (ideally to entire wet area floor).
13. Plastic (eg. PVC) fittings should be primed with a solvent based plumbers primer. Prime metal surfaces with a suitable metal primer.
14. Apply the membrane 1800mm up the walls or 80mm above the height of the shower rose within the shower recess.
15. Install the shower screen to inside edge of the hob.

**Fig.1 – Shower recess – Critical areas**

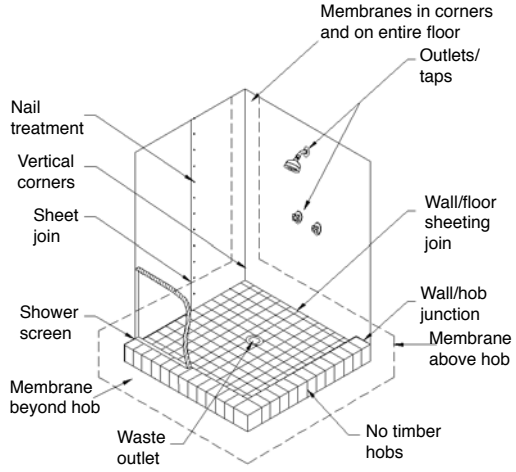
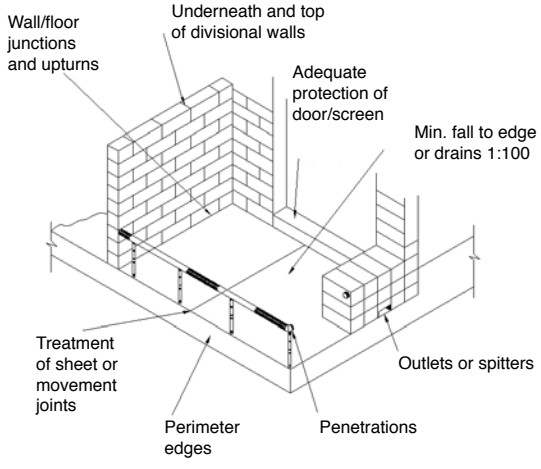



**Fig.2 – Balcony – Critical areas**

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### *BALCONIES AND DECKS*

1. Ensure that the deck is constructed with falls to edge/drains of min 1:100 (ie. 20mm in 2m) or else achieve the fall with a sand/cement screed.
2. Ensure suitable flashing is installed, ideally prior to the installation of the balcony screen/sliding door.
3. Treat any sheet joints with a neutral cure silicone prior to waterproofing.
4. Prepare and seal all wall/floor junctions with a bead of neutral cure silicone.
5. Apply the membrane as far up underneath the screen door flashing as possible (ideally waterproof prior to installing door).
6. Where possible, apply the membrane prior to building divisional walls.
7. Apply the membrane to the entire balcony floor and at least 100mm up the wall above the top surface of the finished tiles and finished below the wall drainage vents.
8. Apply the membrane to the top of the parapets and divisional walls, or else install suitable metal capping.
9. Apply the membrane down over the front edge of the balcony onto the drip rail.
10. Carefully seal any gaps around balcony penetrations with a neutral cure silicone prior to applying the membrane.
11. Apply the membrane down into outlets and drains, ensuring excess material is removed.
12. Ensure all weep holes are above the membrane application area.

## APPLICATION NOTES

### Surface preparation

- Ensure all surfaces are structurally sound and totally dry. The pores of concrete surfaces should be open (absorbent surface). All sheet substrates must be securely fixed in accordance with the manufacturers instructions.
- Falls to outlets of at least 1:60 or approx. 30mm in 2 metre (wet areas) or 1:100 externally, must be achieved prior to tiling.
- The surface to be coated should be free from dust, oil, paint, curing compounds and any other contaminating materials.
- Damaged concrete should be repaired (leveled) and surface defects including all cracks and sharp protrusions should be treated prior to the application of the membrane.
- Remove laitance on concrete or screeds by mechanical means.
- Highly dense (>40MPa) or steel trowelled concrete should be roughened by suitable mechanical means (shot blasting, grinding, etc).

### Priming

The primer is a critical part of the waterproofing system. Apply one coat of ARDEX WPM 265 water based primer by brush or roller to all areas to be waterproofed including the floor waste. Allow the primer to completely dry prior to the application of the ARDEX WPM 001 membrane. This will take around 20–30 minutes depending upon weather conditions and porosity of the substrate. Coverage is approximately 6m² per litre. Plastic (eg. PVC) pipes should be primed with a solvent based plumbers pink primer. Prime metal surfaces with a suitable metal primer such as epoxy polyamide primer.

## GENERAL APPLICATION

### Crack preparation

***Cracks <2mm:***

Clean and remove any loose particles in the crack. Prime the crack and adjacent area carefully with ARDEX WPM 265 water based primer and allow to dry before applying two coats of ARDEX WPM 001 membrane in a band at least 200mm wide equidistantly across the crack and along the length of the crack.

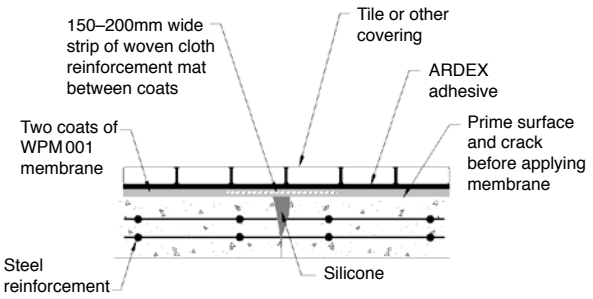
***Cracks 2–6mm:***

(Refer Fig.3) Prepare and prime the crack as above. Apply a bead of neutral cure silicone into the crack and extend it 6mm either side. Apply a 300mm wide band of ARDEX WPM 001 equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of ARDEX Deckweb woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth preferably using a fluted roller, and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

***Cracks >6mm:***

Contact your local ARDEX representative.

**Fig.3 – Crack treatments**

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# ARDEX WPM 001

## (Superflex Bathroom and Balcony Premixed) Single Component Undertile Waterproofing Membrane

### MOVEMENT/CONSTRUCTION JOINTS

***Movement joints (<6mm)***

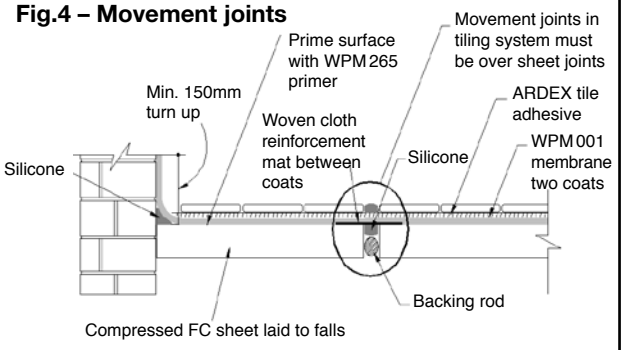
Use same procedure as in crack preparation.

Clean and prime the joint before filling it with a bead of neutral cure silicone and extending it 6mm each side of joint. Apply a 300mm wide band of ARDEX WPM 001 equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of ARDEX Deckweb woven cloth reinforcement over the applied membrane. Thoroughly wet out the mat and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

***Construction joints (>6mm)***

Use the same procedure as above, but replace the reinforcing mat with 120mm of ARDEX Coving Bandage. Note: if tiling, movement joints should be taken to the surface of the tiles. Fill the joints between the tiles immediately above the movement joints with an appropriate joint sealant. (Refer Fig.4)

**Fig.4 – Movement joints**




### Corners and coving areas

After priming with ARDEX WPM 265 water based primer and allowing it to dry, apply a generous bead (12mm) of neutral cure silicone sealant to seal all junctions between two substrates in coving areas and corners. Smooth over the silicone so that it extends 6mm up the wall and 6mm over the floor and allow to touch dry.

Apply a first coat of ARDEX WPM 001 to the area and allow the membrane to dry.

Apply a second coat ensuring that excess product is removed from the junction (the final dry film thickness should be minimum of 1.0mm). Alternatively, if a reinforcement mat is used between coats then the second coat can be applied as soon as the mat is fully bedded into the first coat.

### WALL/FLOOR JUNCTION

After priming with ARDEX WPM 265 water based primer and allowing to dry, apply a generous bead (12mm) of neutral cure silicone sealant to seal all junctions between two substrates. Smooth over the silicone so that it extends 6mm up the wall and 6mm over the floor and allow to touch dry. Place a 190mm wide band of ARDEX Deckweb woven mat reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. The ARDEX WPM 001 should be applied to at least 150mm up the wall surfaces as per the recommendations for the application of ARDEX WPM 001 to floors.

### Walls

Two coats of ARDEX WPM 001 are required to achieve a minimum total dry film thickness of 0.5mm.

After priming with ARDEX WPM 265 water based primer and allowing to dry, apply two coats of ARDEX WPM 001 (to achieve a minimum dry film thickness of 0.5mm) in two opposite directions. Wall sheet joints should be treated with a neutral cure silicone, PVC duct tape or base jointing compound. In balcony situations take the membrane up underneath any existing cover flashing or install appropriate flashing. Allow the first coat to dry before applying the second coat.

### Floors

Two coats of ARDEX WPM 001 are required to achieve a minimum total dry film thickness of 1.0mm. The flooring recommendations should be extended at least 150 mm up all perimeter walls.

Prime the surface with ARDEX WPM 265 water based primer and allow to dry.

Apply the first coat over the primed surface and allow it to dry (1–2 hours at 23°C, 50%RH) before applying a second coat in an opposite direction. In shower recesses a drainage flange must be installed on all timber/sheeted floors, and are strongly recommended on all other substrates. Where possible rebate the flange into the floor. Seal the perimeter of the flange with neutral cure silicone sealant. If a flange is not installed the membrane must be applied down into the pipe. (Refer Fig.5) Allow the membrane to dry completely before tiling. Refer drying times above.

### Waste outlet

Prime the surface with ARDEX WPM 265 water based primer and allow to dry. Surfaces of the outlet flange must be primed with an appropriate primer.

Plastic (eg. PVC) fittings should be primed with a solvent based plumbers primer. Prime metal surfaces with a suitable metal primer.

Apply ARDEX WPM 001 over the adjacent floor surface extending down into the waste outlet flange overlapping the edge of flange by at least 30 mm. Place ARDEX Deckweb woven mat reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. (Refer Fig.5)

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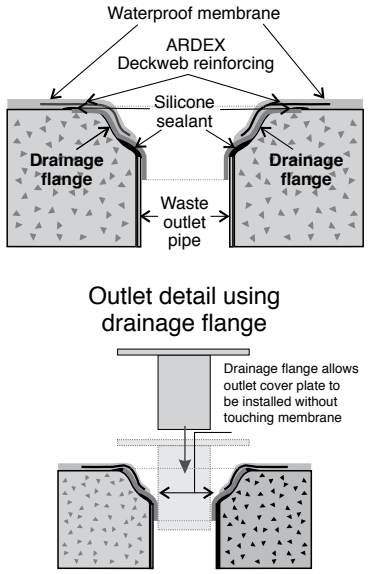
**Fig.5 – Waste outlet**



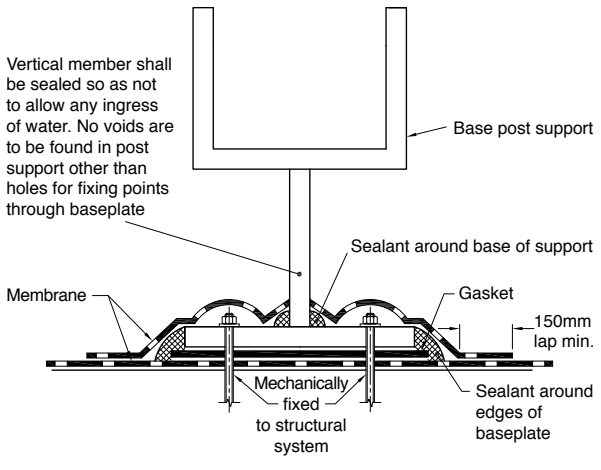

### Balcony penetrations (Refer Fig.6)

All upstands are to be mechanically fixed through the membrane, which must be fabricated with a base plate flange.

Prime the metal with an appropriate metal primer such as an epoxy polyamide primer and allow to dry. Apply a 12mm bead of neutral cure silicone around the perimeter of the penetration. Apply the first coat of ARDEX WPM 001 on the substrate and the flanged metal.

Allow first coat to dry before applying a second coat ensuring a finished dry film thickness of no less than 1.0mm is achieved. Place a suitable flashing collar around the penetration sealing it with a suitable sealant.

**Fig.6 – Post membrane installation**




### Tiling systems

It is advisable to conduct a flood test of the waterproofed area once the membrane has cured (normally after 72 hours), and before the tiling commences. A broad range of ARDEX tile adhesives can be used over ARDEX membranes. Contact ARDEX or your nearest ARDEX stockist for advice on the most suitable system.

## TECHNICAL DATA

**ARDEX WPM 001 (Superflex Premixed)**
**Characteristics of liquid**

| | |
|---|---|
| **Form and colour** | Blue viscous paste |
| **Type** | Single part |
| **Specific gravity** | Approx. 1.3kg/litre |
| **pH of liquid** | 8.5 |
| **Tensile strength 7 days dry AS1145** | 1.04 MPa |
| **Full cure** | 1.92 MPa |
| **Elongation at break 7 days dry AS1145** | 780% |

**Conforms to requirements of class 3 membrane of AS/NZ 4858: 2004 Wet Area Membranes.**

| | |
|---|---|
| **VOC content** | 18g/L |

NOTE: Most of the tests have been carried out in the ARDEX laboratory under standard conditions (23±2°C, 50±5% R.H).

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DISCLAIMER

The technical details, recommendations and other information contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is your responsibility to ensure that our products are used and handled correctly and in accordance with any applicable Australian Standard, our instructions and recommendations and only for the uses they are intended. We also reserve the right to update information without prior notice to you to reflect our ongoing research and development program.

Country specific recommendations, depending on local standards, codes of practice, building regulations or industry guidelines, may effect specific installation recommendations.

The supply of our products and services is also subject to certain terms, warranties and exclusions, which may have already been disclosed to you in prior dealings or are otherwise available to you on request. You should make yourself familiar with them.

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**ARDEX Australia Pty Ltd**

**Technical Services Toll Free: 1800 224 070**

| | | |
|---|---|---|
| New South Wales | Ph (02) 9851 9100 | Fax (02) 9838 7970 |
| Queensland | Ph (07) 3817 6000 | Fax (07) 3881 3188 |
| Victoria/Tasmania | Ph (03) 8339 3100 | Fax (03) 9308 9332 |
| South Australia | Ph (08) 8406 2500 | Fax (08) 8345 3207 |
| Western Australia | Ph (08) 9256 8600 | Fax (08) 9455 1227 |

**ARDEX New Zealand Ltd**

**Technical Services Toll Free: 0800 227 339**

| | | |
|---|---|---|
| Auckland | Ph (09) 580 0005 | Fax (09) 579 9963 |
| Wellington | Ph (04) 568 5949 | Fax (04) 568 6376 |
| Christchurch | Ph (03) 373 6900 | Fax (03) 384 9779 |

March 2012

# SUPER-STICK

**Tape sizes:**

- 75mm x 23m
- 150mm x 23m
- 200mm x 23m

## A GREENER SOLUTION

- No VOCs, HFCCs or CFCs
- Non-allergenic
- No off-gassing
- No toxicity

CODEMARK™
CM70015 (2020)

Marshall Innovations SUPER-STICK Building Tape® is a high performance window and door flashing tape designed to be installed down to –6 deg˚C. No more issues regarding adhesion in the cool of winter or heat of summer. No additional primers or mechanical fasteners required. SUPER-STICK Building Tape® utilizes a high tack pressure sensitive adhesive (PSA) combined with a high performance toughened film. It is a greener and cleaner building tape solution that contains No VOC's, HFCC's, nor CFC's. It is non-toxic and non-allergenic. No more issues with sealant compatibility at the design or installation stage.

## BENEFITS

- Can be installed in extremely cold conditions to -6 deg˚C*
- Easy to install peel-and-stick application
- UV resistant for 90 days
- Compatible with most sealants, check suitability with sealant manufacturer
- Can be used with RAB systems – Plywood, fibre cement sheet
- Split back liner for easy install
- Can be installed in very hot conditions
- Extremely high puncture resistance and tensile strength
- Residential and Commercial applications
- Very thin and no build up and won't affect cavity battens or window installation
- BRANZ SUPER-STICK #846 (2019)
- CodeMark CM70015 (2019)
- Forms part of the Marshall Weatherization System

Note: Protecto SUPER-STICK Tape® can be applied in extreme cold weather; however we do not recommend applying tapes below 0˚C due to health and safety reasons. * When applying over any waterproofing membrane check for compatibility.

BRANZ Appraised
Appraisal No.846 [2019]

Tasman District Council / AlphaOne Multiproof Approval – 107

G.J. Gardner. HOMES

# Roofing & Soffit

For

## Multiproof Application

At

## Lot 363-367 DP 561194
## Street address 12,14,16,18,20 Kahikatea Way, Richmond.

For

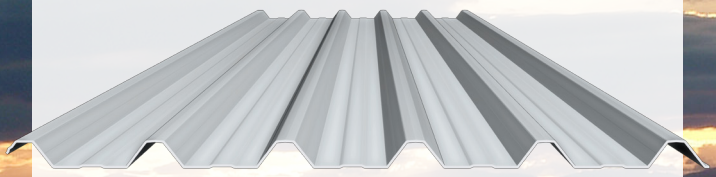
## G.J Gardner Homes Nelson (LSK Builders 2011 Ltd).

Tasman District Council / AlphaOne Multiproof Approval – 107

BC220131 Tasman District Council - APPROVED DOCUMENTS 23/02/2022


# SIX RIB

A modern profile fashioned for maximum strength. Six Rib is suitable for a variety of domestic, commercial and industrial roofing uses.



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FREEMAN GROUP E.R. FREEMAN LTD

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Queenstown | 03 442 3883

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*All profile dimensions are nominal*

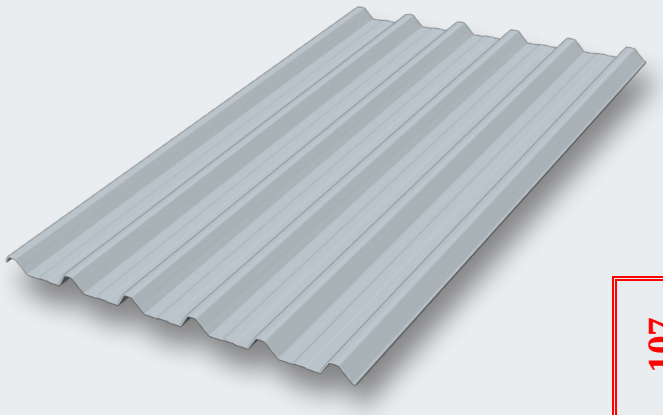
### Stength
The rib height and rib spacing makes it a very strong roofing profile, suitable for low pitch roofing.

### Long Run
Modern roll forming technology allows Five Rib roofing and cladding to be manufactured in continuous lengths.

### Colour Choice
A wide range of standard colours is available with additional colours and coatings available on request.

### Crimp-curving
Six Rib can be crimp-curved.

### Pan Swage
The pan swage enhances appearance.



## MATERIALS & DURABILITY

Six Rib is available in:

| | Thickness (BMT) | |
|---|---|---|
| **Colorsteel®** | .40mm G550 | .55mm G550 |
| **Zincalume®** | .40mm G550 | .55mm G550 |
| **Galvsteel™** | .40mm G550 | .55mm G550 |
| **Aluminium** (plain & prepainted) | .70mm | .90mm |

Also available in other non-ferrous metals.

Various types of coatings are available to suit all environments including industrial and coastal conditions.

For optimum performance, the severity of the environment in which the cladding will be installed should determine both the metal and type of coating to be used.

## DESIGN REQUIREMENTS

The minimum pitch for Six Rib is 3°.

Six Rib will spring curve to a minimum radius of 20m for .40mm BMT G550.

Specifications and product performance statements for specific projects are available upon request prior to project commencement.

## ROOFING ACCESSORIES

A full range of accessories including rainwater goods, flashing, underlays, fasteners and matching translucent sheeting are available.

*For additional information please refer to:*
- *New Zealand Steel Installers Guide*
- *New Zealand Steel Specifiers & Builders Guide*
- *New Zealand Steel Metal Roof and Wall Cladding Code of Practice*

## MAINTENANCE

To Prevent the accumulation of dirt or other material not removed by rain, manual washing is required.

Recommended washing frequency based on environment:

| | Environmental conditions | |
|---|---|---|
| | **Severe** | **Moderate** |
| **Cladding** | Every 6 months | Every 12 months |
| **Sheltered Areas*** | Every 3 months | Every 6 months |

**Areas that do not receive adequate rain washing e.g. soffits, wall cladding under eaves, underside of gutters, fascias, sheltered areas of garage doors, unwashed roof areas.*

Surfaces should not be in continuous contact with moisture and all debris must be removed (applies mainly to gutters).

With the first sign of surface corrosion the affected are should be cleaned, spot primed and repainted. Any fixings that have deteriorated to a point where leakage is evident should be replaced.

Fading will occur over time. Periodic over-painting will be necessary to retain aesthetic value.

## WARRANTY

Six Rib is covered by warranty for:
- Coating performance
- Corrosion resistance
- Substrate integrity

Warranty is subject to the use of the appropriate product for the environment.

A written warranty is available on request.

## MAXIMUM SPAN

For 1.1kn Concentrated Load for G550 Steel

| Location of span | Thickness (BMT) | |
|---|---|---|
| | .40mm | .55mm |
| **Roof End Span** | 1000 | 1100 |
| **Roof Intermediate Span** | 1500 | 1800 |
| **Wall End Span** | 1400 | 1900 |
| **Wall Intermediate Span** | 2000 | 2700 |

Single spans should be limited to 80% of the above end spans.

Purlin spacing should be reduced in high traffic areas or areas supporting items such as air conditioning units or walkways that are provided for maintenance.

## FASTENINGS

Recommended roof fasteners:

| | |
|---|---|
| **Nails** | 75mm |
| **Timbertites** | 12g x 65mm |
| **Steeltites** | 12g x 55mm |

Wall fastenings also available. The fastener and its coatings must be compatible and suitable for environment and roofing product.

## SHEET COVER

| | |
|---|---|
| **1 x Sheet** | 800mm |
| **2 x Sheet** | 1530mm |
| **3 x Sheet** | 2270mm |
| **4 x Sheet** | 3000mm |
| **5 x Sheet** | 3740mm |
| **6 x Sheet** | 4470mm |
| **7 x Sheet** | 5210mm |
| **8 x Sheet** | 5940mm |
| **9 x Sheet** | 6680mm |
| **10 x Sheet** | 7410mm |

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James Hardie
a smarter way™

# James Hardie®
## EAVES AND SOFFITS

# Installation Manual

Tasman District Council / AlphaOne Multiproof Approval – 107

**AUGUST 2017** | NEW ZEALAND

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## WE VALUE YOUR FEEDBACK

To continue with the development of our products and systems, we value your input. Please send any suggestions, including your name, contact details, and relevant sketches to:

**Ask James Hardie™**
Fax 0800 808 988
literaturefeedback@jameshardie.co.nz

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# 1 Introduction

**James Hardie have a wide range of soffit linings and pre-finished soffit linings that enable you to create the look you want.**

Cool, wide soffits and verandahs have, over the years, been a feature which specifiers have used to provide shade from the hot summer sun and to give UV protection to exterior paintwork and interior fabrics.

Today's high energy costs demand that all avenues be explored to develop cost-efficient ways for keeping our homes cool. One of these methods — tried and proven — is the use of wide soffits, verandahs and covered outdoor living areas. James Hardie products are resistant to fire and damage from moisture and rotting when installed and maintained as directed.

James Hardie HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining and Villaboard Soffit Lining are not suitable for use as a cladding.

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## 1.1 HardieSoffit™ LINING

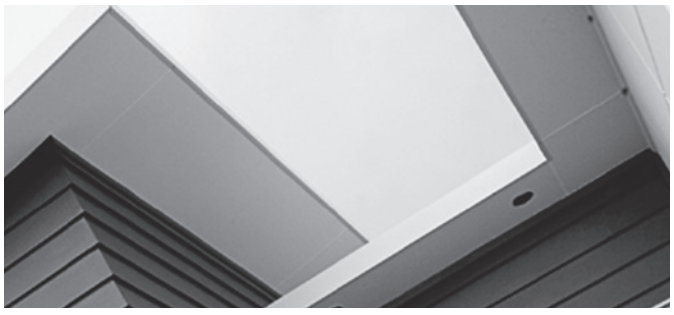
HardieSoffit™ Linings are 4.5mm thick and are specifically manufactured for the narrow soffit around the perimeter of the house or building. Standard widths of 450mm, 600mm and 750mm are available.

- HardieSoffit Linings have an unsanded finish suitable for semi-gloss acrylics or lightly textured semi-gloss or high-gloss coatings. Smooth high-gloss coatings must be avoided as some surface undulations may be visible in critical light.
- HardieSoffit Linings can be nail-fixed to timber or mechanically fixed to a steel frame.
- HardieSoffit Linings can be uPVC jointed or the joints can be left expressed.

## 1.2 HardieFlex™ EAVES LINING

HardieFlex™ Eaves Lining are 4.5mm in thickness and are available in wider widths for use in wider soffits, ceilings and verandahs. They are complementary to the HardieSoffit Lining and are fixed and jointed in a similar way.

- HardieFlex Eaves Lining has an unsanded finish suitable for semi-gloss acrylics or lightly textured coatings. Smooth high-gloss coatings must be avoided as some surface undulations may be visible in critical light.
- HardieFlex Sheet 6mm, can also be used in eaves application for extra rigidity on larger spanning eaves.
- When higher impact or wind resistance is required, 6mm thick HardieFlex Sheet is used.



## 1.3 Eclipsa™ EAVES LINING

Eclipsa™ Eaves Lining is a 4.5mm thick, pre-finished acrylic eave providing innovative style and enduring performance.

- Easy to install, saving both time and money.
- A slipsheet minimises surface marks on paint during transportation and installation.

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## 1.4
# HardieGroove™
SOFFIT LINING

HardieGroove™ Soffit Lining has the charm of traditional tongue and groove timber panelling, but has all the qualities of a modern James Hardie fibre cement product. It's perfect for enhancing design lines on modern buildings or renovating old villas and bungalows.

- HardieGroove Soffit Lining comes with a half groove length ways along the edge of the sheet to achieve concealed joints.

## 1.5
# Villaboard®
SOFFIT LINING

Villaboard® Soffit Linings are 6mm and 9mm in thickness to suit both residential and commercial applications. The recessed edges are suitable for flush jointing to give a smooth flush finish. Ideal for larger sized soffits.

- The sheets are fully sanded to give a smoother face surface.
- Two long sheet edges are supplied with a recessed finish and site-cut edges can be readily ground on site. Other combinations are also available. Refer Table 2, page 5.
- Square-edge sheets are also available. These sheets can be used for the alternative expressed, sealant-filled or uPVC joint finish.

This manual covers the use of HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining, and Villaboard Soffit Lining in external eave and soffit applications. Further technical literature relating to these products and internal linings are available from James Hardie in the following manuals:

- HardieFlex Sheet Technical Specification.
- Villaboard Lining Installation Manual.
- HardieGroove Lining Installation Manual.
- Fire and Acoustic Design Manual.

The specifier or other responsible party for the project must ensure the information and details in this manual are appropriate for the intended application and specific design and detailing is undertaken for areas which fall outside the scope of this document.

### MAKE SURE YOUR INFORMATION IS UP TO DATE

When specifying or installing James Hardie products, ensure you have the current manual. If you're not sure you do, or you need more information, visit www.jameshardie.co.nz or Ask James Hardie™ on 0800 808 868.

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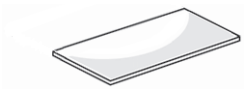
## 1.6 PRODUCT DESCRIPTION

Table 1

**HardieSoffit Lining Sheet Sizes**

Square–cut edge for use with jointers

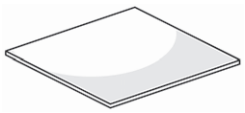


| Length (mm) | Mass (kg/m²) | Width 1200mm | | |
|---|---|---|---|---|
| | | 450 | 600 | 750 |
| 4.5mm thickness | 6.5 | | | |
| 2400 | | 401948 | 401947 | 401946 |

Table 2

**HardieFlex Eaves Lining Sheet Sizes**

Square-cut edge for use with jointers

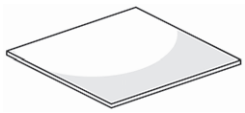


| Width (mm) | Mass (kg/m²) | Length (mm) | | | |
|---|---|---|---|---|---|
| | | 1800 | 2400 | 2700 | 3000 |
| 4.5mm thickness | 6.5 | | | | |
| 900 | | | 400194 | | |
| 1200 | | 400190 | 400187 | 400185 | 400183 |

Table 3

**Eclipsa Eaves Lining Sheet Sizes**

Pre-finished square-cut edge sheet for use with jointers

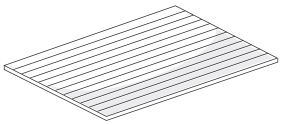


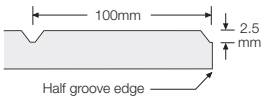
| Length (mm) | Mass (kg/m²) | Width (mm) | |
|---|---|---|---|
| | | 600 | 1200 |
| 4.5mm thickness | 6.6 | | |
| 2400 | | 404807 | 404808 |

Table 4

**HardieGroove Soffit Lining Sheet Sizes**

Half groove length ways to achieve concealed joints





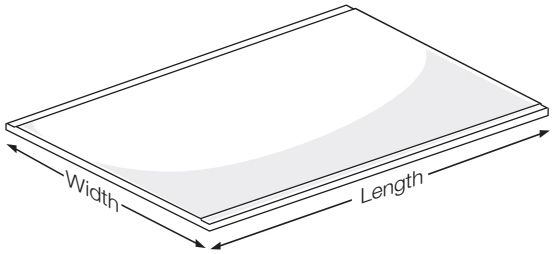

| Length (mm) | Mass (kg/m²) | Width (mm) |
|---|---|---|
| | | 1200 |
| 7.5mm thickness | 10.4 | |
| 2400 | | 400246 |
| 2700 | | 400245 |

Table 5

**Villaboard Soffit Lining Sheet Sizes**

Smooth recessed edge for flush jointing.
Square-cut edge also available for use with jointers.

Villaboard Lining 6mm has no chamfer on square edge sheet.
Villaboard Lining 9mm has small chamfer on square edge sheet.




| Length (mm) | Mass (kg/m²) | Width 1200mm | | |
|---|---|---|---|---|
| | | Edge Finish | | |
| | | 4 rec/ edges | 2 rec/ edges (long) | Square edges |
| 6mm thickness | 8.6 | | | |
| 2400 | | 400432 | 400429 | 400444 |
| 2700 | | | 400428 | |
| 3000 | | | 400427 | 400442 |
| 9mm thickness | 12.4 | | | |
| 2400 | | 400439 | 400436 | 400445 |
| 2700 | | | 400435 | |
| 3000 | | | 400434 | 400059 |

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## 1.7 ACCESSORIES

Table 6

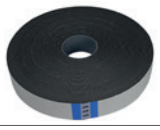
| HardieFlex™ Eaves Lining And HardieSoffit™ Lining — Accessories / Tools Supplied by James Hardie | | | | | |
|---|---|---|---|---|---|
| **Accessories** | **Description** | **Product Code** | **Accessories** | **Description** | **Product Code** |
| | **Soffit 4.5mm PVC 2-way Jointer**<br>2400mm long, uPVC / White | 300915 | | **Hardiejointer 5mm**<br>uPVC / White<br>2400mm long<br>750mm long<br>600mm long<br>450mm long | <br><br>300729<br>300921<br>300920<br>300919 |
| | **6mm Hardiejointer**<br>uPVC/Bone colour<br>2400mm long<br>3000mm long | <br><br>300730<br>300734 | | **HardieFlex 5mm Capping Mould**<br>2400mm long, uPVC / White | 300538 |
| | **6mm Capping Mould**<br>uPVC/Bone colour<br>2400mm long<br>3000mm long | <br><br>300539<br>300540 | | **Scotia Mould (base and cap)**<br>2400mm long, uPVC / White | 300916 |
| | **Fastfix Fasteners**<br>38 x 12mm, Nylon / White | 300632 |  | **Inseal 3259**<br>1.5mm thick<br>50mm wide x 50m long,<br>Black compressible foam | 300767 |
| | **HardieKnife™**<br>Scoring tool for easy cutting. | 305926 | | | |

Table 7

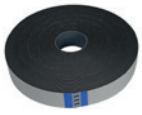
| Eclipsa Eaves Lining — Accessories / Tools Supplied by James Hardie | | | | | |
|---|---|---|---|---|---|
| **Accessories** | **Description** | **Product Code** | **Accessories** | **Description** | **Product Code** |
| | **Hardiejointer 5mm uPVC**<br>2400mm long<br>750mm long<br>600mm long<br>450mm long | <br>300729<br>300921<br>300920<br>300919 | | **Soffit 4.5mm PVC 2-way Jointer**<br>2400mm long, uPVC / White | 300915 |
| | **Soffit Scotia Mould (base and cap)**<br>2400mm long, uPVC / White | 300916 | | **HardieFlex Capping Mould 5mm**<br>2400mm long, uPVC / White | 300538 |
| | **Fastfix Fasteners**<br>38 x 12mm, Nylon / White | 300632 |  | **Inseal 3259**<br>1.5mm thick<br>50mm wide x 50m long,<br>Black compressible foam | 300767 |
| | **Eclipsa Eaves Lining Touch-up Paint**<br>15ml | Free<br><br>Ask James Hardie on 0800 808 868 | | **HardieKnife™**<br>Scoring tool for easy cutting. | 305926 |

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Table 8

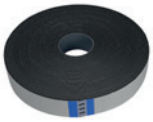
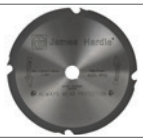
| HardieGroove Soffit Lining — Accessories / Tools Supplied by James Hardie | | | | | |
|---|---|---|---|---|---|
| **Accessories** | **Description** | **Product Code** | **Accessories** | **Description** | **Product Code** |
| | **Soffit Scotia Mould (base and cap)**<br>2400mm long, uPVC / white | 300916 |  | **Inseal 3259**<br>1.5mm thick<br>50mm wide x 50m long, black compressible foam | 300767 |
|  | **HardieBlade Saw Blade**<br>Ø184mm poly crystalline diamond blade, for fast, clean cutting of James Hardie fibre cement. | 300660 | | **James Hardie Base Coat**<br>Base compound for filling over screws.<br>4kg Pail<br>15kg Bag | <br><br><br>304490<br>304491 |
| | **HardieDrive Screw s/s 316**<br>30mm x 7g. 100 per jar<br>For fastening to timber frames. | 300928 | | **Villadrive Screw 6g x 30mm**<br>For fastening to timber frames.<br>100/jar<br>5kg Box<br>Collated/ 1000 | <br><br>300992<br>300993<br>300994 |
| | **HardieKnife™**<br>Scoring tool for easy cutting. | 305926 | | | |

Table 9

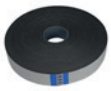
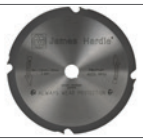
| Villaboard® Soffit Lining — Accessories / Tools Supplied by James Hardie | | | | | |
|---|---|---|---|---|---|
| **Accessories** | **Description** | **Product Code** | **Accessories** | **Description** | **Product Code** |
| | **Soffit Scotia Mould (base and cap)**<br>2400mm long, uPVC / White | 300916 |  | **Inseal 3259**<br>1.5mm thick<br>50mm wide x 50m long, Black compressible foam | 300767 |
| | **Hardiejointer 6mm**<br>uPVC / Bone colour<br>2400mm long<br>3000mm long | <br><br>300730<br>300734 | | **9mm Hardiejointer**<br>uPVC / Bone colour<br>3000mm long | 300736 |
| | **HardieFlex Capping Mould 6mm**<br>uPVC / Bone colour<br>2400mm long<br>3000mm long | <br><br>300539<br>300540 | | **Control Joint**<br>2700mm long, uPVC / White | 300978 |
| | **Corner Angle**<br>uPVC<br>3000mm long | 300669 | | **James Hardie Top Coat**<br>Topping compound for flush finished jointing.<br>3kg Pail<br>15kg Pail | <br><br><br>304492<br>304493 |
| | **James Hardie Base Coat**<br>Base compound for flush finished jointing.<br>4kg Pail<br>15kg Bag | <br><br><br>304490<br>304491 |  | **HardieBlade Saw Blade**<br>Ø184mm poly crystalline diamond blade, for fast, clean cutting of James Hardie fibre cement. | 300660 |
| | **HardieDrive Screw s/s 316**<br>30mm x 7g 100 per jar<br>For fastening to timber frames. | 300928 | | **Villadrive Screw 6g x 30mm**<br>For fastening to timber frames.<br>100/jar<br>5kg Box<br>Collated/1000 | <br><br>300992<br>300993<br>300994 |
| | **FibreZip® Screws**<br>Self drilling rib head screw<br>Box 1000 | 303840 | | **HardieKnife™**<br>Scoring tool for easy cutting. | 305926 |

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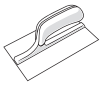
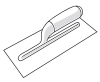
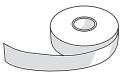
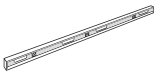
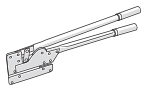
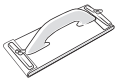
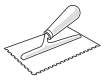
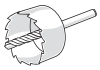
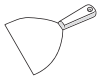
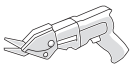
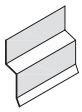
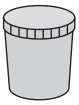
Table 10

## Components Not Supplied by James Hardie

James Hardie recommends the following products for use in conjunction with its eaves and soffit linings. James Hardie does not supply these products. Please contact component manufacturer for information on their warranties and further information on their products.

| Accessories | Description | Accessories | Description |
|---|---|---|---|
| | **HardieFlex Nail**<br>40 x 2.8mm galvanised or stainless steel nails. |  | **Second Coat Trowel 200mm**<br>For installing second coats on set joints on Villaboard Lining. |
| | **Rondo P35**<br>Control joint used in movement joints. |  | **Finishing Coat Trowel**<br>For installing top coats on set joints on Villaboard Lining. |
|  | **Perforated Paper Tape**<br>Joint reinforcing tape. | | **Corner Tool**<br>For setting of internal corners on Villaboard Lining. |
|  | **Level/straight Edge**<br>For checking straightness of frame. | | **Hawk**<br>To assist in the application of finishing compounds especially with the use of trowels. |
|  | **Hand Guillotine**<br>Guillotine for cutting fibre cement. |  | **Hand Sander**<br>For sanding set joints on Villaboard Lining. |
| | **Collated Screw Gun** |  | **Notched Trowel**<br>For applying tile adhesive to face of Villaboard Lining. |
|  | **Hole Saw** |  | **Broadknife 150mm**<br>For setting of joints on Villaboard Lining. |
|  | **Electric shear/Fibreshear**<br>For cutting Villaboard Soffit Lining, HardieGroove Soffit Lining, HardieSoffit Lining, HardieFlex Eaves Lining. |  | **Flashing to Table 20 'E2/AS1'**<br>Flashing fabricator |
| | **Flashing Tape**<br>Proprietary tape to adhere to building wrap.<br>Tyvek, Protecto wrap or similar | | **Flexible Joint Sealant**<br>Tube<br>Sikaflex MS or similar |
| | **Masking Tape**<br>3M Scotch™ Blue 2090 - I8E 70006576972 or Sellotape 5855 Long Life | | **Paperback Corners**<br>'Goldline' corner moulds |
| | **Polyurethane Tape** | | **Adhesive Sealant**<br>Sikaflex-11FC by Sika<br>Seal N Flex-1 by Bostik |
|  | **Acrylic Paint**<br>Dulux X10 or similar brand | | **Waterproofing Admixture**<br>Multiplast Resin by Plaster Systems. Used in diluted form over Villaboard Lining sheet edges to control moisture suction before flush stopping. |

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# 2 Safe working practices

## STAY HEALTHY WHEN WORKING WITH BUILDING PRODUCTS CONTAINING CRYSTALINE SILICA

**Crystalline Silica**
What is it? Why and when is it a health hazard?

**Crystalline Silica is**
- Commonly known as sand or quartz
- Found in many building products e.g. concrete, bricks, grout, wallboard, ceramic tiles, and all fibre cement materials

**Why is Crystalline Silica a health hazard?**
- Silica can be breathed deep into the lungs when present in the air as a very fine (respirable) dust
- Exposure to silica dust without taking the appropriate safety measures to minimise the amount being breathed in, can lead to a potentially fatal lung disease – silicosis – and has also been linked with other diseases including cancer. Some studies suggest that smoking may increase these risks.
- The most hazardous dust is the dust you cannot see!

**When is Crystalline Silica a health hazard?**
- It's dangerous to health if safety protocols to control dust are not followed when cutting, drilling or rebating a product containing crystalline silica.
- Products containing silica are harmless if intact (e.g. an un-cut sheet of wall board).

**FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS AND INSTALLATION INSTRUCTIONS WHEN WORKING WITH JAMES HARDIE PRODUCTS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.**

## AVOID BREATHING IN CRYSTALLINE SILICA DUST!

**Safe working practices**
- NEVER use a power saw indoors or in a poorly ventilated area
- NEVER dry sweep
- ALWAYS use M Class extractor unit as a minimum and always hose down with water/wet wipe for clean up
- NEVER use grinders
- ALWAYS use a circular sawblade specifically designed to minimise dust creation when cutting fibre cement – preferably a sawblade that carries the HardieBlade™ logo or one with at least equivalent performance.
- ALWAYS follow tool manufacturers' safety recommendations
- ALWAYS expose only the minimum required depth of blade for the thickness of fibre cement to be cut
- ALWAYS wear an approved properly-fitted, approved dust mask (P1 or P2) or respirator

**Use one of the following methods based on the required cutting rate:**

**BEST**
- HardieKnife™
- Hand guillotine
- Fibreshear

**BETTER**
- Dust reducing circular saw equipped with HardieBlade™ Saw Blade and M Class extractor unit.

**GOOD**
- Dust reducing circular saw with HardieBlade™ Saw Blade

**Working outdoors**
- Make sure you work in a well ventilated area
- Position cutting station so wind will blow dust away from yourself and others in the working area
- Cut products with either a HardieKnife or fibre cement shears or, when not feasible, use a HardieBlade™ Saw Blade (or equivalent) and a dust-reducing circular saw attached to a M Class extractor unit
- When sawing, sanding, rebating, drilling or machining fibre cement products, always:
  - Wear your P1 or P2 mask (correctly fitted in accordance with manufacturers' instructions) and when others are close by, ask them to do the same
  - If you are not clean shaven, then use a powered air respirator with a loose fitting head top.
  - Wear safety glasses
  - Wear hearing protection
  - When others are close by, ask them to do the same.

**Working indoors**
- Never cut using a circular saw indoors
- Position cutting station in a well ventilated area
- Cut ONLY using a HardieKnife, hand guillotine or fibreshears (manual, electric or pneumatic)
- Make sure you clean up BUT never dry sweep. Always hose down with water/wet wipe or use an M Class extractor unit

**IF CONCERN STILL EXISTS ABOUT EXPOSURE LEVELS OR YOU DO NOT COMPLY WITH THE ABOVE PRACTICES, YOU SHOULD ALWAYS CONSULT A QUALIFIED INDUSTRIAL HYGIENIST.**

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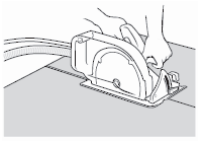
### Working Instructions

- Refer to Recommended Safe Working Practices before starting any cutting or machining of product.

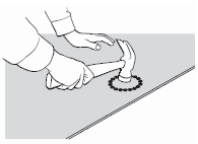


### HardieBlade™ Saw Blade

The HardieBlade™ Saw Blade used with a dust-reducing saw is ideal for fast, clean cutting of James Hardie fibre cement products. A dust-reducing saw uses a dust deflector or a dust collector connected to a vacuum system. When sawing, clamp a straight-edge to the sheet as a guide and run the saw base plate along the straight edge when making the cut.

### Hole-Forming

**For smooth clean cut circular holes:**



- Mark the centre of the hole on the sheet.
- Pre-drill a 'pilot' hole.
- Using the pilot hole as a guide, cut the hole to the appropriate diameter with a hole saw fitted to a heavy duty electric drill.

**For irregular holes:**

- Small rectangular or circular holes can be cut by drilling a series of small holes around the perimeter of the hole then tapping out the waste piece from the sheet face.
- Tap carefully to avoid damage to sheets, ensuring that the sheet edges are properly supported.

## STORAGE & DELIVERY

### Keeping products and people safe

### Off loading

- James Hardie products should be off-loaded carefully by hand or by forklift.
- James Hardie products should not be rolled or dumped off a truck during the delivery to the jobsite.

### Storage

**James Hardie products should be stored:**

- in their original packaging
- under cover where possible or otherwise protected with a waterproof covering to keep products dry
- off the ground – either on a pallet or adequately supported on timber or other spacers
- flat so as to minimise bending

**James Hardie products must not be stored:**

- directly on the ground
- in the open air exposed to the elements

**JAMES HARDIE IS NOT RESPONSIBLE FOR DAMAGE DUE TO IMPROPER STORAGE AND HANDLING.**

## TIPS FOR SAFE AND EASY HANDLING

### Weatherboard products

- Do not lift planked products flat and in the middle
- Carry the products on the edge
- If only one person is carrying the product, hold it in the middle and spread arms apart to better support the product
- If two people are carrying the plank, hold it near each end and on edge
- Exercise care when handling weatherboard products to avoid damaging the edges/corners

### Sheet products

- Carry with two people
- Hold near each end and on edge
- Exercise care when handling sheet products to avoid damaging the edges/corners

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# 3 Framing

## 3.1 TIMBER FRAME

Timber framing must be in accordance with NZS 3604 Timber Frame Buildings.

Specific design to NZS 3603 and AS/NZS 1170 can also be undertaken providing that:

- the framing centres do not exceed those given in this specification
- the framing member widths conform to this specification.

Also refer to the Approved Document for NZBC Clause B2 'Durability' and NZS 3602 (Timber and Wood-Based Products for use in Buildings) regarding timber treatment requirements and allowable moisture contents in timber for various components of the building. Also refer to the framing manufacturer's literature for further guidance on the use of treated timber.

## 3.2 STEEL FRAME

The figures in this brochure are drawn for timber framing. However, steel framing and furring channels can also be used.

All metal framing centres are to be the same as specified for timber frame in this manual.

Steel framing members must be fabricated from light-gauge sheet steel 0.55mm thick minimum to 1.6mm maximum. If heavier sections are used difficulties may be experienced in fixing the self-drilling, self-tapping fasteners. Refer to specific details for the minimum flange width requirements.

Sheets must not be fixed directly to drawn steel or hot-rolled steel sections. These must first be battened out with ex 50mm-thick (40mm minimum) timber battens or light-gauge metal furring channels.

Screw-fix 6mm or thicker sheets only.

Screw fixings can be finished flush or sunk a maximum of 0.5mm below the sheet surface ready for filling.

NOTE: The fasteners must not be over driven as will reduce the holding capaciity of the sheet.

## 3.3 FRAMING SET-OUT

For the framing set-out of up to 600mm-wide soffit refer to Figure 1.

For the framing set-out of 601mm to 1200mm wide soffits refer to Figure 2.

### 3.3.1 Pre-finished steel fascia/gutters

When pre-finished steel fascia/gutters are used the soffit edge must be supported 4mm minimum into fascia recess, similar to Figure 10.

Ribbon board to be continuous for product fixing.

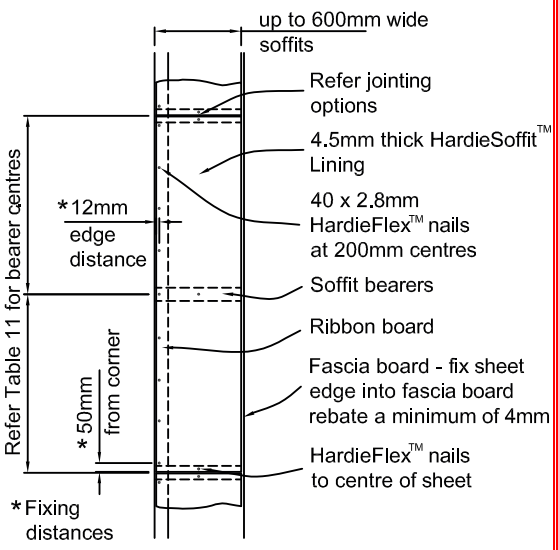
NOTE: Because of the limited fascia groove available with some metal fascias a supporting ribbon board will be required with fixings at 300mm centres maximum. Pre-finished soffits can distort due to surface tension when adequate edge support is not provided.

Table 11

| Eaves Lining Framing Centres | | |
|---|---|---|
| **Eaves And Soffit Width (mm)** | **Wind Zone** | **Max. Soffit Bearer Centres (mm)** |
| Up to 450 | L, M | 1200 |
| | H, VH | 900 |
| 451 - 600 | L, M | 1200 |
| | H, VH | 600 |
| 601 - 1200 | L, M, H, VH | 600 |
| Various | EH* | 600 |

*HardieFlex Sheet 6mm or Villaboard Lining 6mm must be used in EH Wind Zone with soffit bearers maximum 600mm centres.

Figure 1: Eaves and soffit up to 600mm




**Notes**

1. HardieFlex™ nails are the usual fixing method for HardieSoffit™ Lining. The fastfix method can also be used as an alternative.
2. When fastfix fastenings are used refer to Table 7 and Figure 8 and 9.

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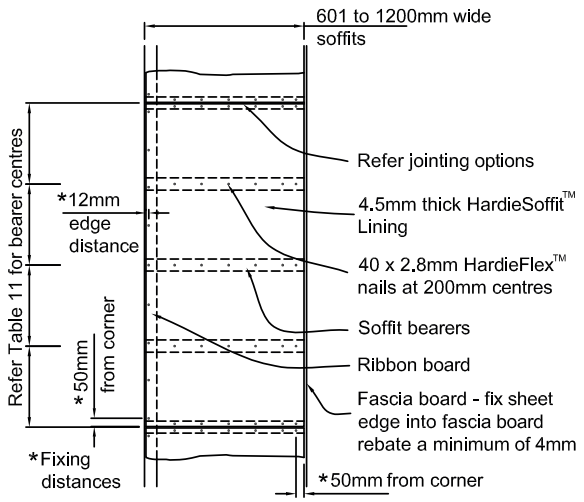
Figure 2: Eaves and soffits 601mm to 1200mm




1. HardieFlex™ nails are the usual fixing method for HardieSoffit™ Lining. The fastfix method can also be used as an alternative.
2. When fastfix fastenings are used refer to Table 7 and Figure 8 and 9.

NOTE: Because of the limited fascia groove available with some metal fascias a supporting ribbon board will be required with fixings at 300mm centres maximum. Pre-finished soffits can distort due to surface tension when adequate edge support is not provided.

## 3.4 BATTEN REQUIREMENTS

Battens are required when sheets are fixed over:

- Gypsum board exceeding 20mm in thickness
- Softboard, polystyrene or similar
- Concrete, masonry block or brick.

Timber battening is to be a minimum of 35mm deep x 40mm wide to achieve adequate sheet nail penetration.

Steel battens must be minimum 0.55mm thick, 23mm deep and have a bearing surface of 38mm min. Battens must be galvanised to meet the durability requirements of the New Zealand Building Code (NZBC) and fixed to manufacturer's specifications. All battening centres and sheet fixing is to be strictly in accordance with the framing and fixing required by this manual. Care must be taken to ensure the battens are packed and aligned to give a true even surface for the sheets to be fixed. Check the face of the battens with a long straight-edge before fixing sheets.

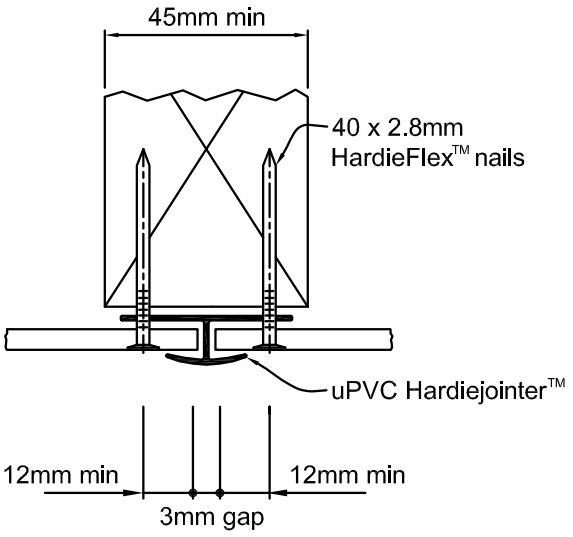
## 3.5 SKILLION ROOF DESIGN

When installing soffit linings direct to the under side of skillion roof framing, ensure that sufficient ventilation has been provided within the roof space. The temperatures within these smaller roof spaces can reach very high levels in certain conditions and this can cause cracking in flush stopped joints due to excessive movement in roof framing. Therefore the framing in skillion soffits and ceilings need a specific engineering design consideration.

General design guide for a narrow strip of flash stopped soffits is to provide a control joint at 4.8m centres.

General design guide for large flash stopped soffits is to provide control joints at 4.8m x 3.6m in either direction when fixing to this type of framing.

Figure 3: uPVC Hardiejointer detail

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# 4 Jointing options

- All soffit lining sheet edges must be supported by framing and/or a fascia board.

## HARDIESOFFIT LINING

- Refer to Figure 3 for uPVC Hardiejointer detail
- Refer to Figure 5 for express joint detail
- Refer to Figure 9 for two-way uPVC jointer

## HARDIEFLEX EAVES LINING

- Refer to Figure 3 for uPVC Hardiejointer detail
- Refer to Figure 4 for butt joint detail
- Refer to Figure 5 for express joint detail
- Refer to Figure 9 for two-way uPVC jointer

## ECLIPSA EAVES LINING

- Refer to Figure 3 for uPVC Hardiejointer detail
- Refer to Figure 8 for Fastfix Fasteners fixing detail. Use a 6mm diameter masonry drill bit to drill a hole and fix fasteners
- Refer to Figure 9 for Two-way uPVC Jointer

## HARDIEGROOVE SOFFIT LINING

- Sheets have half groove along the long edges for butt jointing
- Sheets to have chamfer formed on site along the short edge for butt jointing

## VILLABOARD SOFFIT LINING

- Refer to Figure 6 for flush joint details. Refer to Section 5.5 for flush jointing
- Refer to Figure 3 for uPVC Hardiejointer detail
- Refer to Figure 4 for butt joint detail
- Refer to Figure 5 for express joint detail
- Refer to Figure 7 for sealant joint detail

Figure 4: Butt joint detail

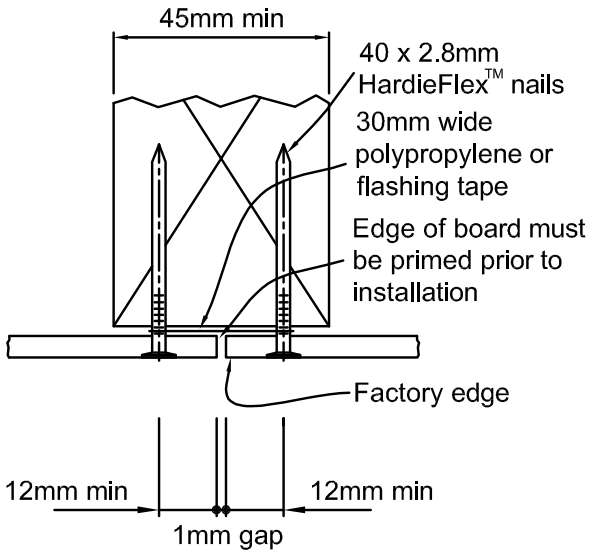



Figure 5: Expressed joint detail

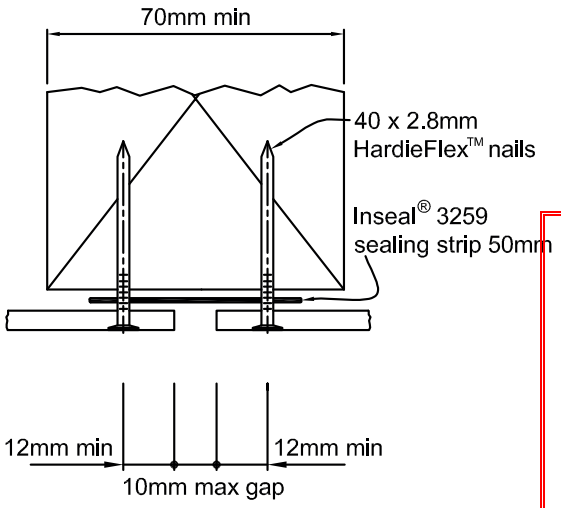



Figure 6: Vertical flush joint setout

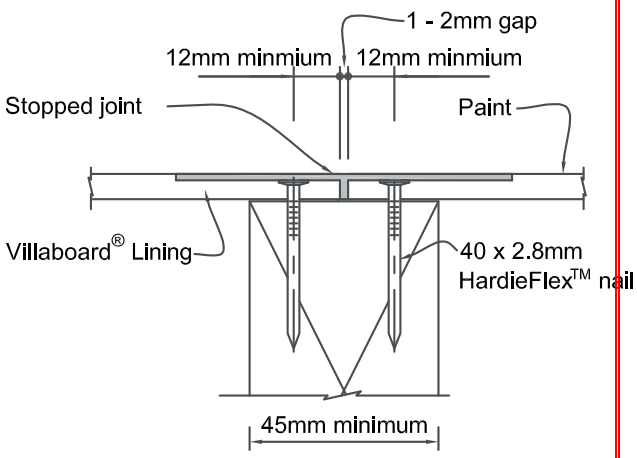
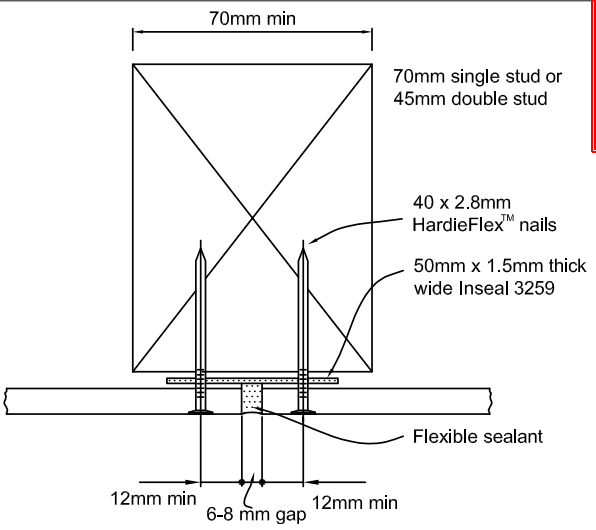



Figure 7: Sealant joint detail

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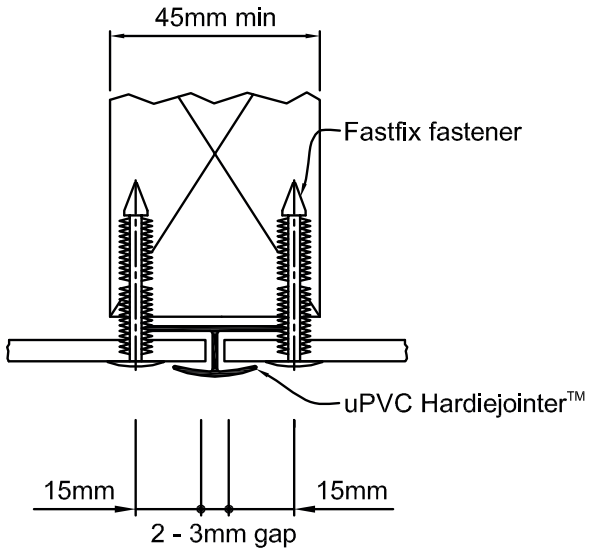
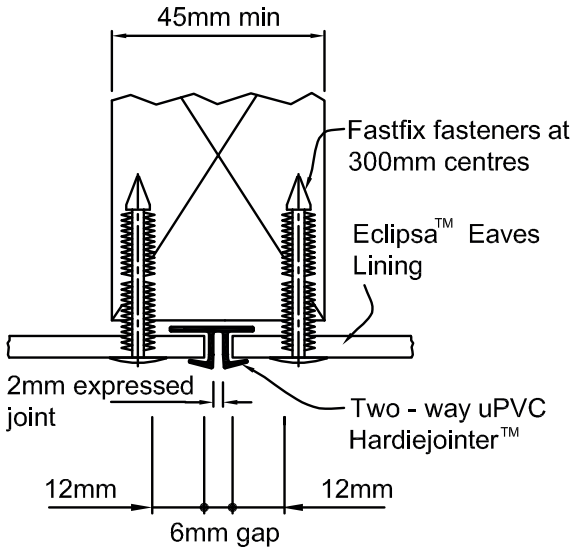
## Figure 8: Fastfix fastener fixing detail



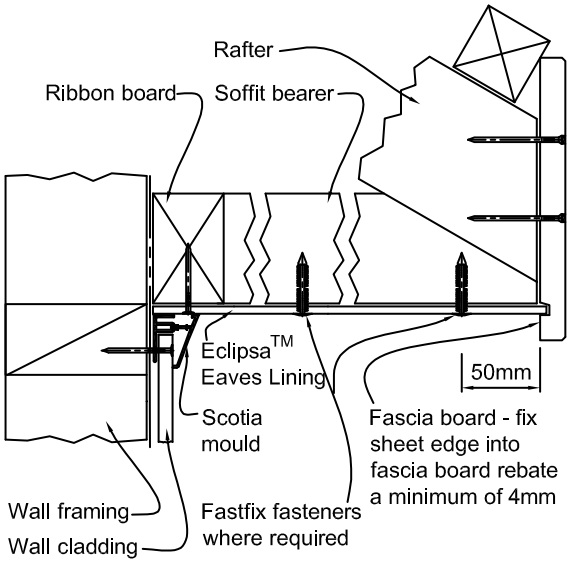

Note: Use a 6mm drill bit for drilling holes in sheet for fixing Fastfix fasteners.

## Figure 9: Two-way uPVC jointer

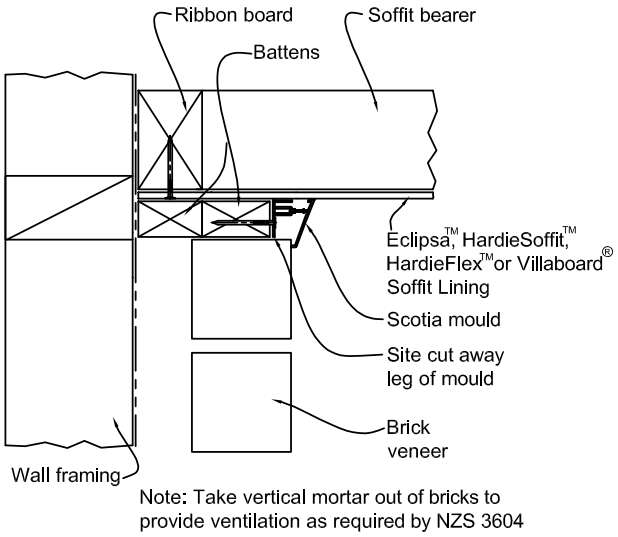



Note: Use a 6mm drill bit for drilling holes in sheet for fixing Fastfix fasteners.

## Figure 10: Cladding detail with scotia mould




## Figure 11: Brick veneer detail with scotia mould




Note: Take vertical mortar out of bricks to provide ventilation as required by NZS 3604

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# 5 Installation

This installation manual covers the use of James Hardie Eaves and Soffits for buildings within the scope of NZS 3604. For all other buildings specific engineering design is required.

## 5.1 GENERAL

Refer to Table 11 and Figure 1 and 2 regarding nail fixing centres, for framing and types of fasteners.

The eaves/soffits must be sealed against claddings to minimise moisture ingress behind the claddings. The roof must have been installed before installing the soffits linings. Where the soffits are sloping upwards away from the wall, a mechanical flashing must be provided in the soffit to wall junction. The flashing is fixed under soffit lining and laps over the face of cladding by 35mm minimum Refer to Figure 27 - Figure 30.

### 5.1.1 Drip Edge

All soffit linings must either be installed with a grooved fascia, refer Figure 10, or with exterior cladding which forms a drip edge below the soffit lining by 15mm minimum. Soffit linings are generally fitted into the recess formed in fascia board to form the drip edge.

### 5.1.2 Structural Ceiling Diaphragms

HardieFlex Eaves Lining and Villaboard Soffit Lining are suitable for use in structural ceiling diaphragms as per NZS 3604. Refer to the James Hardie Bracing Design Manual.

### 5.1.3 Curved Applications

HardieFlex Eaves Lining and Villaboard Soffit Lining can be used for curved applications.

The minimum bending radii are shown below.

Table 12

| Curved Soffit/Ceiling Minimum Bending Radii | |
|---|---|
| | **Along length (mm)** |
| 9mm Villaboard Lining | 3000 |
| 6mm Villaboard Lining | 1800 |
| HardieFlex Eaves Lining | 1800 |
| HardieSoffit Lining | 1800 |

NOTE: The bending radii given above require no pre-wetting of the sheet. Mechanical fix at 200mm centres maximum to entire framing.

To maintain the smoothness of the curve, ceiling battens are generally required at spacings as shown below.

Table 13

| Curved Lining — Soffit Batten Spacing | |
|---|---|
| **Range of Radii (mm)** | **Soffit batten spacing (mm)** |
| 1800 to 3000 | 300 |
| Above 3001 | 400 |

### 5.1.4 FIRE RATED SOFFITS

For full details refer to the James Hardie Fire and Acoustic Design Manual or Ask James Hardie on 0800 808 868.

## 5.2 FASTENER DURABILITY

Fasteners used in external applications must meet the minimum durability requirements of the NZBC. NZS 3604 specifies the requirements for fixing's material to be used in relation to the exposure conditions and are summarised in Table 14.

Table 14

| Exposure conditions and nail selection prescribed by NZS 3604 | | |
|---|---|---|
| **Zone / Nail Material** | | |
| Zone D* | Zone C outside sea spray zone and Zone B and geothermal hot spots | Bracing — All zones |
| Grade 316 Stainless | Hot-dipped galvanised or 316 stainless | Grade 316 Stainless |

* (Zone C areas where local knowledge dictates that increased durability is required, appropriate selection shall be made)

When using screws to fix into steel framing a minimum class-3 coated screw must be used.

## 5.3 HARDIESOFFIT LINING

For framing and fixing schedules refer to Section 3.

All sheet edges are to be supported by framing or a fascia board. Fixings are to be at 200mm centres to all framing (refer Figures 1 and 2).

HardieSoffit Lining up to a max. width of 600mm can be jointed up to a maximum 150mm off the ceiling/soffit batten when using uPVC jointers.

**NOTES**

1. Use of 6mm thick sheets will minimise the deflection and enhance the impact resistance.
2. Sheets can be jointed as per Section 4.
3. Do not screw fix 4.5mm thick sheets.

## 5.4 HARDIEFLEX EAVES LINING

For framing and fixing schedules refer to Section 3.

All sheet edges are to be supported by framing or a fascia board. Fixings are to be at 200mm centres to all framing (refer Figures 1 and 2).

**NOTES**

1. Use of 6mm thick sheets will minimise the deflection and enhance the impact resistance.
2. Sheets can be jointed as per Section 4.
3. Do not screw fix 4.5mm thick sheets.

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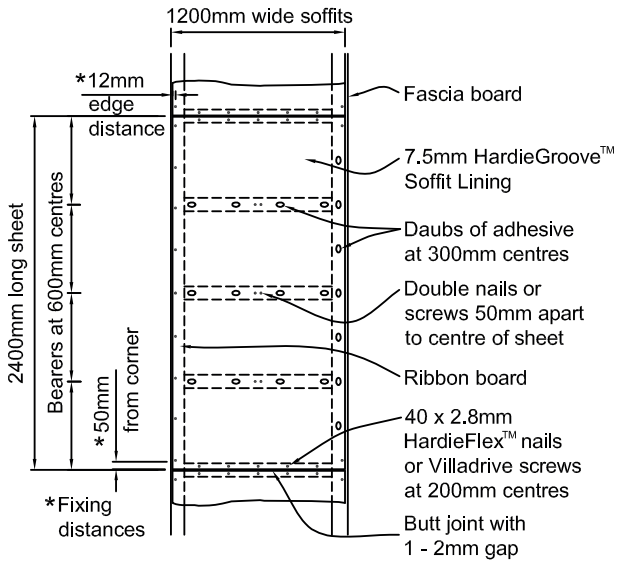
## 5.5 HARDIEGROOVE SOFFIT LINING FIXING METHOD

For framing and fixing schedules refer to Section 3.

The recommended fixing methods are combined nail and adhesive or screw and adhesive. (Refer Figure 12).

To achieve a concealed joint, butt the long edges together (half grooved). (Refer Figure 13).

Figure 12: Nail or screw and adhesive fixing



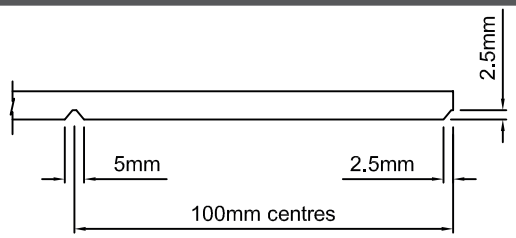

**NOTES**

1. Do not place nails or screws within 100mm of the adhesive daubs.
2. Fix with either HardieFlex nails 40 x 2.8mm (galvanised or 316 stainless steel), Villadrive wood screws or HardieDrive stainless steel 30mm x 7g wood screws.
3. Use only stainless steel fixings in sea spray zones.
4. When butt jointing short ends of HardieGroove Lining in ceiling/soffit applications, the short edges must be cut square and have chamfer formed.

Nails must be finished flush with the sheet surface. Screw heads can be finished 0.5mm below the sheet surface and stopped.

In steel framing the fasteners should be driven as close as possible to the stud corners to avoid deflection of the stud flange

Figure 13: Sheet edge and groove detail




Note: Sheets are grooved along the length of the sheet.

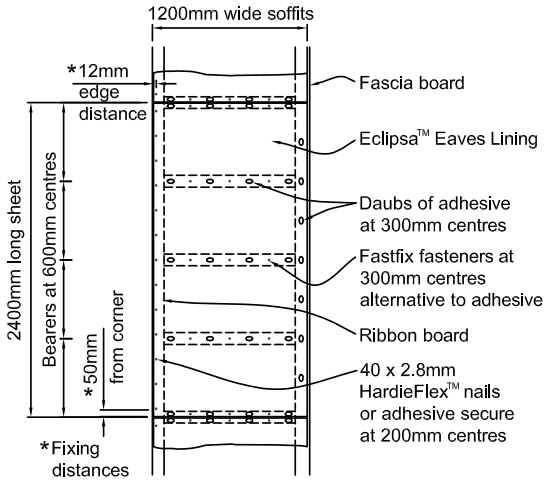
### 5.5.1 Finishing

Once the sheets are in place, fill over all driven fixings with James Hardie Base Coat to the required level of finish.

## 5.6 ECLIPSA EAVES LINING

- Eclipsa Eaves Lining are to be supported by bearers and fasteners at the maximum spacings specified for the 4.5mm sheets in Section 3, Table 11 and Figures 3, 8 and 9 of this manual
- To fix larger soffit, ceiling or verandah applications provide a perimeter frame to all sheet edges and intermediate nogging at the centres shown in Table 11.
- Fix the Eclipsa Eaves Lining into the fascia board groove then nail into the ribbon board at 300mm centres with 40 x 2.8mm HardieFlex nails. Ensure nails will be hidden by the scotia mould or timber scotia (refer Figures 10, 11 and 14).
- Use a 6mm-diameter masonry bit to drill holes and fix Fastfix fasteners (refer Figures 8 and 9).
- Eclipsa Eaves Lining up to a maximum 600mm width can be jointed up to a maximum 150mm off the ceiling/soffit batten when using uPVC jointers.

Figure 14: Fastfix fastener and adhesive fixing

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### 5.6.1 Fastfix fasteners

Fastfix fasteners (38mm long) can be used as an alternative fixing for prefinished soffit and ceiling systems in conjunction with adhesives. Drill a 6mm-diameter hole through the sheet and framing to insert the Fastfix fastener. In timber the hole must be 40mm deep.

### 5.6.2 Masking Tape

The recommended masking tape for use with Eclipsa Eaves Lining is 3M Scotch Blue I8E 2090 or Sellotape 5855 longlife. This tape can only be left on the Eclipsa Eaves Lining for maximum 7 days, otherwise tape removal may cause paint loss.

## 5.7 VILLABOARD SOFFIT LINING (SOFFITS UP TO 1200mm)

Villaboard Lining 6mm-thick is used when a smooth sanded sheet is required to achieve a painted flush finish.

Refer to the framing fixing schedule Section 3 Table 11, Figures 1 and 2, and finishing schedules on Section 6.

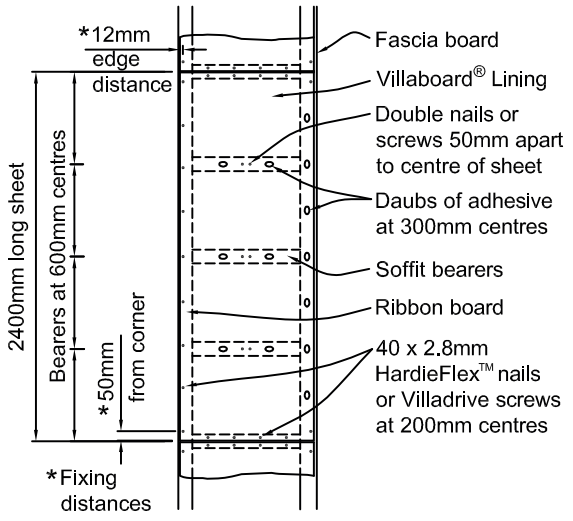
Refer to the flush jointing procedures, Section 6.

Fix with either HardieFlex nails 40 x 2.8mm (galvanised or 316 stainless steel), Villadrive sood screws or HardieDrive stainless steel 30mm x 7g wood screws

Screws finished 0.5mm below surface,

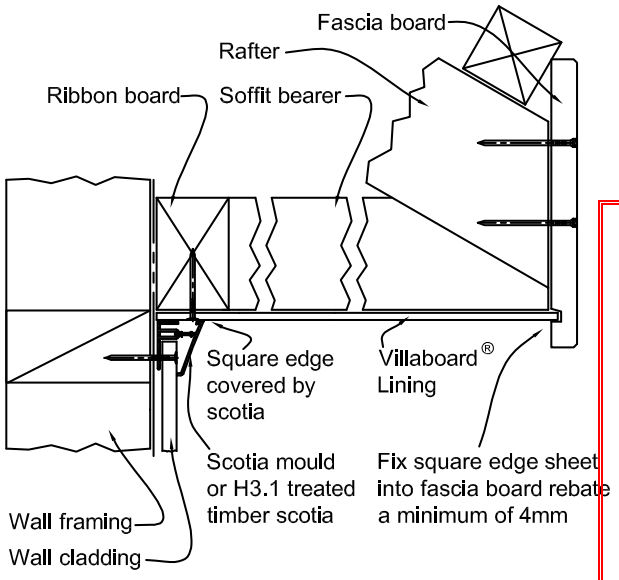
Nails finished flush with surface.

Figure 15: Nail/screw and adhesive fixed soffit




- Alternatively sheets can be fixed with nails / screws only at 200mm centres at sheet edges and 250mm centres at intermediate framing

Figure 16: Soffit cross section




### 5.7.1 Control Joints

Control joints are required in long runs of Villaboard Lining soffits/ ceilings to accommodate structural movement. Control joints must also be provided where the soffits change in direction, change in level, where there is a construction joint in framing or where the soffits continue into passage ways etc. See Table 15 for maximum control joint spacing and Figure 17 for a typical control joint detail.

### 5.7.2 Jointing Options

Villaboard Soffit Lining is suitable for:

- Flush-jointed narrow strip soffits around a building
- Flush-jointed ceilings over verandahs, porches and entryways to residential and small-scale commercial buildings
- Expressed, uPVC-jointed and sealant-filled joint ceilings where a smooth surface finish is required
- All edges to be supported by the framing.

Table 15

| Maximum spacing for control joints (m) | | |
|---|---|---|
| | STEEL FRAMING | TIMBER FRAMING |
| General | 4.8 | 7.2 |

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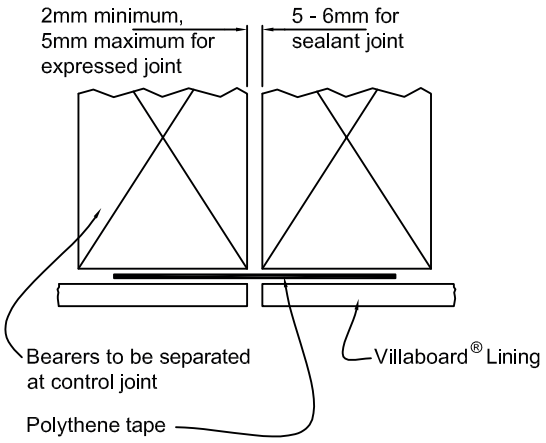
### 5.7.3 Narrow-Strip Flush-Jointed Soffits And Ceilings

In these applications sheets must be jointed on the framing as shown in Figures 1 and 2. Control joints, as shown in Figure 17, must be located at a distance as specified in Table 15. Sheets must not be fixed to the bottom cord of roof trusses.

Figure 17: Control joint




**NOTE**
Refer Section 5.7.3 for skillion roof design.

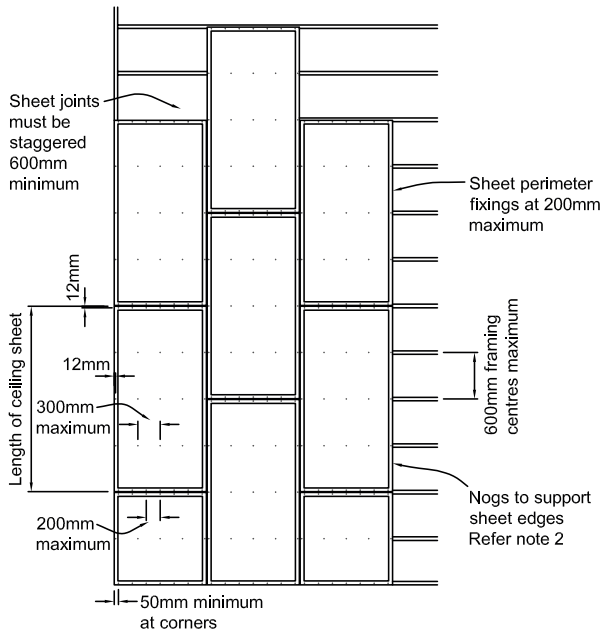
## 5.8 VILLABOARD SOFFIT AND CEILING LINING (LARGE AREAS)

For standard commercial soffits and ceilings, framing must be at 600mm maximum centres and 6mm thick Villaboard Soffit Lining can be used. For high-impact areas, heavy-use commercial areas, and high-wind areas, framing at 600mm maximum centres and 9mm thick Villaboard Soffit Lining should be used. Sheets must not be fixed to the bottom cord of roof trusses. Timber or steel ceiling battens must be fixed to the underside of the roof truss. Sheets must be laid in an offset pattern so that adjacent end joints do not coincide. Timber ceiling battens must comply with the requirements of NZS 3604 or the specific engineering design. Steel ceiling battens must be a minimum of 37mm wide x 23mm deep x 0.55mm thick and have a bearing surface of 37mm minimum. Battens must be galvanised steel (275 g/m2 zinc coating), have a suitable coating to meet the durability requirements and be fixed to the manufacturer's specifications. Refer to the flush-jointing and finishing procedures on Section 6.

For specific engineering design projects consideration must be given to framing deflections expected due to loadings and appropriate selection of sheet jointing method must be made.

**NOTE**
1. It is recommended that flush stopping of joints is suitable when using recessed edge Villaboard Lining.
2. When nogs not installed for perimeter support, the unsupported sheet edges across the framing must be supported by back blocking using a 300 – 400mm wide Villaboard Lining strip adhered to rear face and centred between the framing.

Figure 18: Ceiling layout




### 5.8.1 Control Joints

The ceilings must be divided into bays not exceeding 7.2 x 4.8m. To permit movement, control joints must be formed at the perimeter of each bay (refer Figures 19, 20, 21 and 22) and at the junction of large ceilings with narrow passage strips or where there is a change in direction (also refer Figures 20 and 21). Each bay must be independent of adjacent bays and the surrounding building structure. When the ceilings or soffits contain sloping areas then control joint centres must be reduced to coincide with the slope change lines (refer Figure 22). Framing members (to which the sheet is fixed) must not continue across this control joint. Sheets shall be fixed across the ceiling joists or ceiling battens (refer Figures 24 and 25). Figures 20 and 21 show control joints with the battens running in the same direction as the sheet joint. When these ceilings are wider than one sheet width the sheets can be fixed to the framing provided the control joints are placed to limit the bay size to 7.2m x 4.8m maximum.

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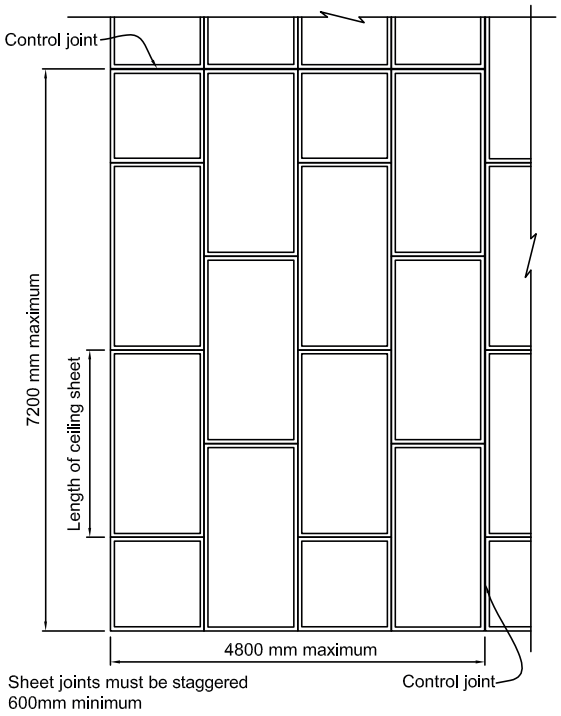
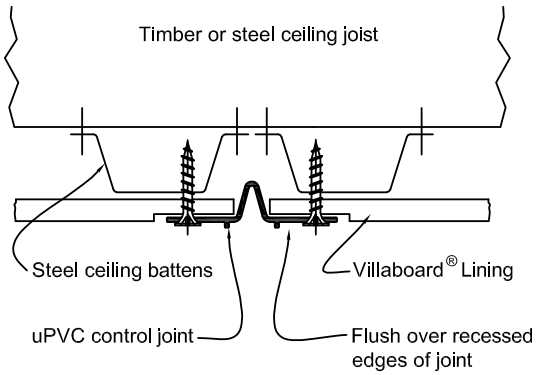
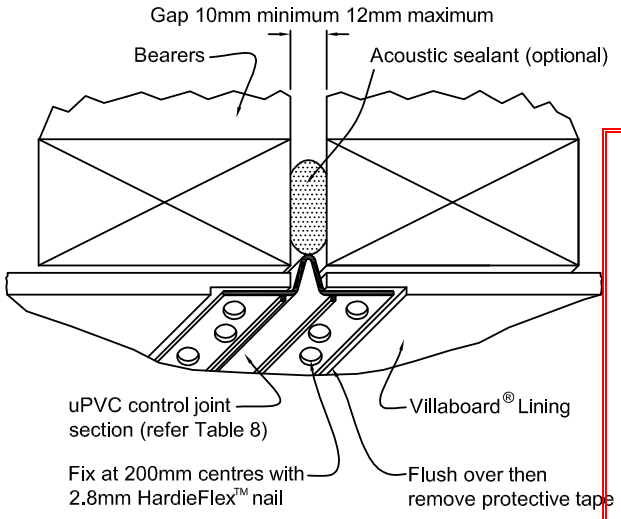
## Figure 19: Control joint layout



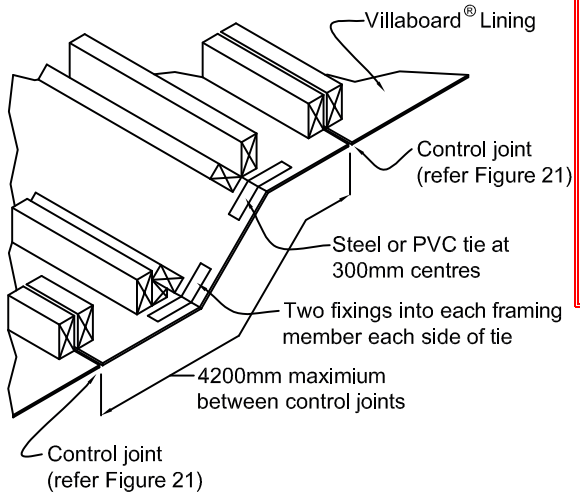

## Figure 20: Steel ceiling batten control joint detail




## Figure 21: Timber control joint detail




## Figure 22: Directional changes to soffits and ceilings – control joint




Note: Tie fixings to be 40 x 2.8mm HardieFlex™ nails.

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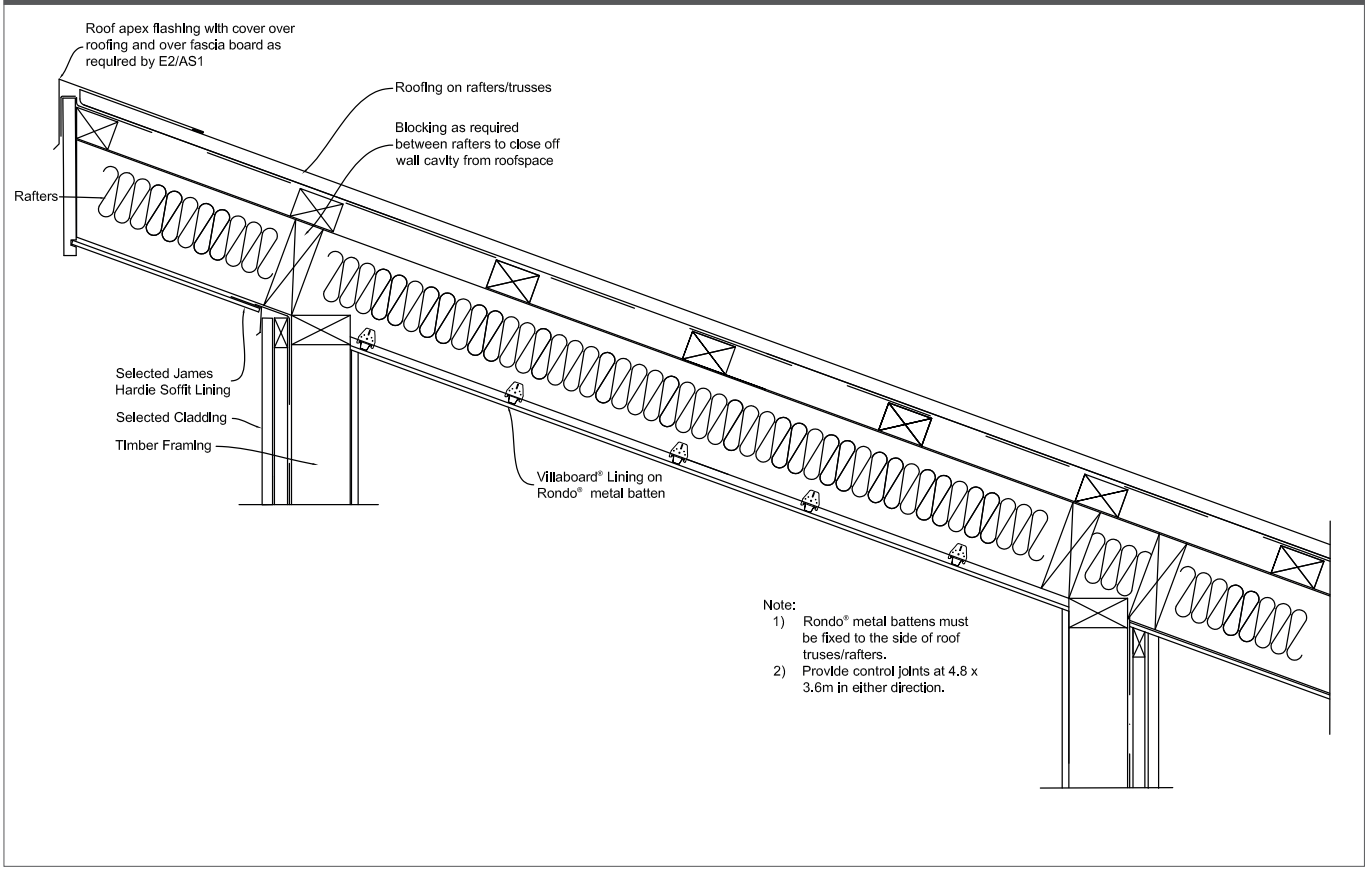
Figure 23: Skillion Roof/Ceiling




### 5.8.2 Skillion Roof Design

When installing soffit linings direct to skillion roof framing ensure that sufficient ventilation has been provided within the roof space. The temperatures within these smaller roof spaces can reach very high levels in certain conditions and this can cause cracking in flush stopped joints due to excessive movement in framing. Therefore the framing in skillion soffits and ceiling need a static engineering design consideration. General design guide is to provide control joints at 4.8m x 3.6m in either direction when fixing to this type of framing.

### 5.8.3 Fixing Option One

A smooth surface finish is obtained by minimising the visible sheet fixings. For painted finishes the combined nail or screw and adhesive method gives this superior finish (refer Figure 24). Fix at 200mm centres down each sheet end with edge fixings in each joist or batten. Double-fix in the centre of each joist or batten. Do not place nails or screws within 100mm of adhesive daubs. Daubs of wallboard adhesive 25mm diameter and 15mm thick must be applied to the intermediate joists or battens at 250mm centres (refer Figure 24). When nogs are not installed for perimeter support, the unsupported edges between ceiling joists or battens must be supported with back blocking using a 300-400mm wide Villaboard Lining strip adhered to rear face and centred between framing.

**NOTES**

1. All surfaces to receive adhesive must be clean, free of dust, oil etc.
2. Ensure daubs of adhesive never coincide with permanent fastener points, as adhesive shrinkage may cause fastener head protrusion.

Figure 24: Nail or screw and adhesive fixing

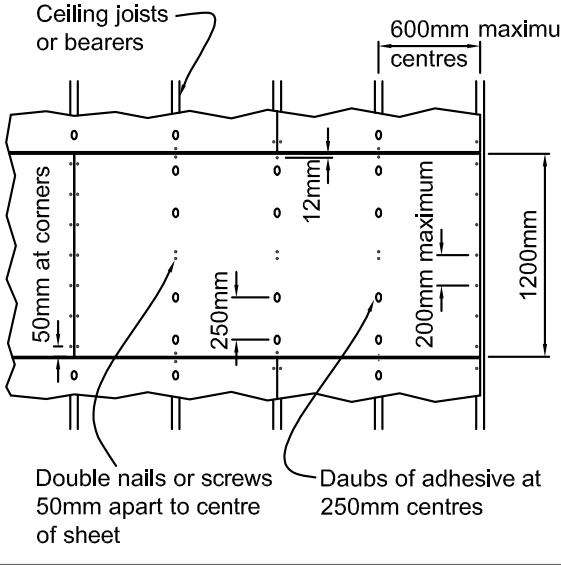



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Figure 25: Nail or screw

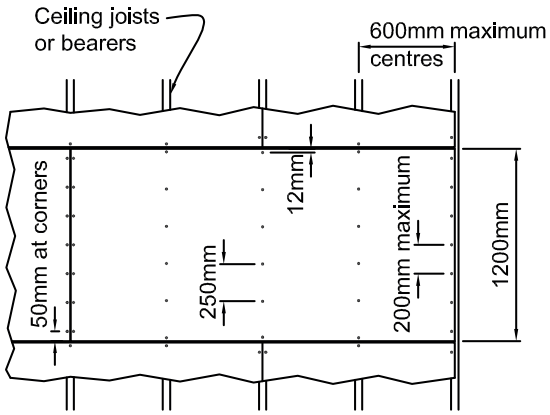
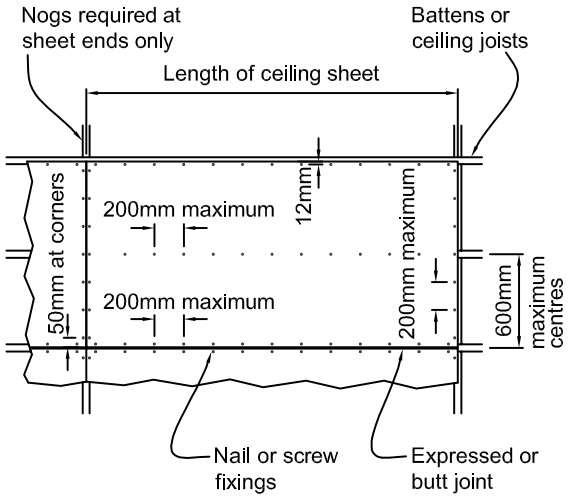



Figure 26: Nail or screw along ceiling joist (expressed or butt joints)




### 5.8.4 Fixing Option Two

For an alternative nail or screw-fixing method, fasteners are to be driven along the sheet perimeter at 200mm centres and along intermediate ceiling battens at 250mm centres (refer Figure 25).

When nogs are not installed for perimeter support, the unsupported edges between ceiling joists or battens must be supported with back blocking using a 300-400mm wide Villaboard Lining strip adhered to rear face and centred across ceiling joists.

### 5.8.5 Column Or Wall Abutments

Soffit sheeting must be free to move independently from the building element it abuts with. This is critical for flush-jointed sheeting, otherwise cracking at the joint may occur.

### 5.8.6 Square-Edge Villaboard Lining Ceilings And Soffits

Square-edge Villaboard Lining is used for butt-joint; expressed-joint or uPVC-jointed ceilings.

## 5.9 TITAN FACADE PANEL

May be used as soffit with expressed joint when installed as per Figure 5 and fixings as per Villaboard Soffit Lining.

## 5.10 INTERNAL SWIMMING POOL APPLICATION

For fixing Villaboard Lining and HardieGroove Lining in internal swimming pool areas;

- The sheets must be back and edge sealed before installation.
- When fixing Villaboard Lining to the ceiling under a skillion roof, roof ventilation must be considered to minimise thermal movement and sheet joint cracking.
- All Villaboard Lining recessed sheet joints must be stopped.
- Alternatively, when using square edge Villaboard Lining, the sheet joint must be butted over an Inseal 3259 tape with an appropriate flexible sealant in the 1mm joint.
- All HardieGroove Lining joints must have continuous bead of sealant applied to edge of sheet before butting together.

Only stainless steel fasteners must be used.

- Full perimeter fixing required.
- In addition, it is recommended that H3.1 treated timber ceiling battens are used to resist decay due to higher condensation levels present in this area.

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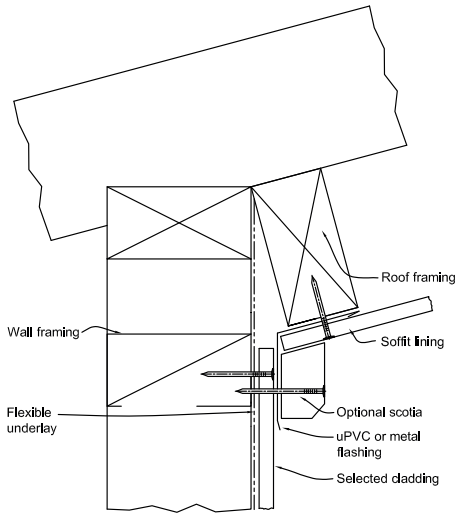
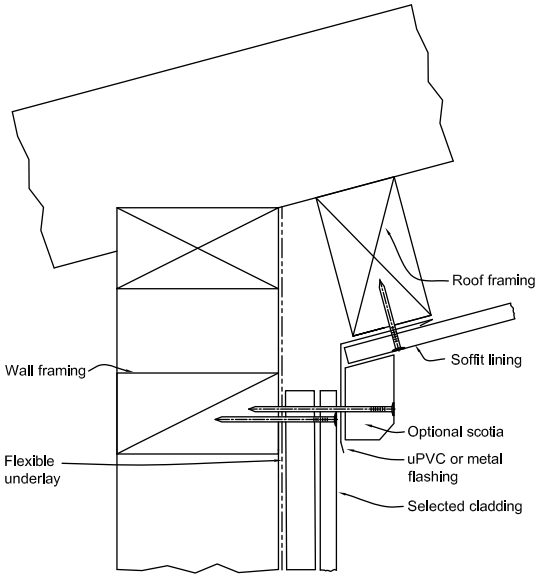
## 5.11 SPECIAL DETAILS

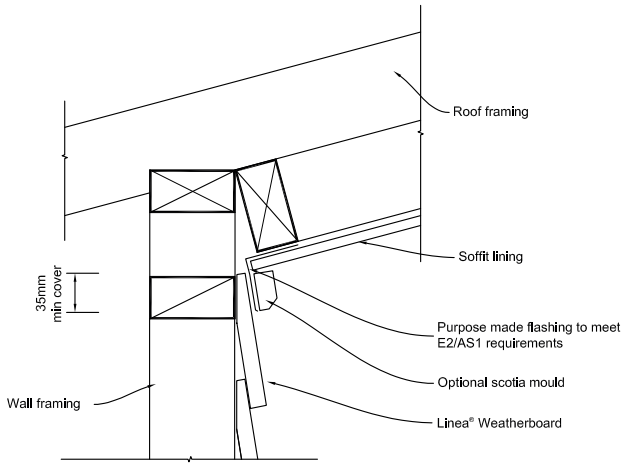
### Figure 27: Sloping soffit and direct fixed flatsheet cladding



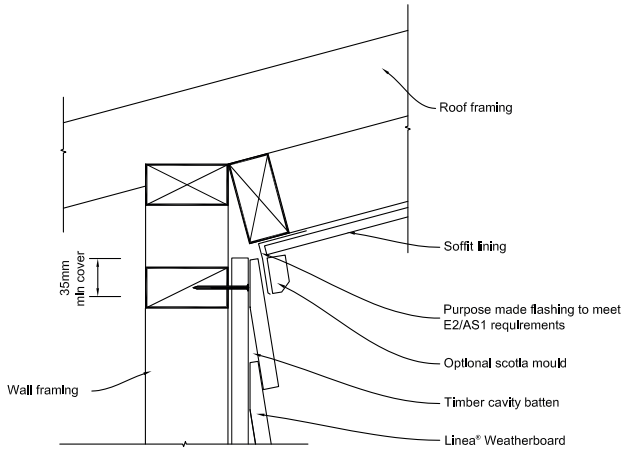

### Figure 28: Sloping soffit and cavity fixed flatsheet cladding




### Figure 29: Sloping soffit and direct fixed weatherboard cladding




### Figure 30: Sloping soffit and cavity fixed weatherboard cladding

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# 6 Villaboard Joint Stopping

## FOR VILLABOARD LINING

### 6.1 GENERAL

Villaboard Soffit Lining is finished with paint complying with parts 7, 8, 9 and 10 of AS 3730. The application and maintenance must be in accordance with the manufacturer's specifications.

**NOTE:** Before flush stopping sheet edges must be sealed with Multiplast resin, water proofing admixture or other similar products.

### 6.2 GLANCING LIGHT

In some instances, due to glancing light, set joints may be noticeable in Villaboard Lining walls, especially where paint finishes have a high gloss level. Work closely with your builder or designer to minimise this.

Artificial lighting needs to be considered in relation to soffits.

Where glancing light is an issue its effect can be lessened by:

- Artificial light shading devices.
- The use of light coloured, matt finish paints.

### 6.3 LEVEL OF FINISHES

Different levels of finishes are typically specified for different applications. Higher levels of finishes are used to address the glancing light issues with painted Villaboard Soffit Lining referred to above. A description of the various levels of finishes and the jointing/coating requirements can be found in Table 16.

Table 16

**Levels of Finishes**

| Level of finish | Definition* | Typical jointing/setting | Finish |
|---|---|---|---|
| 0 | This level of finish may be useful in temporary construction. | No stopping, taping, finishing or accessories are required. The work is confined to gluing or screwing/nailing sheets in place. | For use in areas where finishing and stopping is not considered necessary. |
| 1 | For use in plenum areas above ceilings, in areas where the work would generally be concealed, or in building service corridors and other areas not normally open to public view. | Joints and corner joints will be set with James Hardie Base Coat reinforced with perforated paper tape. | Surface free from excess jointing compound. Tool marks and ridges are generally acceptable. |
| 2 | For use in warehouse, storage or other areas where surface appearance is not of primary concern. | Joints and corner joints will be set with James Hardie Base Coat reinforced with perforated paper tape and James Hardie Top Coat. | Minor tool marks and ridges are generally acceptable. |
| 3 | For use in areas which are to receive heavy or medium texture (spray or hand applied) finishes or where heavy wall paper coverings are to be applied as the final decoration. This level of finish is not generally suitable where smooth painted surfaces or light to medium wall coverings are specified. | Joints and corner joints will be set with James Hardie Base Coat reinforced with perforated paper tape and James Hardie Top Coat. | This level of finish must be sufficiently smooth to accept heavy vinyl, tiles or textured coatings without blemishes. |
| 4 | This is generally the accepted level of finish for domestic construction. It is used where light textures or wall coverings and smooth textured finishes and satin/flat/low sheen paints are illuminated by noncritical lighting. | Refer to flush jointing recommendations on page 24.<br>All joints and corner joints will have tape embedded in James Hardie Base Coat applied over all joints, angles, fastener heads and accessories.<br>This application is applicable to recessed edge sheets only. The use of square edge sheets will require a high build application and coating finish. | For use where light-texture coatings or wallpaper or other lightweight wall coverings are to be applied. For painted finishes in non-critical lighting areas flat and low-sheen textured paints are to be applied. Gloss and semi-gloss paints are not generally suitable over this level of finish as any minor blemish will show under critical light.<br>The weight, texture and sheen level or wall coverings applied over this level of finish must be carefully evaluated. Joints and fasteners must be adequately concealed if the wall-covering material is lightweight, contains limited pattern, has a gloss finish, or any combination of these features is present. Unbacked vinyl wall coverings are not suitable over this level of finish. |
| 5 | This level of finish is for use where gloss or semi-gloss paints are specified or where critical lighting conditions occur on satin, flat or low sheet paints. | Refer to page 23 steps 1–4 for jointing.<br>Final James Hardie Base Coat application should be feathered out to approximately 200mm + each side of the joint. Then a full skim coat of James Hardie Top Coat must be applied over entire sheet surface in order to achieve a uniform finish.<br>This application is applicable to recessed edge sheets only.<br>The use of square edge sheets will require a high build application and coating finish. | This level of finish is for use where gloss, semigloss, low-sheen or non-textured paints are specified or where critical lighting conditions occur. |

*Reference: AS/NZS 2589.1: 'Gypsum lining in residential and light commercial construction — Application and finishing. Part 1: Gypsum plasterboard'

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## 6.4 PAINT FINISHES

Prior to application of paint finishes, remove any residual sanding dust and ensure the surface is suitable for paint application.

Always follow the paint manufacturer's recommendations for paint suitability, mixing and application.

**NOTES**

1. Use of a 'sealer coat' or 'preparation undercoat' is recommended.
2. Do not tile ceilings.

## 6.5 VILLABOARD SOFFIT LINING JOINTING AND STOPPING

Villaboard Soffit Lining joints are set with James Hardie jointing compounds reinforced with perforated paper tape. Recessed edge sheet joints require joint setting by using the jointing products outlined. The performance of joints is the responsibility of the installer, as this is governed by the installation practices and the standard of workmanship applied. However, James Hardie considers that the recommendations provided in Table 16 describe best practice to reduce the risk of joint cracking or other problems. There are various factors that can affect the performance of jointing compounds on edge recessed fibre cement substrates. These factors include the framing, movement, installation quality, vibrations, moisture, humidity, temperature, etc. To achieve satisfactory joint performance these factors need to be carefully considered and understood by the installer and designer when positioning joints and selecting jointing compounds. Furthermore, it is important that the jointing compound used has the physical attributes required to perform considering these factors. James Hardie compounds have been specifically developed for use with Villaboard Soffit Lining.

In addition, provision for movement needs to be made by the installation of control joints. Refer to clasue 5.7.1.

**COMPOUND COVERAGE**

1kg of Base Coat will provide approximately 5 lm of standard joints.

1kg of Top Coat will provide approximately 5.6 lm of standard joints.

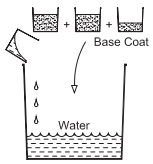
**NOTE**

Follow the mixing instructions carefully when mixing James Hardie Base Coat and Top Coat.

## MIXING INSTRUCTIONS

Table 17

**James Hardie Base Coat Mixing Instructions**

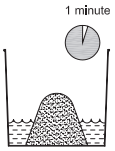


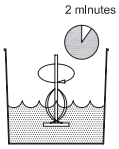

**Step 1**

First, add 1 part of clean water into bucket.

Then add 2½ parts James Hardie Base Coat powder

Allow to soak for 1 minute.



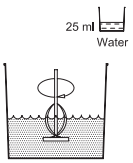




**Step 2**

Mix for 1½ – 2 minutes using paint mixer or equivalent. (approximately 2500-3000rpm)

James Hardie Base Coat is NOT like the plaster based compounds. Initial mixing will indicate a dry mix and further mixing **WITHOUT** further addition of water will deliver the ideal workable paste.

Warning: Inadequate or over mixing can lead to poor workability and can cause performance issues. **Do not hand mix.**




**Step 3**

The mix at this stage should be consistently smooth.

Based on the environmental conditions (i.e. temperature and humidity) you may add maximum of 25ml of water per 1Kg of base coat powder in the mix at this stage to adjust workability. Mix it well.

(Note: Adding excess water than the recommendation may delay the drying of base coat and may cause joint cracking due to excessive shrinkage.)

Mix should be glossy and smooth. There should be no lumps in the mix.

**Important Notes:**

1. Do not apply James Hardie Base Coat in temperatures above 40° C or below 5° C.
2. Allow the compounds to dry before applying the next coat. The drying time will vary between 12 to 24 hours depending upon the weather conditions.
3. Site cut and site recessed sheet edges must be sealed with an acrylic sealer e.g. Dulux Acraprime 501/1, Dulux 1 Step or similar product.
4. In corners, use James Hardie uPVC internal/external corner mould primed with Dulux Primerlock or similar. A 'GIB® Goldline™ Platinum' corner mould can also be used.
5. Use only perforated paper tapes in straight joints.
6. It is recommended that one (1) base coat bag is mixed in three (3) portions.
7. Before stopping the sheet edges, Multiplast Resin or a similar product in diluted form must be applied over the sheet edges. Mix the resin as per the manufacturers recommendations.

**Product Life:**

James Hardie Base Coat has a shelf life of 12 months in unopened bags when stored in a cool dry place.

James Hardie Base Coat has a bag life of 1 month if opened bags are resealed and stored in a cool dry place.

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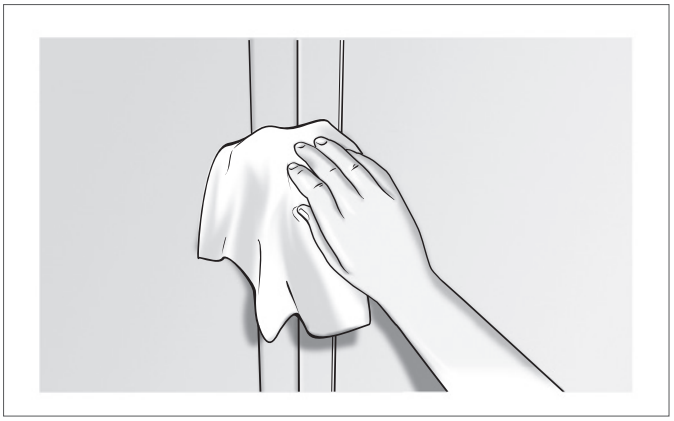
## 6.6 SET JOINTS

### Step 1 — Preparation

Ensure that the recesses are clean and free of dust and contaminants. Sheet edges must be sealed with Multiplast resin, water proofing admixture or other similar products. If working conditions are hot and dry, dampen the area around the joint prior to working.

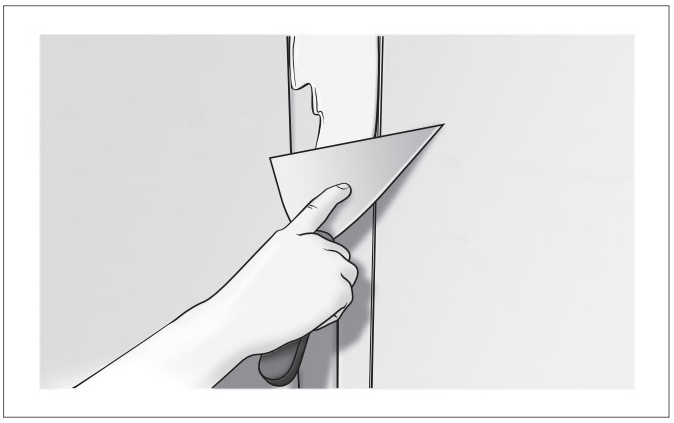


**NOTE**

The jointing method shown below provides a Level 4 finish. For more information about this and other finishes refer to page 21.

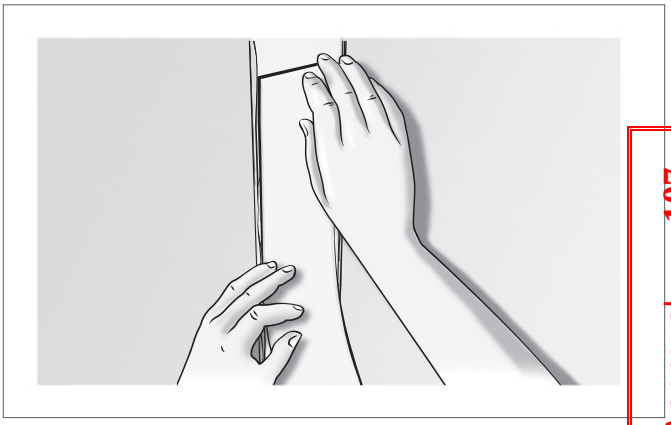
### Step 2 — First Coat

Apply James Hardie Base Coat to fill the recess with a 150mm broad knife.



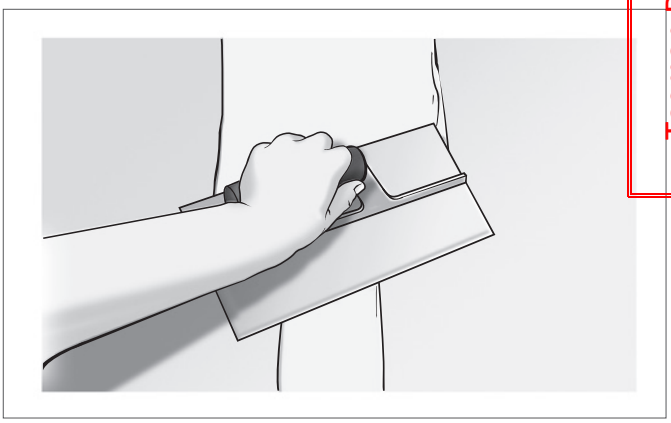
### Step 3 — Embed Tape

Firmly embed the perforated paper tape centrally into the joint using a 50mm broad knife. Ensure that there are no voids under the tape and remove excess compounds.



### Step 4 — Thin Layer

Immediately cover tape with a thin layer of James Hardie Base Coat applied with a 150mm broadknife.



**NOTE**

Steps 5, 6 and 7 are only required for paint and wall paper finish.

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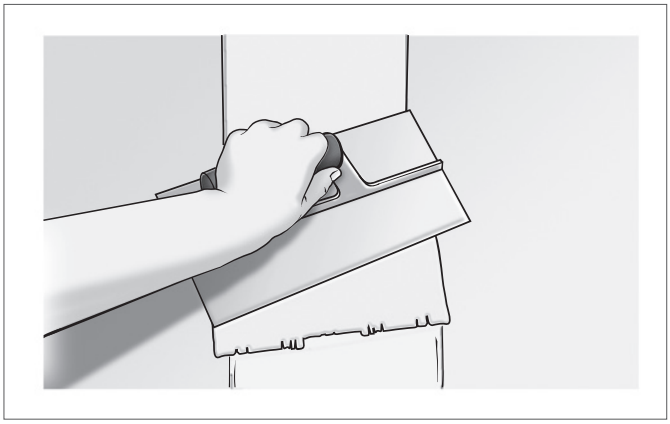
# 7 Finishing

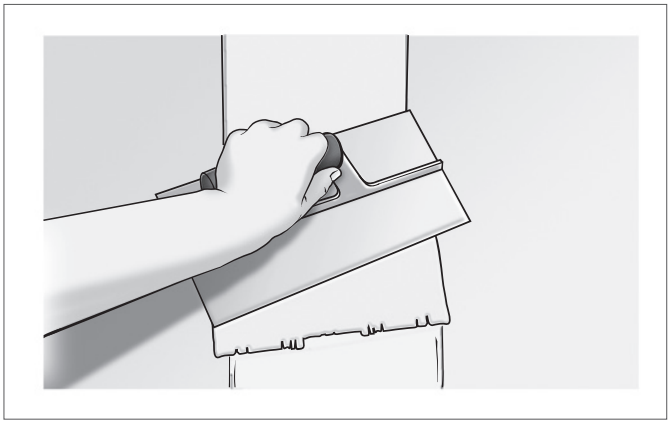
### Step 5 — Second Coat

When the first coat is fully dry, use a 200mm wide second coat trowel to apply the James Hardie Base Coat. Apply this coat approximately 180mm wide, laid down over the recess and feather the edges.



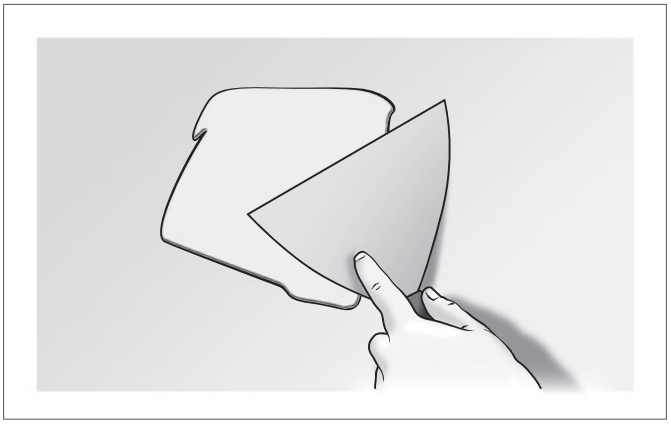
### Step 6 — Finishing Coat

Ensure the second coat is fully dry. Using a finishing trowel, apply a coat of James Hardie Top Coat 280mm wide centrally over the joint and feather out the edges. Allow to dry fully before sanding. Sand with a 180 grit sand paper to achieve a smooth finish for painting.



### Step 7 — Fastener Heads

Apply a finishing coat of James Hardie Base Coat to fastener heads, feathering out the edges. Allow to fully dry before sanding.



## 7.1 PAINTING

HardieSoffit Lining, HardieFlex Eaves Lining, Villaboard Soffit Lining and HardieGroove Soffit Lining sheets are to have a minimum of two coats of acrylic paint applied after fixing in order to meet the requirements of the NZBC. All sheets must be coated within 3 months of installation.

Use quality 100% acrylic paints. Economy paints are not recommended because generally they are less well bound, less moisture resistant and more prone to mould growth.

In all cases the manufacturer's specification for the selected paint must be followed. Note that some paints require an undercoat before applying finish coats.

Damp, shady situations, proximity to bush, agricultural paddocks or seaspray environments may induce an extra tendency to mould growth. Use mould-inhibiting and alkaline-resistant undercoats and consult the paint manufacturer for details of maximum mould-resistant paints.

Before painting, remove any surface grime or other contaminants and ensure the HardieSoffit Lining, HardieFlex Eaves Lining, Villaboard Soffit Lining and HardieGroove Soffit Lining is dry. Paint must not be applied when the air temperature is below 10˚C.

When using uPVC moulds avoid dark colours (paints must have light reflection of 40% or more) as excessive movement may cause buckling of the uPVC when exposed to direct sunlight.

Enamel-based paints can be used, utilising a three-coat system.

For full details apply to the selected paint manufacturer before commencing the work.

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# 8 Product information

## 8.1 GENERAL

HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining and Villaboard Soffit Lining are a cellulose fibre reinforced cement building product. The basic composition is Portland cement, ground sand, cellulose fibre and water.

HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining and Villaboard Soffit Lining is manufactured to AS/NZS 2908.2 'Cellulose-Cement Products Part 2: Flat Sheets' (ISO 8336 'Fibre Cement Flat Sheets').

James Hardie New Zealand is an ISO 9001 'Telarc' certified manufacturer. HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining and Villaboard Soffit Lining are classified Type A, Category 3 in accordance with AS/NZS 2908.2 'Cellulose-Cement Products'.

For Safety Data Sheets (SDS) visit www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.

## 8.2 DURABILITY

**Resistance to moisture/rotting**

HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining and Villaboard Soffit Lining has demonstrated resistance to permanent moisture induced deterioration (rotting) and has passed the following tests in accordance with AS/NZS 2908.2:

- Heat rain (Clause 6.5)
- Water permeability (Clause 8.2.2)
- Warm water (Clause 8.2.4)
- Soak dry (Clause 8.2.5)

## 8.3 FINISHES

HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining and Villaboard Soffit Lining must be paint finished within 90 days of their installation. Refer to the paint manufacturer for paint suitability, mixing and application.

## 8.4 GROUP NUMBER CLASSIFICATION

HardieGroove Lining and Villaboard Lining have a 'Group Number' classification of 1 – S as per the requirements of Clause C of the NZBC.

# 9 Maintenance

It is the responsibility of the specifier to determine normal maintenance requirements for eaves and soffits to comply with NZBC Acceptable Solution B2/AS1. The extent and nature of maintenance will depend on the geographical location and exposure of the building. As a guide, it is recommended that basic normal maintenance tasks shall include but not be limited to:

- Washing down exterior surfaces every 6-12 months*,
- Pre-painted soffits, such as Eclipsa Soffit Lining, when used in harsh costal environments, the soffit must be washed down using a hose and soft brush minimum once every four months in addition to the other maintenance requirements*,
- Re-applying exterior protective finishes**,
- Maintaining the exterior envelope and connections including joints, penetrations, flashings and sealants,
- Cleaning out gutters, blocked pipes and overflows as required,
- Pruning back vegetation close to or touching the building.

* Do not use a water blaster to wash down the soffits.

**Refer to your paint manufacturer for washing down and recoating requirements related to paint performance.

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# Notes

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# Notes

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# Product Warranty

# James Hardie®

## EAVES AND SOFFITS

August 2017

All James Hardie eaves and soffit linings come with a 15 year product warranty. Pre-finished products such as Eclipsa Eaves Lining come with a 10 year coating warranty and 15 year warranty on the base sheet. All accessories supplied by James Hardie are warranted for a period of 15 years. For full warranty details visit www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.

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Disclaimer: The recommendations in James Hardie's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to conditions (c), (d), (f) and (g) in each products warranty under "Conditions of Warranty". James Hardie has tested the performance of the HardieSoffit™ Lining, HardieFlex™ Eaves Lining, Eclipsa™ Eaves Lining, HardieGroove™ Lining and Villaboard® Soffit Lining, and when installed in accordance with the HardieSoffit™ Lining, HardieFlex™ Eaves Lining, Eclipsa™ Eaves Lining, HardieGroove™ Lining and Villaboard® Soffit Lining installation manual, in accordance with the standards and verification methods required by the New Zealand Building Code (NZBC) and those test results demonstrate the product complies with the performance criteria established by the NZBC. However, as the successful performance of the relevant system depends on numerous factors outside the control of James Hardie (e.g. quality of workmanship and design) James Hardie shall not be liable for the recommendations made in its literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the NZBC, regulations and standards, as it is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant James Hardie installation manual are suitable for the intended project and that specific design is conducted where appropriate.

James Hardie
a smarter way™

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**Ask James Hardie™ | Call 0800 808 868 | jameshardie.co.nz**

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Thermakraft™

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# Product Data Sheet

# THERMAKRAFT 215

## Self-supporting bituminous wall and roof underlay

Commonly referred to as "Building Paper" Thermakraft 215 is a self-supporting, kraft paper based, bituminous building underlay that is suitable for use on roofs and walls in residential buildings. It is vapour permeable, meaning that liquid water from the outside is prevented from penetrating but water vapour from the inside can pass through and escape the building envelope. Thermakraft 215 is easy to install.

Thermakraft 215 comes in two roll sizes:

| | | |
|---|---|---|
| 1250mm wide | 20m long | 25m$^2$ coverage* |
| 1250mm wide | 40m long | 50m$^2$ coverage* |

* **Note:** m2 is the roll size for actual coverage, allow for laps and joins.

Smarter products. Better buildings.
**thermakraft.co.nz**

Thermakraft

# Thermakraft 215

## Self-supporting bituminous wall and roof underlay

### Scope of Use (Roof Application)

- Suitable with masonry tile, metal tile and profiled metal roof cladding.
- Direct fix or cavity fix.
- Can be used on roofs up to and including NZS 3604 'Extra High' wind zones.
- Refer to installation guide regarding underlay support requirements.
- Will provide temporary weather protection during construction (maximum 7 days), same day coverage recommended.

### Scope of Use (Wall Application)

- Suitable for use with both timber and steel framing, either direct fix or in conjunction with an 18mm minimum drained cavity.
- Can be used with absorbent wall claddings (e.g. timber, brick or fibre cement) or non-absorbent wall claddings (e.g. metal or plastic).
- Can be used with masonry veneer in accordance with NZS 3604.
- Suitable for buildings situated in NZS3604 Building Wind Zones up to and including 'Very High'.
- Thermakraft 215 can be used as an air barrier to reduce wind entry and is highly water resistant.
- Will provide temporary weather protection during construction (maximum 28 days).

### General

Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in well ventilated area. Recommended minimum 7 days.

### Limitations

- In roofing applications must NOT be exposed to the weather or UV for more than 7 days.
- In wall applications must NOT be exposed to the weather or UV for more than 28 days.
- Must NOT be used under translucent sheeting.
- Is not fire retardant.
- Not suitable for School Property, please refer to Ministry of Education; Weather-Tightness & Durability requirements for School Property.

### Compliance

Thermakraft 215 meets the requirements of NZBC Acceptable Solutions E2/AS1, Table 23 and NZS 2295:2006 for both wall & roof underlay.

### Durability

Meets the Performance Requirements of NZBC Clause B2, Durability B2.3.1 (a) 50 years and B2.3.1 (b) 15 years, E2 External Moisture providing:

- It is installed in accordance to Thermakraft Installation Guide.
- Run length is no greater than 10 meters.
- Is NOT left exposed to the weather or UV for more than 7 days on roof.
- Is NOT left exposed to the weather or UV for more than 28 days on walls.
- Is installed by or under guidance of Licensed Building Practitioners.
- Is installed in accordance with the MRM Code of Practice.
- Is compatible with the cladding system used.*

* **Note:** roof cladding system compatibility testing must be done first before installation.

### Property Performance

**NZBC E2/AS1 Wall Underlay Requirements**

| NZBC E2/AS1 Table 23 (NZS2295) Roof Underlay Properties | Absorbency | Vapour Resistance | pH of Extract | Shrinkage | Water Resistance |
|---|---|---|---|---|---|
| Property Performance Requirement | ≥ 150gsm | ≤ 7 MN.s/g | ≥ 5.5 and ≤ 8 | ≤ 0.5% | 100mm for 24 hrs |
| Property Performance | Pass | Pass | Pass | Pass | Pass |

**NZS2295:2006 Classification**

| NZBC E2/AS1 Table 23 (NZS2295) Roof Underlay Properties | Flammability Index | Wind Zone | NZS2295:2006 Index |
|---|---|---|---|
| Property Performance Requirement | | R2 | R2 |
| Property Performance | Non-Fire Retardant | Up to Extra High | Self - Support |

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Thermakraft

# Thermakraft 215

## Self-supporting bituminous wall and roof underlay

### Control of Condensation

In climatic regions where condensation risks are high, such as cold or high humidity areas, care needs to be taken in specifying the correct design and installation method to prevent moisture build-up in the roof cavities.

Factors which adversely affect the condensation risk in roofing systems include:

- Humid, and/or cold climatic regions.
- Warm/Skillion roof construction.
- Low roof cavity air volume and restricted air movement.
- Omitting Vapour Control Layers.
- Occupancy activities which have high moisture loading on conditioned spaces.
- Ceiling penetrations and entry of warm air into roof cavities.
- Low pitched roof.
- Bulk insulation.
- Building structures ability to naturally dry construction moisture.

Skillion and Warm Roof Construction are particularly sensitive to moisture accumulation and the design and installation of roof construction needs to take into account the higher condensation risks. Refer to MRM Code of Practice for details.

For passive ventilation of the roof space, it is recommended that all roof underlays are terminated at the ridge, and if not it should be slit or slotted to allow for passive ventilation. (For further information refer to the NZ MRM Roofing Code of Practice).

### Product Warranty

Standard Thermakraft warranty applies. Refer to Thermakraft Warranty Statement for further details. This is available online at **thermakraft.co.nz** or call **0800 806 595.**

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The recommendations contained in Thermakraft's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to any conditions contained in the Warranty. All product dimensions and performance claims are subject to any variation caused by normal manufacturing process and tolerances. Furthermore, as the successful performance of the relevant system depends on numerous factors outside the control of Thermakraft (for example quality of workmanship and design), Thermakraft shall not be liable for the recommendations in that literature and the performance of the Product, including its suitability for any purpose or ability to satisfy the relevant provisions of the Building Code, regulations and standards. Literature subject to change without notification. Latest documentation can be found on the website. E&OE.

Issue 6, November 2019

Econergy®

*The smarter way to heat water™*

Tasman District Council
BUILDING CONSENT AUTHORITY

APPROVED BUILDING
CONSENT DOCUMENTATION

AMENDED

ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

# *Heat Pump Water Heater*
# *Installation Guide*

FOR QUALIFIED PERSONNEL ONLY

HOT WATER HEAT PUMPS LTD
Advancing Water Heat Pump Technology SINCE 1980

TASMAN DISTRICT COUNCIL APPROVED DOCUMENT
BY 22/01/2021
24/03/2022




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Heat Pump Specifications ..... 26

**NOTE TO INSTALLERS: Installation must be completed by qualified and licensed tradesmen to National Codes and in strict accordance with this manual.**

**A pre-made CAT- 5/6 cable is required for installation of Econergy heat pumps**


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## Location of the Water Heater Unit

Econergy® water heater units are designed to be installed outside, in the ceiling cavity (if one exists), under the house or in a garage, adjacent to the hot water cylinder (HWC). The Econergy® water heater should not be located within living areas as the unit produces cold air.

Location of the Econergy® water heater will be determined by a combination of factors including proximity to the hot water cylinder, proximity to bedrooms and whether there is usable space where the unit is going to be located.

For installation to existing homes, the unit should be installed with a maximum insulated pipe run of 9 metres.

For new homes, the layout should be designed so that the unit can be installed as close to the HWC as practical within the 9 metre maximum pipe run. The HWC can be installed inside or outside but as close to main points of use as possible.

**Econergy® Water Heaters must be installed in a well ventilated space outside the living areas**

**The Econergy® Water Heater emits 52 dbA at 1.5 metres (HP4000LT) and should not be installed adjacent to bedrooms. Ensure that the unit is located so that noise will not affect the residents. If installing in roof cavities, the cavities must be at least 80m². The unit must be seismically restrained and located away from bedrooms to avoid noise breakthrough.**


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## Installation Design

### Design to avoid cavitation

The installation must be designed so that the unit will operate reliably and with no water flow issues due to cavitation.

**Cavitation of the circulating pump may occur when there is less than 50kPa pressure at the heat pump inlet. This can lead to a malfunction of the Econergy® water heater and MUST BE AVOIDED by ensuring adequate pressure at the system inlet.**

To ensure successful operation of the Econergy® water heater on open vent application where operating pressure is less than 50kPa (or 5m static head), a valve vented system should be used. This has the added benefit of increasing the pressure of supply in the house. The installer should be aware of and avoid adding a relief valve to an old HWC of questionable structural integrity since it could cause the HWC to fail.

### Distance from Hot Water Cylinder

The Econergy® water heater should be mounted as close as possible to the HWC to ensure best efficiency. This is because each leg of supply/ return piped water loses its heat during the off-cycle despite being insulated. The cylinder should be located within 9 metres of the Econergy® water heater for retrofit installations and directly adjacent for new installations.

## Wetback Systems

**The Econergy® system cannot be used with a wetback system where the piping design allows a thermosyphon to develop**

Wetback systems involve large bore copper pipes running into the cylinder and back again. Because the heat source is uncontrolled, temperatures can rise to 100°C, generating steam. Plumbing codes dictate that an open vent is used to eliminate the possibility of an explosion occurring due to rapid pressure rise in the system.


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Econergy® units can be combined with wetback systems but only with strict constraints as the temperature limit on the Econergy® water heater is 80°C. The Econergy® water heater unit must be mounted level with the hot water cylinder or below, and the piping designed to eliminate a thermosyhon loop to stop the possibility of over temperature hot water circulating from the cylinder to the unit.

## Solar Water Heating Systems

**The Econergy® system cannot be used with a solar water heating system where the piping design allows a thermosyphon loop to develop**

Solar water heating systems, like wetback systems, are usually uncontrolled systems. Temperatures can rise to 100°C, boiling the water. As the Econergy® system is super efficient it would not normally be required to integrate the unit with a solar water heating system, however if this was specified or required by the customer then the piping design (as per wetback) must be designed to avoid thermosyphoning of high temperature water through the unit while not running.

## Ring Main Management (Optional)

A ring main should not be used on an Econergy cylinder setup without management unless it is operated from a separate cylinder. Ring main management is a software update that can be installed during production. A switch or PIR sensor(s) can be wired to the heat pump and the heat pump will control the ring main circulation pump (ring main pumps are not supplied as part of a typical Econergy system unless specifically requested). Once the mechanism is triggered the ring main pump will be activated for 60 seconds to flood the ring main with hot water. A minimal amount of hot water may be reintroduce back to the cylinder as a result. The ring main pump will then be locked out for 30 minutes regardless of additional triggers.


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## Hot Water Cylinders

The Econergy® water heater requires a well insulated hot water cylinder to function correctly. The tank must be sized to the maximum anticipated draw off in an 8 hour period so that the consumer does not run out of hot water. As a guide, we recommend 300L for a family of 4. The water heater unit can be retrofitted to any electric cylinder as long as it has PU or EPS insulation. Econergy® water heaters cannot be installed into gas HWC's as they are generally inefficient and there is no electrical backup.

| **Econergy Heat Pump Ready HWC - Recommended Storage Sizes** | | |
|---|---|---|
| **Household Size # Adults** | **Recommended Size** | **Ordering Code** |
| 2 | 180L | EC180L |
| 3 | 250L | EC250L |
| 4-6 | 300L | EC300L |
| 6+ / high use | 350L + | EC [capacity]L Custom |

**The Econergy cannot be retrofitted to gas hot water cylinders, or any storage tank that cannot deliver more than 50kPa pressure to the pump inlet.**

### A) New construction

We recommend Econergy® heat pump ready hot water cylinders. Available in mains pressure stainless steel, these contain dual 20mm inlet fittings, dedicated 20m return fittings and dual sensors integrated into the tank. They are guaranteed from the factory with a 10 year warranty. Use of Econergy® heat pump ready cylinders avoids any potential warranty issues resulting from modification to fit sensor pockets.

### B) Retrofit

Retrofit can be made to any electric hot water cylinder with PU or EPS in good condition by teeing into the cold water line just before the tank isolation valve and by fitting a tank outlet fitting (code HPTP) into the hot water outlet line. It is recommended not to fit a pressure relief valve to an old LP cylinder as this could cause leaks.


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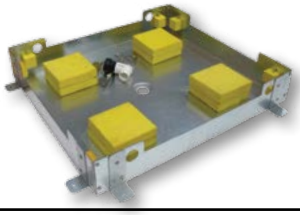
## Ordering Econergy Accessories

| Part No. | Application | Picture |
|---|---|---|
| Outdoor Mounting Kit<br>HPOMK | For mounting outdoors & under houses on flat surfaces | |
| Ceiling Mounting Kit<br>HPCMK | For mounting in ventilated/accessible ceiling cavities |  |
| Roof Mounting Kit<br>HPRMK | For mounting on colour steel roofs (specify Standard or Dimondek profiles) | |
| Wall Mounting Kit<br>HPWMK | For mounting on concrete or concrete block walls (not suitable for timber or brick structures) | |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| Part No. | Application | Picture |
|---|---|---|
| Generic Retrofit Kit<br>HPGRK | For retrofit to existing hot water cylinders | |
| Coopers Solar Ready Retrofit Kit<br>HPCRK | For retrofit to Coopers Solar Ready Hot Water Cylinders | |
| Dux/Rinnai Retrofit Kit<br>HPTSK | For retrofit to Dux Proflow and Rinnai Hotflow Hot Water Cylinders (aka Tank Sensor | |
| Tank Pocket<br>HPTP | Tank Pocket - For retrofit to Rheem Stainless Solar Ready HWC | |
| Condensate Fitting<br>HPCDF | For outdoor installations requiring a condensate drain (for ceilings use HPCMK instead) | |


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# Installation

## Standard Specifications

| No | Installation Component | Approved Specification |
|---|---|---|
| | **Plumbing Installation** | |
| 1 | Piping systems from Heat Pump Unit to Hot Water Cylinder | 15mm nominal bore piping **(no more, no less).**<br>Dux or Buteline Polybutylene<br>REHAU PE<br>Kembla PEX<br>Fusiotherm<br>Copper AS/NZS compliant |
| 2 | Pipe Line Fittings | Dux Secura, REHAU, Fusiotherm, Kembla PEX or AS/NZS Standard DR brass fittings |
| 3 | Flexible Hoses | NOT ALLOWED |
| 4 | Ball Valves | Use only full flow 15mm tee handle valves. Bugatti, PWL, Econergy |
| 5 | Pipe Insulation | Min 13mm wall Armaflex or approved equivalent. All piping to be fully lagged along its length |
| 6 | Max Pipe Distance | 9mm flow 9 m return |

| | **Electrical Installation** | |
|---|---|---|
| 1 | Low Voltage Cable | CAT5 UTP, 24AWG and rated to 1 amp max |
| 2 | Main Cable | 2.5 TPS, 2 x 2.5mm$^2$ + E, compliant to AS/NZS5000.2 |
| 3 | MCB | To suit electric back element rating. Max permissible 20A |



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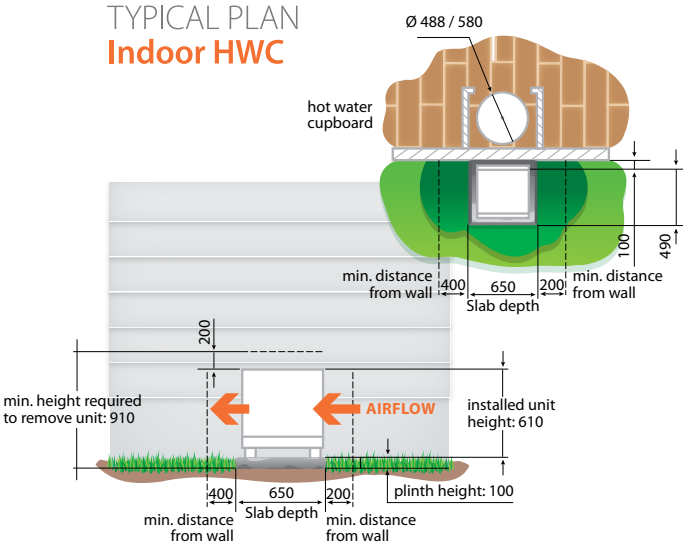
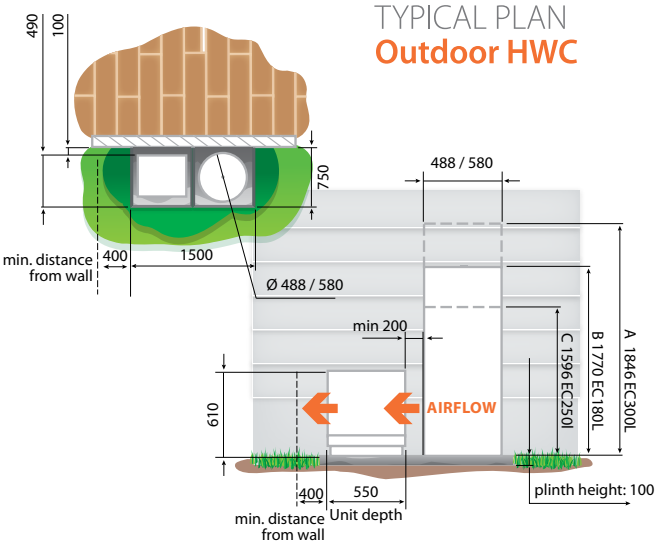
Installation shall be made to and compliant with, the attached drawings.

## Typical Installation Detail – Indoor HWC / Outdoor Unit




## Typical Installation Detail – Outdoor HWC and Unit





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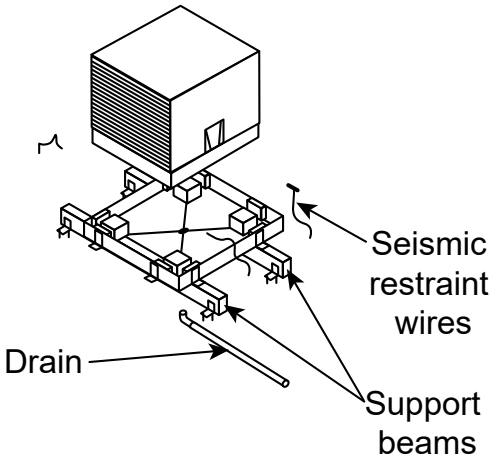
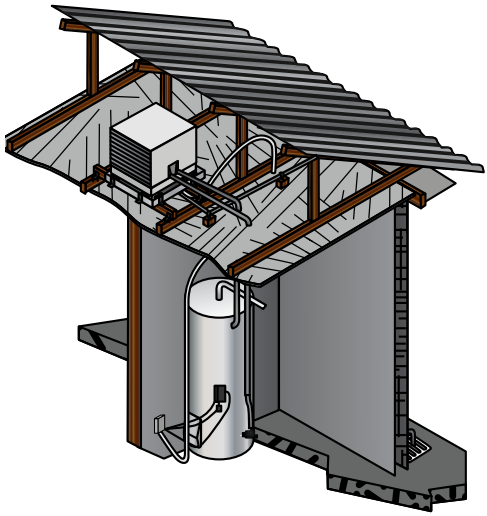
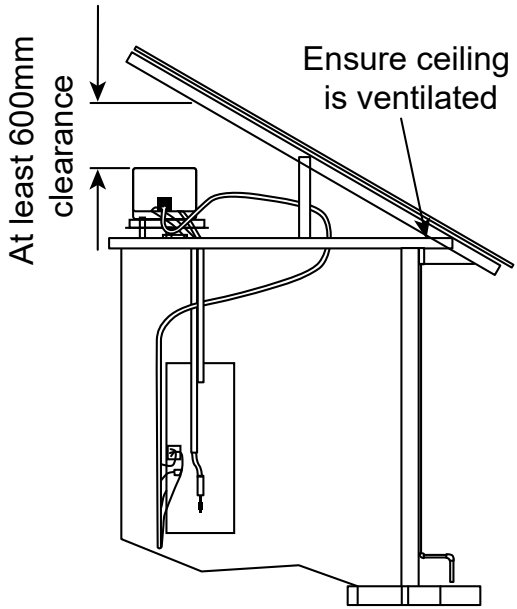
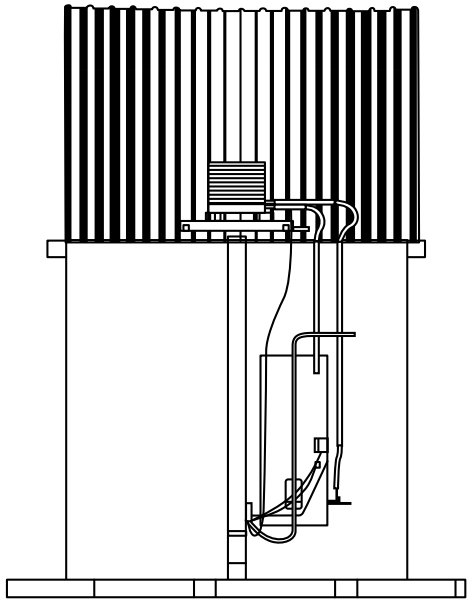
## Typical Installation Detail – Roof Cavity



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## Installation Procedure

**Adequate access and space for service must be allowed for all types of installation**

### 1. Mounting System

**a) Outdoor Mounting.** Use accessory HPOMK. Lay the unit on its side using the cardboard packing as protection. Attach the plastic mounting feet to the underside of the unit using the cap screws provided.

**b) Ceiling Installation.** Use only accessory HPCMK. Mount the ceiling tray in the roof space in a suitable location. The unit should then be placed on the drip tray and secured in place using the seismic restraints, which should be attached to the side of the unit and to the support beams.
Please note: Adequate access and room for service must be allowed for the tradesperson's safety and to prevent potential property damage. Any damage caused to private property due to incorrect installation, including damage caused whilst rectifying faults, is not covered under warranty.

1. Ceiling access must be large enough to allow the heat pump to fit through it easily.
2. A walkway must be installed from the access point to the heat pump.
3. The heat pump must be located on a platform at least 2m x 2m and a minimum height requirement at heat pump of 1500mm to allow working room around the heat pump.
4. A light of at least 12W LED must be installed above the heat pump.

**c) Wall Mounting.** Use accessory HPWMK. Mount wall brackets using level onto concrete block wall. Place anti-vibration mounts supplied onto wall brackets. Screw up into unit using 4x capscrews (supplied).

**d) Closed Garage Installations.** Cold air leaving the unit must be ducted to the outside without loss of air flow. A fresh air supply must also be installed to ensure that the correct air flow through the heat pump is maintained.

1. Windows are insufficient for this purpose.
2. Ensure no objects can be placed within 500mm of the heat pump as this will reduce its efficiency.
3. Allow for drainage of water naturally produced by the cooling coil (evaporator) from within the heat pump.


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**e) Open Ended Garage Installations.** The heat pump must be installed on brackets as high up to the ceiling as possible with louvers fitted to direct the cold air from the unit to fall to the floor. This allows the cold air to flow along the floor to the outside and the heat pump receives warmer air from under the ceiling which makes the unit considerably more efficient. The height at which the heat pump is installed must also allow the covers to be lifted vertically over the top of the unit for service and electrical installation.

**f) Roof Mounting.** Use accessory HPRMK. Mount roof brackets onto roof following instructions supplied with kit. Screw 2x 50x50 AL angles supplied into side of unit. Place angles across mounting rails of roof mounting kit. Using M10 SS bolts supplied, bolt down through anti-vibration mounts into spring nuts in channels.

**Do not invert the outdoor unit to attach the mounting feet or at any other time during installation. This may cause damage to internal components and may void the warranty.**

**Do not wall mount the unit on any timber framed wall (with or without brick veneer)**

**Please note:** If the heat pump is installed in a coastal situation, efforts should be made to protect the unit from salt spray to avoid premature corrosion.

### 2. Pre-wiring & Pre-plumbing for Renovations & New Builds

This is required if piping and/or cables need to run through walls/floors/roof cavities etc. Run 1x Mains cable and 1x CAT-5 UTP cable allowing an extra 2m free play at either end. Run 2x 15mm pipes, fully insulated along their length.

**A pre-made CAT- 5/6 cable is required for installation of Econergy heat pumps**


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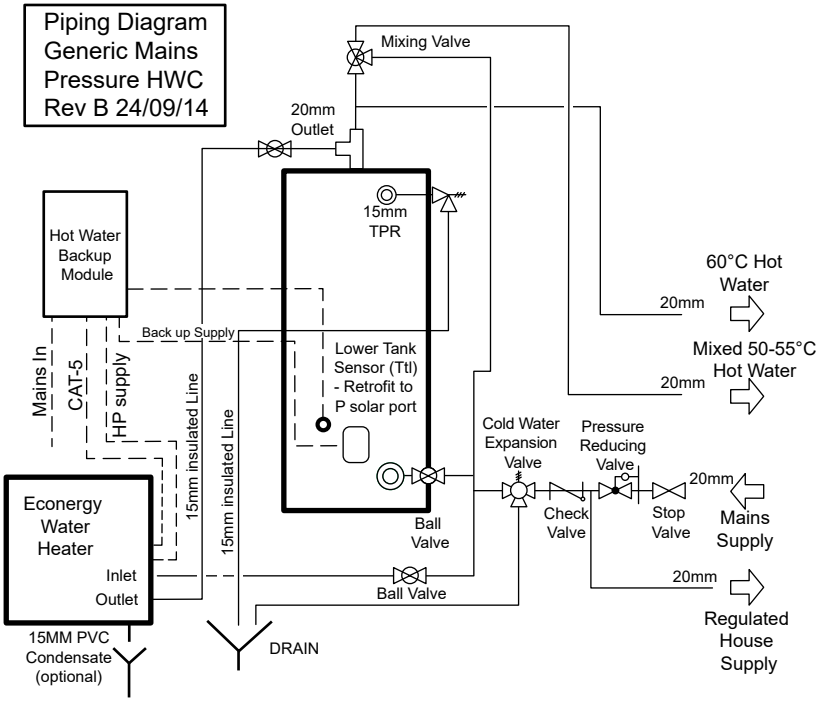
# Piping Diagram 1: Retrofit to Generic Single Inlet Hot Water Cylinder (eg Rheem NZ)




**Notes:** Piping Diagram 1: Generic Single Inlet Hot Water Cylinder

Econergy Accessories Required:

| No | Part Number | Description | Purpose |
|---|---|---|---|
| 1 | HPGRK | Generic Retrofit Kit (comprises tank fitting and tank sensor kit). | Allows retrofit to any standard hot water cylinder |

1. Cylinder must be post 1988 and in good condition
2. Fitting of Tank Sensor kit (HPTSK) may void HWC's manufacturer warranty
3. Ensure minimum pressure of 50kPa met on low pressure installations (may require fitting of relief valve to open vent HWC)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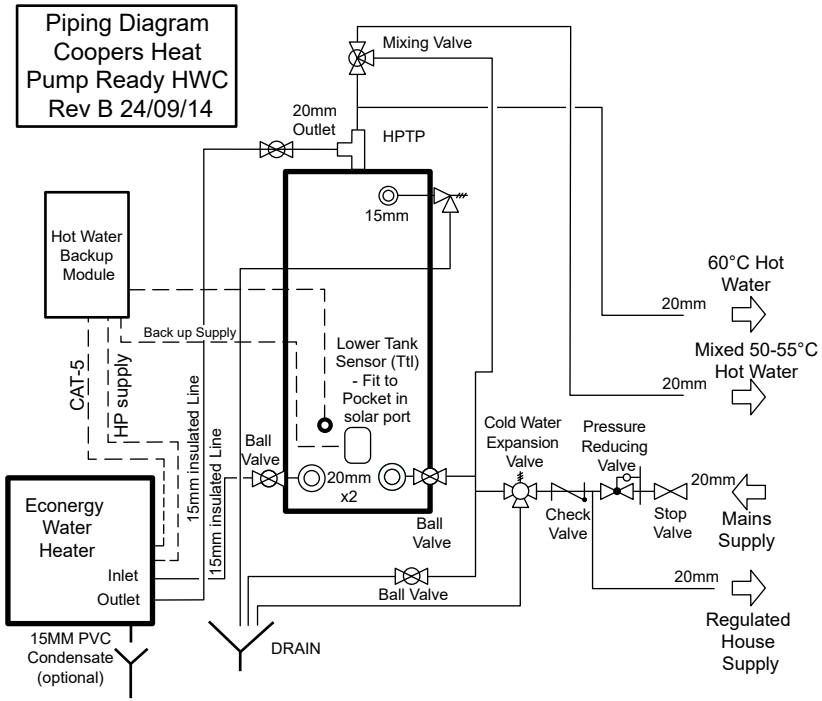
# Piping Diagram 2: Retrofit to Coopers Ready Mains Pressure Hot Water Cylinder




**Notes:** Piping Diagram 2: Coopers Mains Pressure Solar Ready Hot water cylinder

Econergy Accessories Required:

| No | Part Number | Description | Purpose |
|---|---|---|---|
| 1 | HPCRK | Coopers (Solar Ready) Retrofit Kit | Comprises HPTF Tank Fitting and HPTP Tank Pocket |

1. DO NOT connect return line to heat pump to solar connection!
2. Ensure minimum pressure of 50kPa met on low pressure installations (may require fitting of relief valve to open vent HWC)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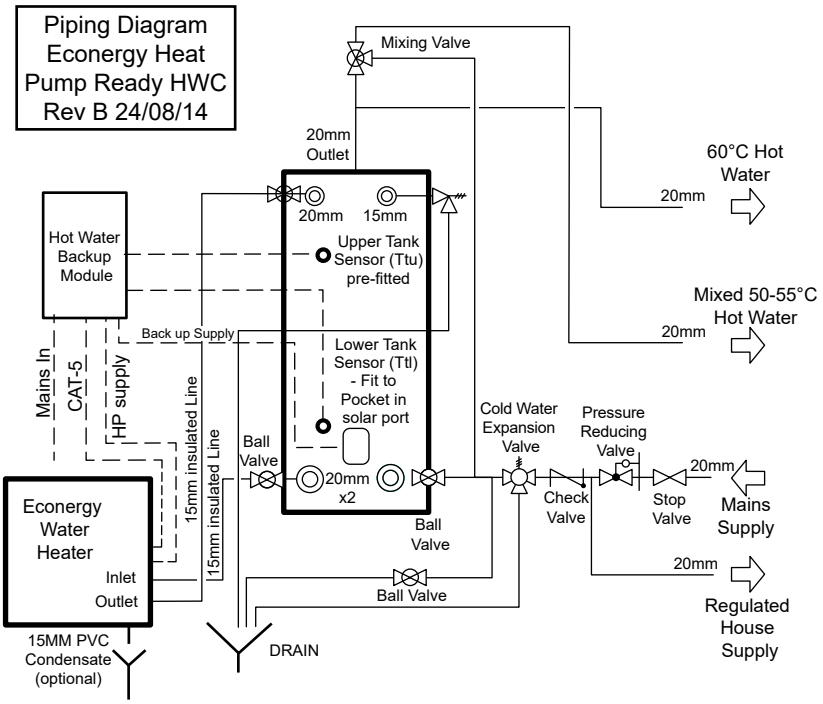
# Piping Diagram 3: Connection to Econergy® Heat Pump Ready Hot Water Cylinder




**Notes:** Piping Diagram 3: Connection to Econergy® Heat Pump Ready Hot Water Cylinder

No Econergy Accessories Required

1. TPR valve is provided in element cover.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### 3. Plumb Water Heater to Hot Water Cylinder

Plumb the water heater unit in accordance with the correct piping diagram to match the type of cylinder being connected to. Ensure inlet (blue) of heat pump is connected to bottom of HWC and outlet (red) of water heater is plumbed to top of the HWC. All plumbing to be carried out in accordance with AS/NZS 3500 and NZ BC Section G12

### 4. Mount Hot Water Backup Run Electrical Cables

The hot water backup module (HPHWB) shall be mounted close to the hot water cylinder in a location that is easily visible to the hot water user. All wiring to be completed according to AS/NZS3000 and Field Wiring Diagram in page 23 of this manual. Fit isolators next to HWC and within 1 metre of the water heater unit in an easily accessible location. Run all cables from heat pump unit through conduit or trunking to the hot water cylinder location.

### 5. Tank Sensor Mounting

**a) Econergy Hot Water Cylinder.** This comes with dual sensors, upper and lower. Insert the lower tank sensor into the pocket about 1/3 of the way up the HWC and secure with adhesive or silicone sealant. Take both sensors and plug them in to their respective locations in the hot water backup (HPHWB) module TTu/Ttl

**b) Coopers or Rheem Solar Ready Hot Water cylinder.** The plumbing installer needs to thread a tank pocket into the solar port of the hot water cylinder and ensure there are no leaks. Apply thermal paste to the tank sensor and insert the tank sensor into the pocket. Secure the tank sensor with building adhesive or silicone sealant. Plug the tank sensor into the header marked J4 or Ttl on the circuit board of the HWB module.

**c) Generic Hot Water Cylinder.** Drill a 51mm (1/2") diameter hole in the hot water cylinder jacket at a height ¼ (25%) of the way up the cylinder, when measured from the bottom.

**Do not wall mount the unit on any timber framed wall (with or without brick veneer)**

Apply thermal paste to the tank sensor. Push tank sensor through the tank sensor cover and lodge it in the tank sensor mount.


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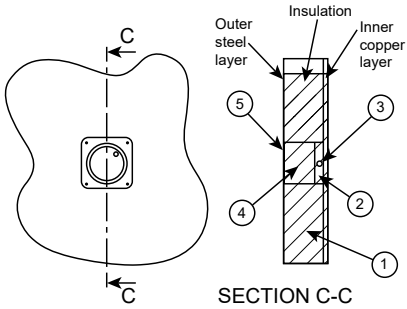
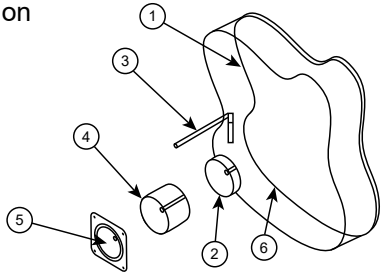
Apply 9cc of thermal paste (supplied with Tank Sensor) to the back of the tank sensor mount and place it in the drilled hole against the inside layer of the cylinder.

Adjust the foam core supplied such that when inserted with the pocket into the hole it sticks out by at least 10mm. Insert the tank sensor foam core, and then attach the tank sensor cover using the screws provided. Pilot holes of 3.2mm (1/8") diameter will need to be drilled for these screws. Plug the tank sensor into the header marked J4 or Ttl on the circuit board of the HWB module.



SECTION C-C




| Item No. | Descripton | Part No. | Quantity |
|---|---|---|---|
| 1 | Hot Water Cylinder Wall | HPX-831 | 1 |
| 2 | Tank Sensor Pocket | HPX-811 | 1 |
| 3 | 6m Sensor | | 1 |
| 4 | Sylomer Insulating Core | HPX-832 | 1 |
| 5 | Tank Sensor Cover | HPX-821 | 1 |
| 6 | Thermal Paste | | 200ml |

## 6. Electrical Connections

All electrical connections must be made, by a licensed tradesman, according to the diagram below. The appliance must be installed in accordance with AS/NZS 3000:2000. A means for disconnection must be incorporated in the fixed wiring. A Certificate of Compliance must be issued by the installer.

## 7. Condensate drain

Condensate drains must be run in the following cases:

a) Where the unit is discharging on a concrete path or other location where wetness/ mould is not desirable or,

b) Where the unit is located in a ceiling cavity

**a) Outdoor Mounting.** Use HPCDF accessory. Remove the rear grille and mount the HPCDF into the punched hole at the bottom right rear of the water heater unit. Run PVC to the nearest drain location.

**b) Ceiling Mounting.** Use drain fitting assembly supplied with HPCMK. Fit drain fitting to the tray. Run PVC pressure pipe from drain pan (for ceiling installs) down to the HWC drain or across to the soffit and down the wall. Do a leak test with water prior to leaving site.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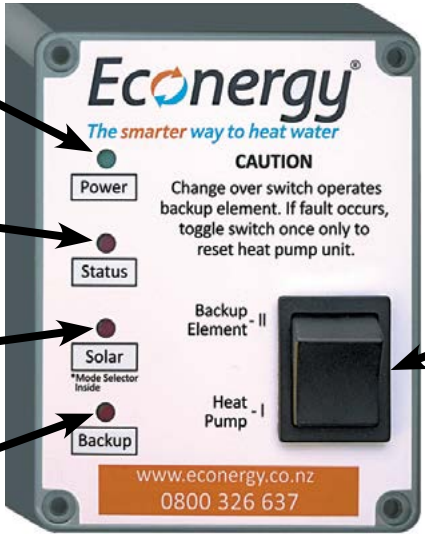
**Only Econergy® factory sensor cables provided with the unit shall be installed. Use of substitute sensor cables or splicing cables may void warranty.**

## Commissioning




Green light indicates that power is on to Econergy® HPWH

Glows red when heat pump is running, flashes if a fault is encountered

Red light indicates Solar Mode is active

Glows red if backup element has been switched on automatically

Allows user to manually force backup element on if required: Position 1 power is onto heat pump, in position 2, to backup element (Note: manual switch doesn't turn on backup light.)

- Fill system with water and leak test all connections at system pressure.
- Check all electrical connections and ensure that water heater is securely grounded to the building's earthing point.
- Ensure both isolation valves on supply and return lines are open.
- Loosen fitting on inlet water heater to heat pump until water flows from fitting. Close fitting.
- Connect laptop to RS232 extension cable on machine and open Econergy® Config Software (if installer has a copy of the software).
- Switch on Main Isolator and Heat Pump Isolator.
- The green (power) light should be lit on the Hot Water Backup Box located on the hot water cylinder.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**NOTE:** If the heat pump is connected to an off peak power supply or 'ripple control', power may not be available at certain times of the day. We recommend temporarily running a mains supply to the main isolator to allow testing of the heat pump water heater in this case.

- After an 8 minute delay unit will start. The status light will glow solid red.
- The unit will preheat the water to 60°C which takes 3-5 minutes, then the hot water outlet connection will be hot to the touch.
- (If available). Check that the unit has reached 60°C on the Econergy® installation software and the flow has stabilized.
- The unit will now heat the whole tank from the top down until the return temperature is 50°C.
- Tidy up installation.
- If there is time then check that the whole tank has heated successfully otherwise check back later and use the Econergy® Config software to download the events log to ensure that the unit is operating as expected.

## Troubleshooting

If the Econergy® water heating system is not working correctly as per the commissioning instructions above, please refer to the following troubleshooting information.

| Symptom | Possible Cause | Things to Check |
|---|---|---|
| Unit is not heating | a) Isolation valves are closed | Check valves in supply and return lines from water heater to HWC and open if closed. |
| | b) Airlock in system | Close isolation valve going from water heater unit into top of HWC. Slacken fitting on outlet of water heater and purge for a minute or so. Close fitting, open valve and restart unit. |
| | c) heat pump has lost refrigerant charge in transit | Check 8mm pipe coming out of top of compressor. After 5 minutes running it should be hot to touch. If not the unit may have lost refrigerant.<br>Call 0800 32 66 37 for service support. |


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| Symptom | Possible Cause | Things to Check |
|---|---|---|
| No hot water, status indicator has lights off | a) No power to hot water cylinder | Check all switches are on, there is power to house and circuit breaker marked “hot water” is ON |
| | b) Ripple control activated | Either a) temporarily bridge out relay in board OR b) run temporary feed to heat pump to allow commissioning to occur. |
| Water temperature too low | a) temperature valve set incorrectly or malfunctioning | Remove cap from top of tempering valve and screw in to increase water temperature. |
| | b) partial loss of refrigerant or other sealed system malfunction | Call 0800 32 66 37 for service support. |
| Unit stops running less than 30 secs of operation | a) Indicates fault with thermistors or thermisor inputs on PCB or damaged CAT-5 cable. | Remove HWB panel and cover on main electrical box. Check that all sensors are plugged into their correct locations and the CAT-5 cable is securely plugged in and undamaged. If unit still stops use Config Software to determine which thermistor is out of spec and rectify accordingly. |
| Unit stops Running after 10-15 mins operation | a) Likely indicates unit has cut out on high condenser temp event | Check that ball valves are open. Close isolation valve going from water heater unit into top of HWC. Slacken fitting on outlet of water heater and purge for a minute or so. Close fitting, open valve and restart unit. If this fails, use Config Software to determine what is causing the unit to stop. Call 0800 32 66 37 for service support. |
| Unit faults after heating entire tank | a) Likely tank sensor mounting issue | Ensure tank sensor is securely mounted in place. Rectify if required and retest. |
| Water is dripping from rear of unit (behind finned evaporator) | a) This is normal as the unit will remove moisture in the air above 70% RH | No action required. |



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## Important Information

- This product has a classification of 6.101 for appliances not accessible to the general public.
- The appliance is not intended for use by young children or infirm persons without supervision.
- Young children shall be supervised to ensure they do not play with the appliance.
- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent.
- The fuse on the electronic controller is 6A/250V. This should only be replaced by a qualified electrical service technician or electrician.


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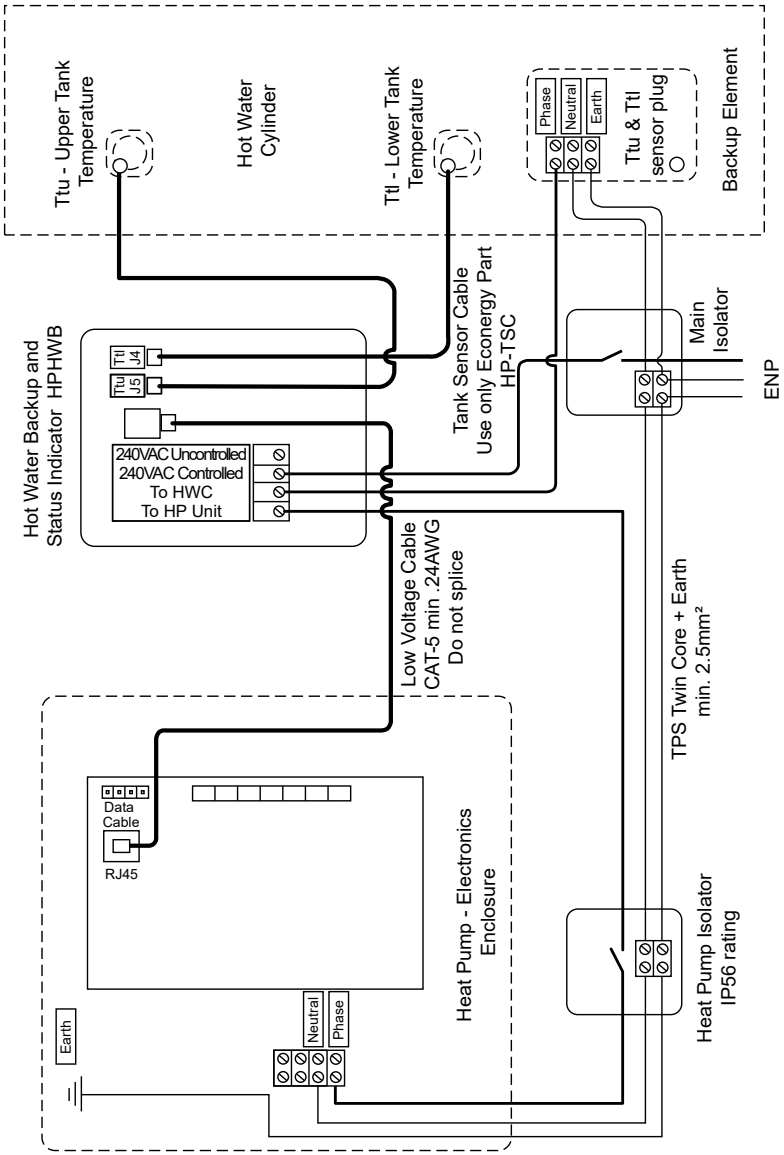
## Field Wiring Diagram





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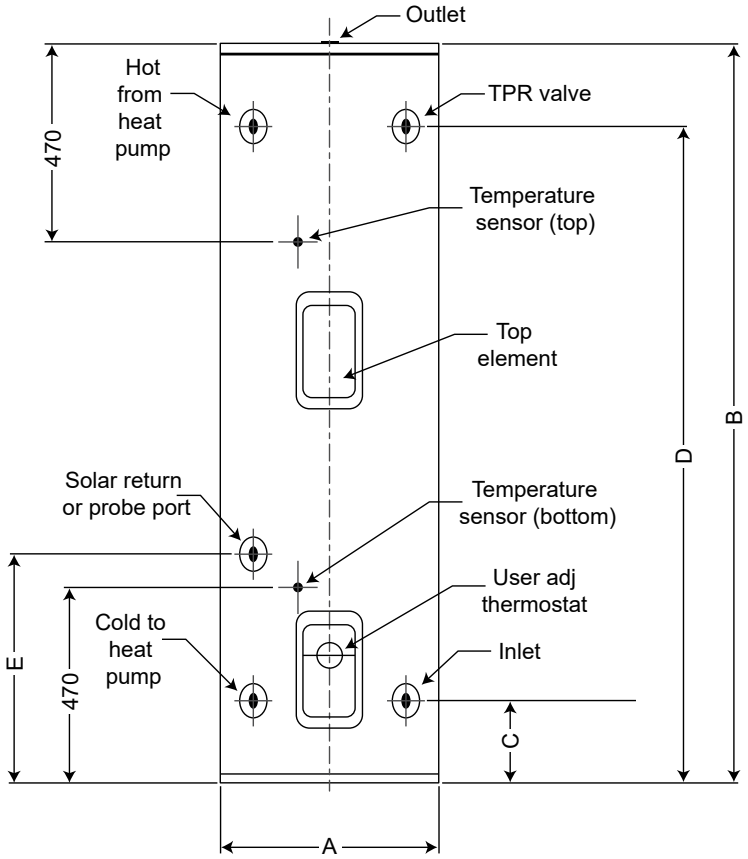
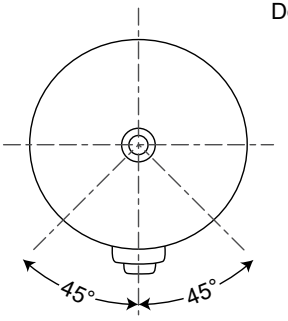
## Typical Heat Pump Ready Water Cylinder Product Specifications




Do not scale. If in doubt, ask





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# Typical Heat Pump Ready Water Cylinder Product Specifications

| TECHNICAL DATA TABLE DIRECT CYLINDERS - ECONERGY | | | | |
|---|---|---|---|---|
| **Model Number** | | **EC180L** | **EC250L** | **EC300L** |
| Total storage capacity | | 181 L | 252 L | 295.5 L |
| Storage capacity above top element | | 85 L | 136 L | 160 L |
| Storage capacity at 470mm from Cylinder Jacket Top (Temperature Sensor) | | 43 L | 60 L | 60 L |
| Storage capacity at 470mm from Cylinder Jacket Bottom (Temperature Sensor) | | 44 L | 59 L | 59 L |
| Weight Empty | | 37.5 kg | 51.5 kg | 61 kg |
| Inlet / Outlet Connections | | RP ¾" / 20 | | |
| Solar / HP Feed Connection | | RP ¾" / 20 | | |
| Solar / HP Return Connection | | RP ¾" / 20 | | |
| T&PR Valve Connection | | RP ½" / 15 | | |
| T&PR Valve Setting | | 1000 KPa | 1000 KPa | 1000 KPa |
| Dimensions | A | 488 mm | 580 mm | 580 mm |
| | B | 1770 mm | 1596 mm | 1846 mm |
| | C | 200 mm | 165 mm | 165 mm |
| | D | 1575 mm | 1418 mm | 1668 mm |
| | E | 550 mm | 565 mm | 565 mm |
| Element Rating (Factory Fitted) | | 2.0 kW | 2.0 kW | 2.0 kW |
| Top Element Rating (Kitset) | | 2.0 kW | 3.0 kW | 3.0 kW |


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# Econergy® HP Series Water Heater Specifications

| General | HP4000LT |
|---|---|
| Height | 520 mm |
| Width | 490 mm |
| Depth | 550 mm |
| Weight | 50 kg |
| Noise rating @ 1.5m | 52 dBA |
| Circuit Breaker | 16 amps |
| Rated Current RLA | 4 amps |
| Refrigerant | R-134a |
| Refrigerant quantity | 590 gm |
| Ambient Air Temperature | -5 to 40°C |

| Performance Specifications ** | HP4000LT |
|---|---|
| Heat output | 3600 W |
| Rated input | 1000 W |
| Recovery rate | 67 L/hr |
| Efficiency (COP) | 3.8 W/W |

| Water / Connections | HP4000LT |
|---|---|
| Min Supply Pressure | 50 kPa |
| Max Supply Pressure | 800 kPa |
| Min/Max Inlet Water Temperature | 5 - 50°C |
| Flow/Return Connections | RP1/2” / 15mm |
| Condensate Drain | 15 mm |
| Max Total Dissolved Solids | 250 mg/L |
| Max saturation index - | +0.80 |
| Zone 1 | 3-8 people |
| Zone 2 | 2-6 people |

***Rated at EN255 Conditions (15˚C / 15˚C / 60˚C /70%)*
*(Cold water/ Ambient Air/ Hot Water/70%RH)*


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HOT WATER HEAT PUMPS LTD
Advancing Water Heat Pump Technology SINCE 1980

**0800 33 66 33** **www.waterheating.co.nz**
Phone 09 838 9444 Email info@waterheating.co.nz
3 Corban Ave, Henderson, Auckland 0612 PO Box 21 586, Henderson, Auckland 0650

## Installation Heating Kits

Warranty 15 Years

Receive a 15 year warranty with Warmfloor's heating cable.

Five year thermostat warranty. Some conditions apply, see website for details.

**Heating Kit sizes:**

| Cable Code | Watts | Length | Cable Code | Watts | Length |
|---|---|---|---|---|---|
| ☐ WFK150 | 150w | 11.1 | ☐ WFK800 | 800w | 58.5 |
| ☐ WFK200 | 200w | 15.4 | ☐ WFK900 | 900w | 66.5 |
| ☐ WFK250 | 250w | 18.1 | ☐ WFK1000 | 1000w | 72.0 |
| ☐ WFK300 | 300w | 22.6 | ☐ WFE1250 | 1250w | 92.5 |
| ☐ WFK350 | 350w | 25.4 | ☐ WFK1500 | 1500w | 111.0 |
| ☐ WFK400 | 400w | 30.2 | ☐ WFK1750 | 1750w | 129.6 |
| ☐ WFK500 | 500w | 36.8 | ☐ WFK2000 | 2000w | 147.0 |
| ☐ WFK600 | 600w | 43.1 | ☐ WFK2500 | 2500w | 184.6 |
| ☐ WFK650 | 650w | 48.1 | ☐ WFK3000 | 3000w | 219.1 |
| ☐ WFK700 | 700w | 51.7 | | | |

Select the appropriate kit with the help of our online sizing calculator.

Each Warmfloor Heating Kit contains: Cable, Cloth Tape, Spray Adhesive, Cable Monitor and Installation Manual.

The thermostat is not included in the kit. Choose the thermostat you require from our range and order as a separate item.

## Warmfloor Approved Installations

Warmfloor approved installers have been specifically chosen and trained so as to be able to offer a comprehensive warranty.

Warranty 25 Years

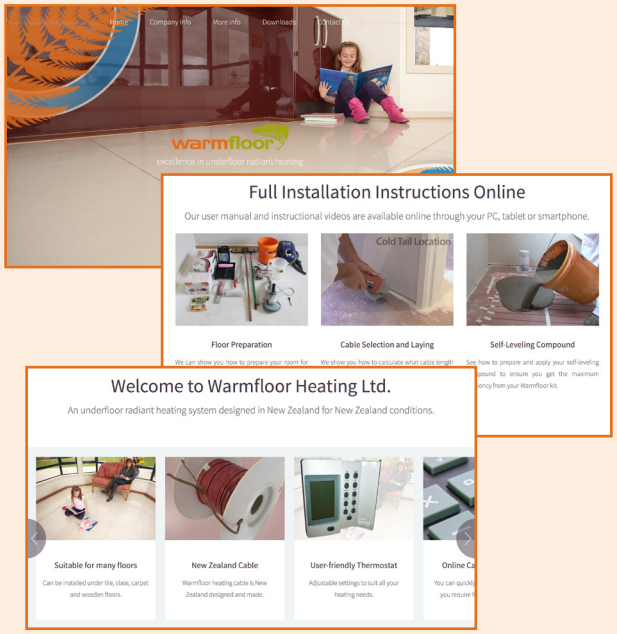
Should the heating element fail within a 25 year period then the element will be repaired or replaced with your surface reinstated back to original condition.

The 25 year period extends to the cable only, with five years for the thermostat. Conditions apply, see website for details.

# A New Zealand product for New Zealand homes

- Heating cable designed and manufactured in New Zealand
- Customised for New Zealand climates
- Economically controlled
- Healthy, clean and affordable
- Comprehensive warranties
- Suitable for tiles, slate, carpet and timber floor coverings
- Tested and compliant to NZ Standards

Visit our website for information, specifications, helpful hints, cable sizing calculator, and our instruction videos. The site is PC, tablet and smartphone friendly.

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# An introduction to Underfloor Heating

- NZ Manufactured Heating Cable
- User-friendly Thermostat
- Informative Tutorial Videos
- Control Your Energy Use
- Online Sizing Calculator

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## Programmable Thermostat - WFTH1

Warmfloor's unique Energy Indicator

### TH1 and TH3 Energy Usage Indicator

By adjusting your settings it is possible to view power used over a time period. Reset the indicator and view the new power usage. This is a unique way of obtaining the best results from your heating system.

### Warmfloor Energy TH1 Smart Controller

**Features:**

- Seven Day, Two Heating Periods
- Air and Floor Sensing
- Auxiliary Output for Heated Towel Rail Control
- Power Usage Indication
- 16 Amp Relay
- Two Sensor Probes (One Spare)
- White only
- Battery Free

## Manual Thermostat - WFTH2

**Features:**

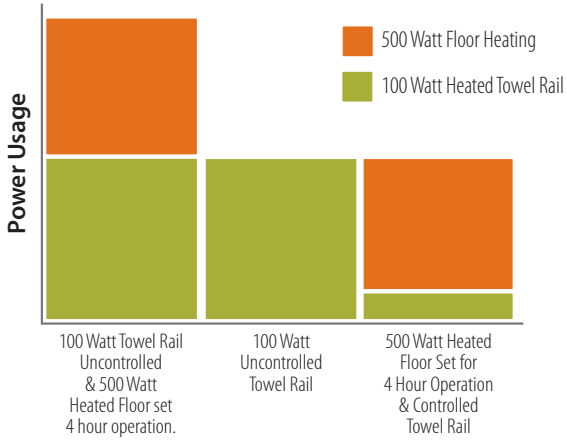
- Simple to Operate
- Maintains Set Temperature 24 hours per day
- Air and Floor Sensing
- White only
- Two Sensor Probes (One Spare)
- Interchangeable with TH1 Thermostat
- Power On Indication
- Heating Active Indication

## Save Energy with Warmfloor

Save on energy using the Warmfloor controllers heated towel rail function

## Manage Your Power Usage

By controlling the heated towel rail to only when it is needed (typically 4 hours a day), a 500 watt heated floor will not increase current power usage.




## Touchscreen Thermostat - WFTH3

### Warmfloor Energy TH3 Smart Controller

**Features:**

- Seven Day, Two Heating Periods
- Air and Floor Sensing
- Auxiliary Output for Heated Towel Rail Control
- Power Usage Indicator Graph
- 16 Amp Relay
- Two Sensor Probes (One Spare)
- White, Black and Satin Options
- Battery Free

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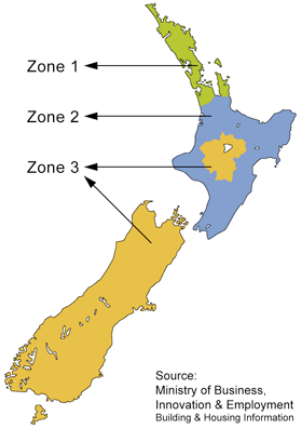
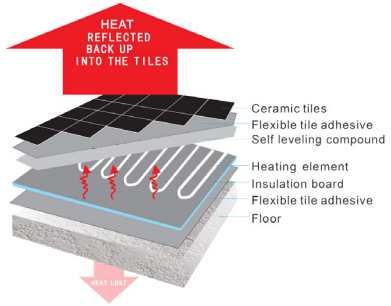
## Online Cable Sizing Calculator

Using the Warmfloor website cable sizing calculator you can quickly find the cable size you require for your installation.

Simply, select which climate zone you are in, name your room and add the floor area to be heated and we can show you which cable size you require.



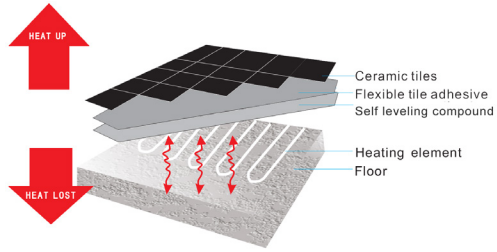

## Warmfloor Insulation Board




**With insulation installed**

- Improves Floor Heat-up Time
- Reduces Running Costs

**Without insulation installed**




View our website to see the benefits and cost savings available when using this product

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excellence in underfloor radiant heating

# Installation Manual

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## IMPORTANT

Please read the entire installation manual before attempting to install. Please view our training video at **www.warmfloornz.com**

Incorrect installation could damage the cable and invalidate your warranty.

For Warmfloor Technical Support, visit **www.warmfloornz.com**

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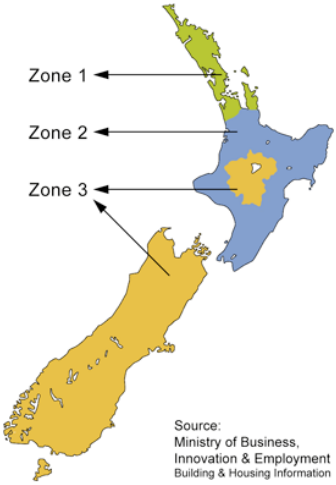
# Quick Sizing Method




First, select the climate zone you live in.

## For Concrete Substrates

Multiply the required heating area (sq metres) by the recommended watts.

Zone 01 = 170 watts
Zone 02 = 190 watts
Zone 03 = 210 watts

## For Wooden Substrates

Multiply the required heating area (sq metres) by the recommended watts.

Zone 01 = 170 watts
Zone 02 = 170 watts
Zone 03 = 190 watts

Then select the closest cable available from the cable list.

For a more accurate sizing method, use the online calculator on our website, www.warmfloornz.com.

Heating kit sizes:

| Kit Code | Wattage | Length |
|---|---|---|
| ☐ WFK150 | 150w | 11.1 |
| ☐ WFK200 | 200w | 15.4 |
| ☐ WFK250 | 250w | 18.1 |
| ☐ WFK300 | 300w | 22.6 |
| ☐ WFK350 | 350w | 25.4 |
| ☐ WFK400 | 400w | 30.2 |
| ☐ WFK500 | 500w | 36.8 |
| ☐ WFK600 | 600w | 43.1 |
| ☐ WFK650 | 650w | 48.1 |
| ☐ WFK700 | 700w | 51.7 |
| ☐ WFK800 | 800w | 58.5 |
| ☐ WFK900 | 900w | 66.5 |
| ☐ WFK1000 | 1000w | 72.0 |
| ☐ WFE1250 | 1250w | 92.5 |
| ☐ WFK1500 | 1500w | 111.0 |
| ☐ WFK1750 | 1750w | 129.6 |
| ☐ WFK2000 | 2000w | 147.0 |
| ☐ WFK2500 | 2500w | 184.6 |
| ☐ WFK3000 | 3000w | 219.1 |

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# Welcome

## Thank you for choosing the Warmfloor System for your heating requirements.

You can rest assured that this product is the best available on today's New Zealand market.

**Peace of Mind:** The Warmfloor heating system has been tested and is fully compliant to the current New Zealand Compliance Standards.

Please view the relevant S.D.O.C. documents by visiting **www.warmfloornz.com**.

# Intended Use

The Warmfloor Heating System has been designed for heating under the following materials:

✓ Tiles ✓ Vinyl ✓ Timber overlaid floors

***Caution:*** *Do not use in areas subject to high mechanical load or impact.*

The minimum temperature that Warmfloor Heating System may be installed in is -5˚C. The maximum temperature is 50˚C.

# Thermostat Options

## TH02 Manual Thermostat

Key features of the TH02 Thermostat include:

- Simple to Operate
- Maintains Set Temperature 24 hours per day
- Air and Floor Sensing
- White only
- Two Sensor Probes (One Spare)
- Interchangeable with TH1 Thermostat
- Power On Indication
- Heating Active Indication

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# Thermostat Options (continued)

## TH04 Colour Touch Screen Thermostat

Key features of the TH04 Thermostat include:

- Fast responsive Colour Touch Screen
- Simple to program/easy to use
- Three x 7 day programmable time periods
- Battery Free
- Floor and Air Sensing
- Two Sensor probes (one spare)
- 116mm high x 80mm wide x 12mm deep
- Available in White and Black

## TH05 WiFi 5th Generation Touch Screen Thermostat

Key features of the TH05 Thermostat include:

- Fast responsive Colour Touch Screen
- Simple to program/easy to use
- Three x 7 day programmable time periods
- Auxiliary output for heated towel rail/mirror demister
- Wifi Control (connects with TH05 App)
- Multiple home screen display options
- Load own home screen photos
- Battery Free
- Energy usage indications and Predictive heating
- Weather information displayed (requires wifi connection)
- Floor and Air Sensing
- Two Sensor probes (one spare)
- Replaces common NZ thermostats
- 116mm high x 80mm wide x 12mm deep
- Available in White and Black

*The TH05 is our exclusive top of the range heating thermostat with all our energy saving, connectivity and device control features. Suitable for home and commercial use.*

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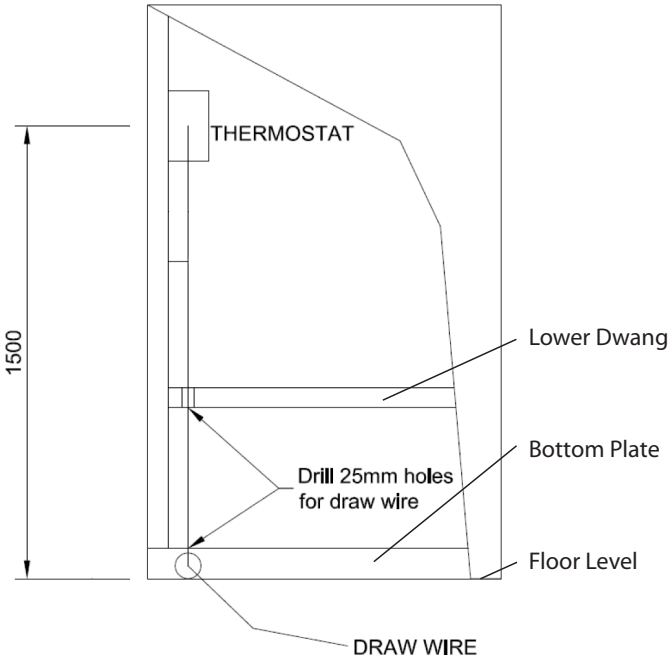
# Thermostat Location

As per the Electrical wiring regulations, thermostats must not be installed in 0/1 zones (wet areas). Check with your electrician if unsure of acceptable positioning (Electrical Regulation AS/NZS 3000).

## Wall Preparation




### Electrical Requirements

Installation of the heating cable itself is not deemed prescribed electrical work so as such may be installed by any competent person.

This instruction manual details the requirements of AS/NZS 3000, see 4.10 for installation practice.

Once the heating cable has been laid, the connecting Electrician must be contracted to view the installation prior to covering – NB: Photographic evidence may be all an Electrician requires.

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# Circuit Wiring

**(by Registered Electrician only)**

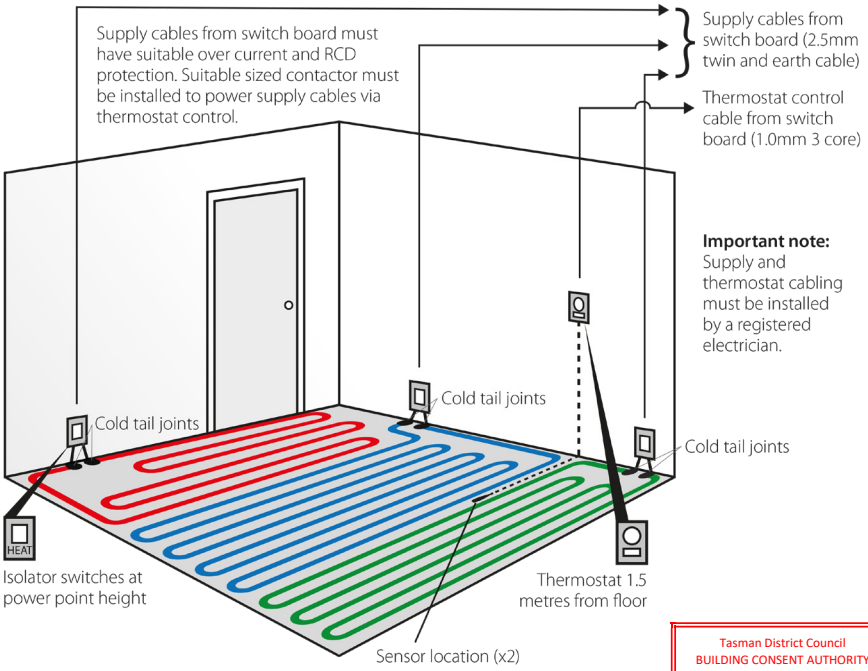
A dedicated circuit should be provided wherever possible. Alternatively an existing circuit may be used provided it has sufficient capacity. In either case each circuit must have suitable over current protection as well as a RCD residual current device connected.

The cable comprises of a heating element that also incorporates an earth braid/ screen, this must be bonded to the buildings earth system as well as any electrical conductive material covering the heating cable.

Thermostat Maximum Load: The Warmfloor Heating Thermostat provides a 16 amp switching capacity. Only loads of 3kw or less may be connected directly to a thermostat. Loads over 3kw being controlled by the one thermostat may be achieved by the electrician following the wiring method below.

See page 14 for the Thermostat wiring diagram.

### Connecting Multiple Cables to a Common Thermostat

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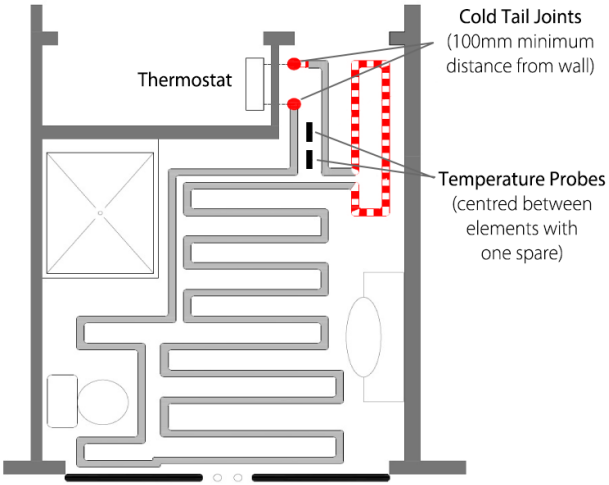
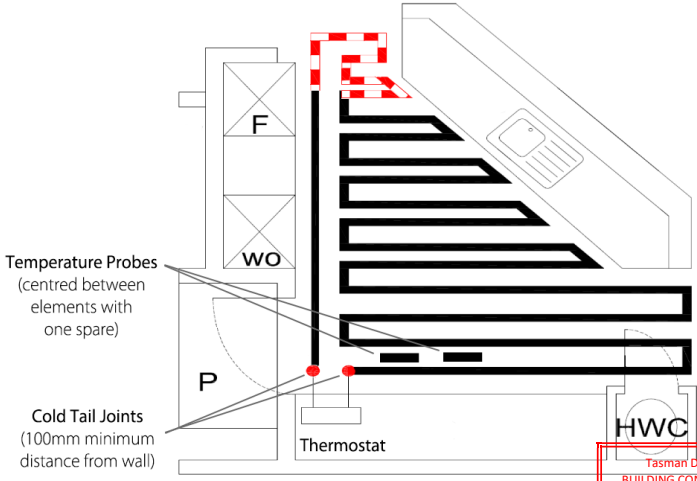
# Planning Cable Route

Please view the following examples of how it is possible to either gain or lose some cable length in an area which does not require heating (area with red dotted lines).

When planning your cable route allow for the final run back to the thermostat to enter into this zone so adjustments can be made.

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# Floor Preparation

1. **Floor preparation**

   Concrete floors must be completely cured as per manufacturer's specifications. Timber floors would ideally be covered with a tile and slate underlay. If laying directly onto a wooden floor then this would require sanding and you should consult your supplier for primers, levelling compounds and glues suitable for the surface.

2. **Contaminant Free**

   Remove any contaminants from the floor surface. This may include dirt, plaster, glue or flaking materials. If the room has been spray painted then often there is a layer of overspray around the walls, this must be removed with the use of a grinder. Should you be working on a concrete floor that appears shiny, non-porous then the floor may require grinding. Consult your floor specialist or Tiler.

3. **Mark out Permanent fixtures**

   Locate the position of floor mounted permanent fixtures. Mark these out to ensure the cable is not installed under these units.

   A common distance for a vanity is between 280mm to 350mm from wall to toe space. A common space for a toilet placement is 600mm from wall and 300mm wide. A kitchen cabinet is typically 550mm from wall to toe space. Where possible the exact measurement should be obtained.

4. **Cable cold tail & sensor location**

   Grind or chisel some grooves in the floor to accommodate the cold tail and floor sensors. These cold tails should be located directly below the thermostat and a minimum of 100mm from the wall. Sensors should be located directly in the centre of two cables and approximately 500mm into the room. A back up sensor has been supplied which should be installed next to the function sensor, but left unconnected at the thermostat (see Fig2 – page 12)

5. **Surface Priming**

   The floor must now be thoroughly swept and vacuumed if necessary before applying the primer. Mix the floor primer to the manufacturer's specifications and apply to the surface with a paint roller. This surface must now be left to dry. Drying time depends on the ambient air temperature.

   Helpful hint – If performing this work in winter, then it is a good idea to do this first stage the day/night before cable installation. This will save time wasted waiting for the floor to dry.

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# Recommended Cable Spacing

If the method of sizing your cable was by our online calculator https://www.warmfloornz.com/more-info/information/underfloor-cable-calculator - the cable spacing has been indicated there.

If for your sizing method you used the method as indicated on page 3 of this manual, then the spacings will be as listed below approximately.

170 watts/sqm – 80mm spacing

190 watts/sqm – 70mm spacing

210 watts/sqm – 60mm spacing

QR code link to the Warmfloor Calculator www.warmfloornz.com.

Another common method used *(not as accurate – depending on your room shape)* is :

$$\frac{\text{FLOOR AREA TO BE HEATED}}{\text{CABLE LENGTH (FOUND ON BOX)}} \times 1000 = \text{SPACING}$$

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# Preparing Cable Layout

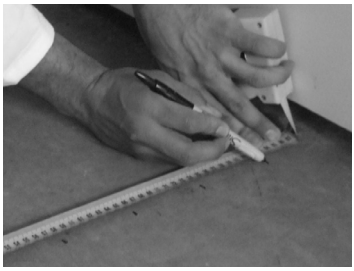

*Fig. 1*

With a starting point of 150mm from edge of the wall, mark out the calculated spacings across the room. Measure and add the total length of cable runs required up the room then add the width of the room x 2 to ascertain the length of cable you require. Confirm you have purchased the correct Cable (length is displayed on the box).

If required adjust the starting point and spacings accordingly. Closer spacing down to 60mm is acceptable, however wider spacings, more than 10% of the recommended, we would suggest a new correct size cable be purchased.

**Notes: The cable can not be lengthened or shortened. Ensure cable is not placed under any permanent fixtures. This important step can be viewed on our training video, see www.warmfloornz.com**

# Cable Installation

## Under tile installation

1. Remove reel from box. Insert a rod through the reel centre hole to unroll 2.5 meters of cable until you reach the cold tail joint. Tape the joint into the groove that you have ground or chiselled. (Ref Fig 2)
2. Spray the floor with adhesive spray where the cable will loop around. Spray the floor at approximately 400mm intervals to allow for strips of tape to hold cables down. Note: The spray gives greater adhesion for the tape to stick to the floor.
3. Wait a few minutes for the spray to cure.
4. Run the cable along your planned route sticking down at regular intervals ensuring runs are straight and parallel to walls. Be sure to pull the cables taught to keep them flat on the floor.
5. Caution – heating cable must not overlap each other and a minimum distance of 50mm apart must always be maintained.

   The minimum bending radius of the cable is 30mm.
6. On the cable, there is marker when you reach the half way point of its length. Check to ensure you are near the half way stage of your cable installation.

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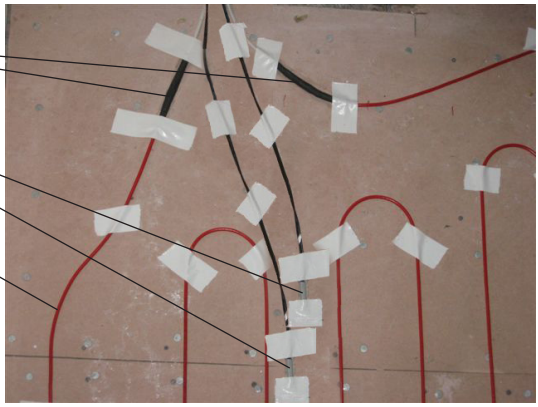
8. When nearing the end of the cable run, fix the other cold tail into position and adjust the final cable location into the dead area.
9. Fix the probes into the floor recess checking that they are located midway between two cables. (Ref Fig 2)
10. Pull cold tails and probes cable up through wall and into flush box using draw wire previously installed.

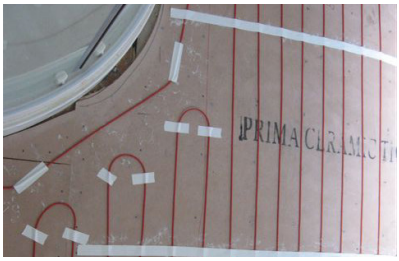


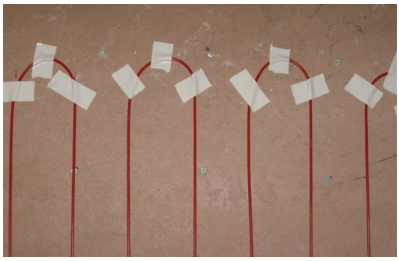

**IMPORTANT INFORMATION**

Cold Tails must be laid into a groove chased into the floor and **MUST NOT** be bent into the wall cavity

*Fig. 2*

*Sample installation photos. Visit our website for more examples.*





## Cable Testing

(Where possible the following tests should be carried out)

Test and record the meg ohm value between the cables conductor and earth, and also the conductor's ohm value.

• Meg ohms value should be greater than 1.0mΩ

• Ohm value should be within -5% to 10% of the value stated on the cables label.

These tests are carried out in the factory, so if the appropriate test equipment is not available then a cable monitor will verify a cable's integrity.

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### Damaged Cables

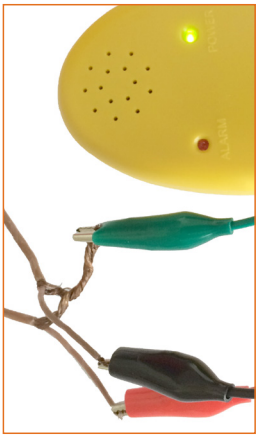
Damage usually only occurs when:

1. Heavy levelling compound buckets with sharp edges are dropped onto the cable.
2. Heavy glue buckets are dropped onto exposed cable if levelling compound does not have sufficient coverage.
3. Excessive foot traffic and use of ladders with poor feet protection being used where cabling exists.
4. Fixtures such as toilets / door stops have penetrated the cable when being fixed.

Please be aware of these causes and ensure care is taken to prevent damage to the cable.

## Connecting Cable Monitor

A Cable monitor **MUST** be connected to all cables after installation. This is essential as the monitor will detect if damage occurs after the element has been laid. Monitors must have batteries inserted to work.




- Connect the red lead of the monitor to an element conductor.
- Connect the black lead of the monitor to an element conductor.
- Connect the green lead to the earth shield.

**Turn the monitor on.**

- A green light will be displayed with no audible warning noise.
- Disconnect the red lead to check that a noise is emitted.
- Re-connect monitor lead.

**Turn the monitor on at all times when the area is being worked on.**

- Foot traffic should not be permitted on to floors until finished surface has been laid.

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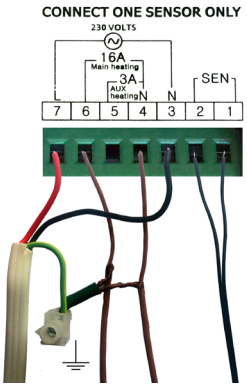
# Final Electrical Connection

## Final Electrical Connection

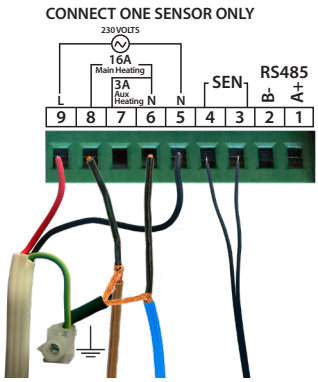
This may only be performed by a Registered Electrician.

- Check that the cable monitor does not sound an alarm prior to its disconnection
- Prepare the cold tails as follows: Strip back cold tail outer protection to expose Earth Screen.

All models, except for the TH05




TH05 Only




# Self-Levelling Compound

## Tiled floors

It is strongly recommended to install Self-Levelling compound over floors that are to be tiled. This protects the cable when tiling and assists with even heat distribution.

A range of Self-Levelling Compounds are available from your cable supplier and advice on the correct type of products should be sought.

When using the Self-Levelling Compound make sure that heavy buckets are not placed directly onto cables. The same applies to the Tilers adhesive glue.

## Vinyl and Timber floors

If laying vinyl or timber flooring over the heating cables. Self-Levelling compound **MUST** be used.

Monitors connected to elements

Self-Levelling compound covering elements

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TASMAN DISTRICT COUNCIL APPROVED DOCUMENT
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# Do's and Don'ts

**DO** Carefully read this installation manual before commencing installation.

**DO** If after reading this manual you are not confident with completing the installation yourself, then do contact a Warmfloor Approved Installer. Approved installers can be contacted via your supplier, by visiting our website or by phoning Warmfloor on 0800 492 763.

**DO** Ensure a smooth, clean and dry surface before beginning installation.

**DO** Mark out permanent fixtures i.e. vanities, toilets, so they can be avoided. Watch out for location of door stops.

**DO** Plan the cable layout and stick to recommended cable spacing and perimeters.

**DO** Space the cable evenly over the floor.

**DO** Protect the cable with cardboard or hardboard between installation and tiling.

**DO** Consult with your supplier which tile adhesives and grouts are suitable for use with underfloor heating.

**DO** Check that the cable monitor is installed and turned on before commencing the tiling.

**DO** Take particular care when tiling so as not to dislodge or damage the heating cable.

**DO** If in doubt about the suitability of the sub-floor to be heated check with your local tile shop or tiler.

**DO** Follow the recommendation of using Self Levelling Compound but if you choose not to then extreme care must be taken when tiling not to dislodge or damage the heating cable.

**DO** STOP and call Warmfloor Heating if at any time the cable monitor sounds

**DO** Install cold tail joints under the first tile below thermostat position.

**DO** Install thermostat probes mid point between two cables.

---

**DON'T** Commence installation on a concrete floor that has not been fully dried and cured.

**DON'T** Cut or attempt to shorten the cable at any time.

**DON'T** Allow traffic over the installed cable before tiling.

**DON'T** Allow the heating cable to cross over or touch each other at any point.

**DON'T** Allow the heating cable to come any closer than 50mm to each other.

**DON'T** Install any of the heating cable in wall cavities or up walls.

**DON'T** Place tiles, sharp or heavy object on any of the cable whilst tiling.

**DON'T** Commence tiling before testing the cable using the cable monitor.

**DON'T** Switch on the heater until the adhesive has fully dried (7 day minimum).

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# Warmfloor Insul-Board Installation

Warmfloor have engaged Sika to perform tests as to the best practices and materials required for the installation of Warmfloor Insul-board to both Timber and Concrete surfaces.

For all installations, Sika brand products are recommended.

**PRODUCTS:**

- **Sika Primer 11 W +**
- **Sikaflex® -123 MS Bond Adhesive**
- **Prohesive Promaxset Plus**
- **Sikafloor Level Pro**

## 1 General

1.1 This technical specification is to be read in conjunction with the project Contract Documents and Specification.

1.2 All work to be carried out in accordance with the current Sika (NZ) Ltd data sheets.

## 2 Surface Preparation

2.1 All structural building components must comply with the New Zealand Building Code and relevant New Zealand standards including NZS 3604, NZS 3603, NZS 3403 and E2/AS1.

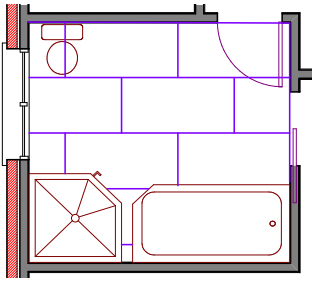
2.2 All concrete floors must have all contaminants removed and ground if necessary prior to priming.

2.3 All timber floors must have all contaminants removed and sanded if necessary prior to priming.

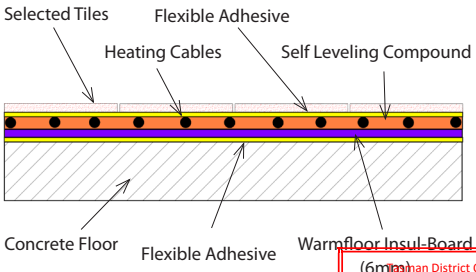
2.4 All dust, dirt and other contaminants must be removed before priming with Sika Primer 11 W +.

### Warmfloor Insul-Board

*Lay in a Brick Pattern as shown.*
*The board can be cut with a Jigsaw or Stanley Knife. Each sheet of Insul-Board measures 1200 x 600 x 6mm. One sheet will cover approx 0.72 sq metres. Available in packs of 4 or 6. A 4-pack of tiles covers 2.88 sq metres, while a 6-pack will cover 4.32 sq metres.*



### Cross Section Detail

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## 3 Priming

3.1 Substrates shall be primed with Sika Primer 11 W + strictly in accordance with the technical data sheet.

## 4 Application

4.1 Concrete / cementitious substrates Apply Prohesive Promaxset Plus using a 6mm X 6mm notched trowel keeping the notched ridges running in one direction

4.2 Place Warmfloor Insulation board. The board should be pressed into wet adhesive and moved at least the width of the notch, perpendicular to the adhesive notch to ensure full adhesion.

4.3 Timber floors - Apply Sikaflex® -123 MS Bond adhesive (or equivalent – must be non-solvent based) around the perimeter of Warmfloor insulation boards and at 200mm centres.

4.4 After applying the adhesive, fit Warmfloor Insulation boards to the timber floor. They must also be secured with screws that have 30mm countersunk washers, 12 screws per sheet. (screws and adhesive available from Warmfloor)

## 5 Installation

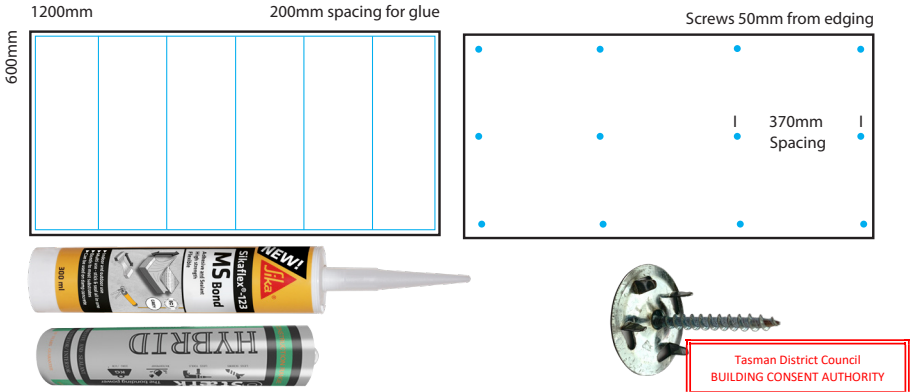
Install Warmfloor Heating cables as per manufacturers instructions

### Levelling

5.1 Sikafloor Level Pro Is a one pack self-levelling mortar. Pour the product onto the substrate and spread with a flat trowel Roll a spiked roller over the whole surface, before the product starts setting.

5.2 Once the Sika Level Pro is completely cured your floor is ready for Tile Installation.

### Timber Floor

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# PRODUCT WARRANTIES

- Warmfloor warrants that the contents of your heating kit is free from Manufacturing defects
- This warranty applies for the first consumer and is not transferable.
- This warranty applies to Warmfloor products from the date of purchase by the consumer for the period of:
  - ✔ Fifteen (15) years for heating cable
  - ✔ Twenty-FIve (25) years for heating cable when installed by a Warmfloor Approved Installer
  - ✔ Three (3) years for Thermostat (Warmfloor will supply replacement thermostat, excluding installation costs)
- The warranty means that you have all the protections given to you as a consumer in the Consumers Guarantees Act 1993 and applies in all circumstances covered by the Consumer Guarantees Act.
- Warmfloor or its approved installer reserves the right to charge for any repairs/ faults caused by installation damage which is not the fault of Warmfloor Heating Limited.
- All procedures as detailed in the Warmfloor installation manual need to be followed precisely for this warranty to be valid. Any deviation from these may result in the warranty being null and void, and repair costs may be incurred.
- Proof of purchase must be supplied with any warranty claim. We suggest you attach your proof of purchase to this warranty form and keep in a safe place.
- Warmfloor's warranty does not include costs in relation to any damage to fixtures or fittings caused by the removal, replacement, service or repair of the product. This clause may be exempt only when heating has been installed under tiles by a Warmfloor Approved Installer and the owner has four spare tiles available for the repair.
- This warranty does not cover any damage caused by irregularities in the power supply (electrical surges or lightning strikes). This product is designed for a 220-240V AC supply.
- This warranty does not include the original site visit to determine the cause of the problem.

PLEASE VIEW OUR WEBSITE FOR FULL
WARRANTY INFORMATION AND CLAIM PROCEDURES

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# Consumer Records

**Important: At least 4 spare tiles must be available for use in the event of a repair**

**Record the following information to be kept by the consumer.**

**Affix warning sticker included within the cable box to the consumer's switchboard.**

## Installation Details *(to be completed by the installer)*

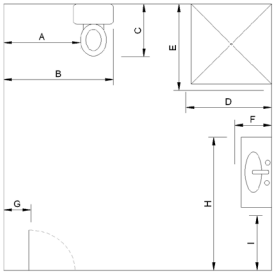
| | | | |
|---|---|---|---|
| Area installed (square metres) | | $m^2$ | |
| Element Size (Wattage) | | Watts | |
| Cable Spacing (mm) | | mm | *(Optional)* |
| Meggered Ohm Test | | ohm | *(Optional)* |
| Ohm Test | | ohm | *(Optional)* |

***Plan Details***

*Distance to element*

A: mm B: mm C: mm D: mm E: mm

F: mm G: mm H: mm I: mm




Record any other distance:

_____ mm _____ mm

_____ mm _____ mm

***Or plot your own room and record distances:***

**Installed by:** ..... **Company:** .....

**Date:** ..... **Signature** .....

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warmfloor
excellence in underfloor radiant heating

**Contact Information**

**Head Office:**
Warmfloor Heating Ltd
74 Wilson Street
Wanganui 4500
New Zealand

**Mailing Address:**
Warmfloor Heating Ltd
PO Box 192
Wanganui 4540
New Zealand

**Phone:**
0800 492 763 – toll free within New Zealand
0064 6 345 0037 – phone

**Email:**
info@warmfloornz.com

Or find one of our nationwide approved installers by checking our website
**www.warmfloornz.com**

## Important:

Please read the entire installation manual before attempting to install your undertile heating.

Incorrect installation could damage the cable and invalidate your warranty.

For Warmfloor Technical Support, visit our website.

**www.warmfloornz.com**
**or call 0800 492 763**

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PREMIER SERVICES
Architectural Design Plus

# BUILDING CONSENT DRAWINGS

## KAHIKATEA TOWNHOUSE FOR DAVID & SUSAN FORD.
## AT 18 KAHIKATEA WAY, RICHMOND

Tasman District Council
BUILDING CONSENT AUTHORITY
Building Survey
Certificate Required

Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED BUILDING CONSENT DOCUMENTATION
AMENDED
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

Tasman District Council
BUILDING CONSENT AUTHORITY
Erosion and sediment control required

| Sheet Index | | |
|---|---|---|
| **Layout ID** | **Layout Name** | Transmittal Set ID |
| 00 | COVER SHEET | E |
| A01 | DRAINAGE PLAN | B |
| A02 | PLUMBING ISOMETRIC | A |
| A03 | SLAB PLAN | E |
| A04 | GROUND FLOOR PLAN | D |
| A05 | MID-FLOOR PLAN | D |
| A06 | FIRST FLOOR PLAN | D |
| A07 | BRACING PLANS | D |
| A08 | ROOF PLAN | A |
| A09 | ELEVATIONS | C |
| A10 | ELEVATIONS | C |
| A11 | CROSS SECTION A-A | A |
| A12 | CROSS SECTION B-B | A |
| A13 | CROSS SECTION C-C | A |
| A14 | CROSS SECTION D-D | A |
| A15 | DETAILS | A |
| A16 | DETAILS | A |
| A17 | DETAILS | A |
| A18 | DETAILS | A |
| A19 | DETAILS | A |
| A20 | DETAILS | A |
| A21 | DETAILS | A |
| A22 | JUNCTION DETAILS | A |
| A23 | JUNCTION DETAILS | A |
| A24 | JUNCTION DETAILS | A |
| A25 | OPENING DETAILS | A |
| A26 | OPENING DETAILS | A |
| A27 | OPENING DETAILS | A |
| A28 | SHOWER DETAILS | A |
| A29 | SHOWER DETAILS | D |
| A30 | BATH DETAILS | A |
| A31 | FIXTURE LAYOUT PLAN | D |
| A32 | SITE PLAN | B |
| A33 | SEDIMENT CONTROL & SETOUT PLAN | B |

## GENERAL NOTES

**DIMENSIONS NOTED ON THESE DRAWINGS ARE FROM STRUCTURAL SURFACES UNLESS OTHERWISE INDICATED. ALL DIMENSIONS ARE GIVEN IN MILLIMETERS.**

The Contractor is responsible for the correct setting out of the building on site. Boundary pegs are to be located, and setting out points are to be verified on site against information provided prior. All levels/dimensions are to be confirmed onsite before commencing any work and any discrepancies are to be brought to the attention of the Premier Services Limited.

Where available, Engineering drawings are to be read in conjunction with this documentation, any discrepancies to be reported to Premier Services Limited.

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PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

Job No. 145596

# KAHIKATEA TOWNHOUSE

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

CUPOLEX BUILDING SYSTEM

CUPOLEX FLOOR SLAB REINFORCED WITH FLETCHERS DUCTILE MESH SE62. UNLESS NOTED OTHERWISE PERIMETER FOUNDATION BEAM TO BE 300mm WIDE x 320mm DEEP REINFORCED WITH 2/HD12 TO BOTTOM & 2/HD12 TO UNDERSIDE OF DUCTILE MESH. REFER TO CUPOLEX RIBRAFT FOUNDATION LAYOUT PLAN FOR FURTHER GUIDANCE.

(A) WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.

(B) TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE PODS SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 60mm THICK TOPPING FOR THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENTS.

(C) CONCRETE TO BE 25MPa AT 28 DAYS.

(D) SLAB REINFORCING TO BE SE62 WITH MIN LAPS OF 225mm.

(E) LOAD BEARING PADS TO BE REINFORCED WITH HD12's @ 200mm CRS EACH WAY TOP & BOTTOM.

(F) ALL SAWCUTS TO BE AS PER NZS3604:2011 SECTION 7.

STEEL REINGFORCING COVER

FLOOR SLAB REINFORCING SHALL EXTEND TO A MINIMUM EXTERNAL COVER OF:

(A) AGAINST GROUND 75mm
(B) AGAINST FORMWORK 50mm
(C) TOP COVER TO MESH 30mm

STEEL REINFORCING MESH SHALL HAVE A COVER OF 30mm MINIMUM FROM THE TOP SURFACE OF THE GROUND SLAB AND SHALL BE PLACED IN SUCH A MANNER AS TO AVOID DAMAGE TO THE DPM ON PROPRIETARY CHAIRS. REINFORCING MESH SHALL COMPLY WITH NZS 3422.

KITCHEN DESIGN

KITCHEN DESIGN SHALL BE IN ACCORDANCE WITH SEPARATE KITCHEN PLANS. CONFIRM POSITION OF WASTE PIPES PRIOR TO POURING THE FLOOR SLAB.

ALUMINIOUM DOOR REBATES

ALLOW FOR 20mm DEEP REBATE FOR EXTERNAL ALUMINIUM DOOR. DEPTHS OF REBATES TO BE AS FOLLOWS:

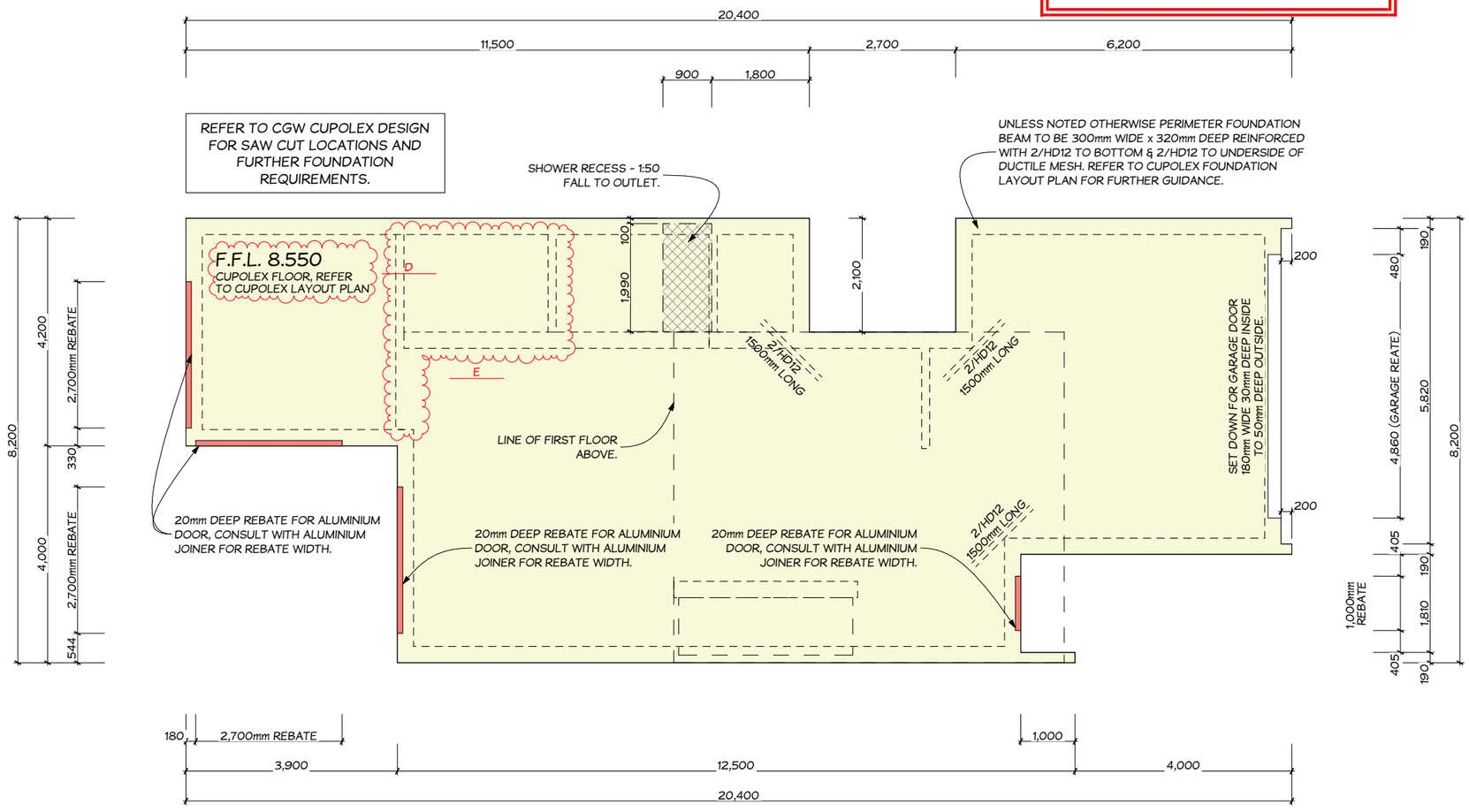
(A) SINGLE SLIDER – 45mm WIDE
(B) DOUBLE/STACKER SLIDER - 70mm WIDE

CONFIRM ONSITE WITH ALUMINIUM JOINER PRIOR TO POURING FLOOR SLAB.

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment: | Amendment: | 7/03/2022 |
| E | RFI A01 | RFI A01 | 22/03/2022 |




| | |
|---|---|
| Slab Area: | 135.04m² |
| Slab Perimeter: | 63.80m |

# SLAB PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | G.J. Gardner. HOMES<br>PREMIER SERVICES<br>Architectural Design Plus | A03 |

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Copyright - This drawing remains the property of G.J. Gardner Homes | contractors are required to comply with the Building Act 2004 and the Health and Safety Act 1992. Including all amendments | all dimensions are to be checked on site before commencement of work - contractor to report any discrepancy - do not scale | all workmanship and materials shall conform to the Building Act 2004, the Building Code 1992 and its current approved documents

# KAHIKATEA TOWNHOUSE

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE I.C. RATED.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICES.

PUMP CHAMBER CONTROL PANEL

POWER SUPPLY AND CONTROL PANEL FOR SEWER PRESSURIZED PUMP TO BE LOCATED ON EXTERIOR WALL ON DWELLING ADJACENT TO GARAGE.

HOUSE BRACING REQUIREMENTS

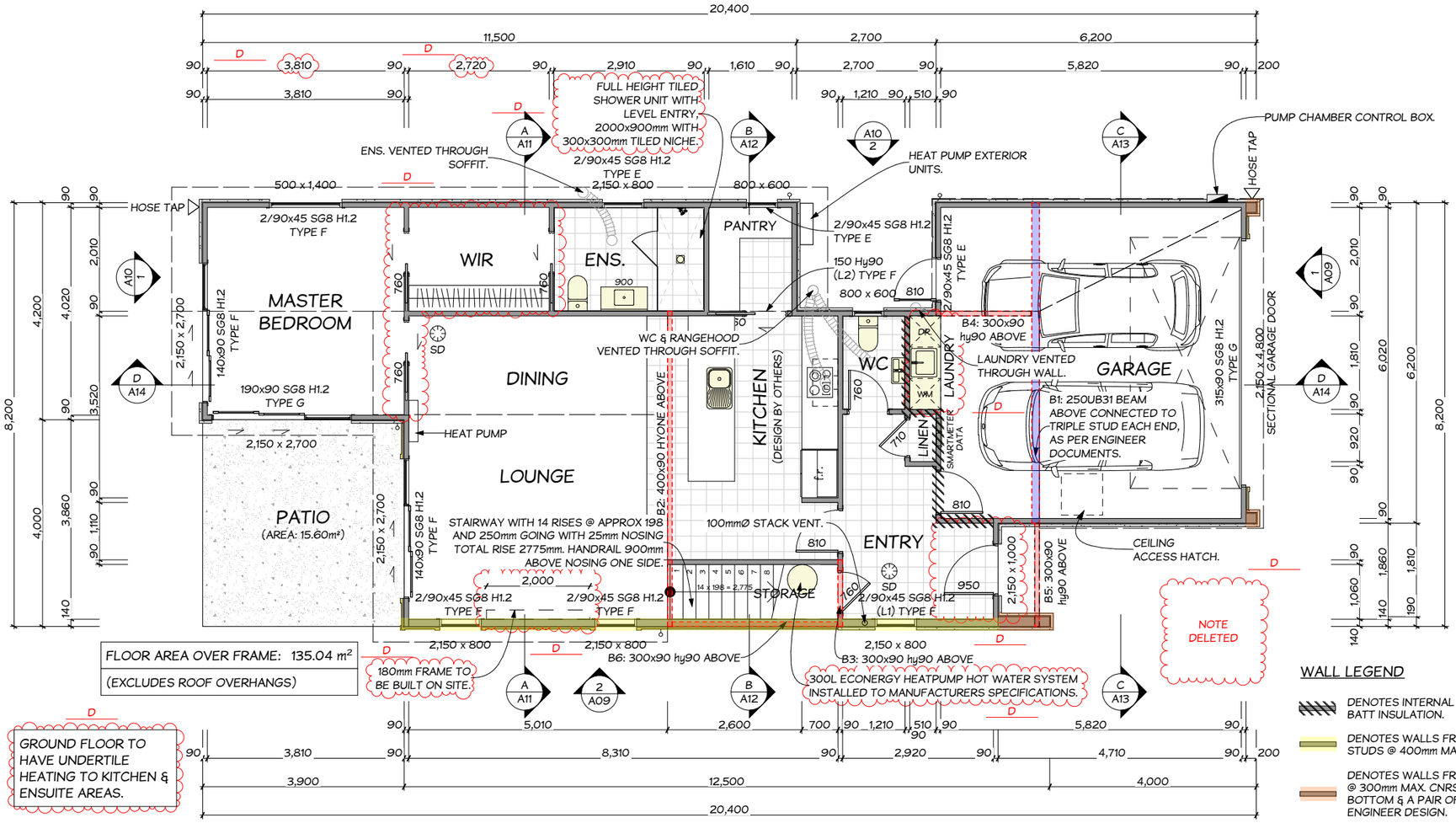
REFER TO WILTON JOUBERT CONSULTING ENGINEERS DOCUMENTS FOR FURTHER GUIDANCE ON WALL BRACING REQUIREMENTS.

## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE F = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2150x800 = OPENING SIZE (H x W)

TOWNHOUSE AS CONSENTED BY SH180022V2 APPROVED PLANS (APPENDIX A)




### WALL LEGEND

DENOTES INTERNAL WALLS TO BE INSULATED WITH R2.6 BATT INSULATION.

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment: | 7/03/2022 |

# GROUND FLOOR PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | G.J. Gardner. HOMES<br>PREMIER SERVICES Architectural Design Plus | A04 |

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# KAHIKATEA TOWNHOUSE

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment: | Amendment: | 7/03/2022 |

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

KOPINE FLOORING

20mm KOPINE FLOORING TO BE FIXED WITH 8G x 50mm STAINLESS STEEL COUNTERSUNK SCREWS. PROTECT FRAMING FROM EXCESSIVE MOISTURE AND GROUND CONTACT WITH MOISTURE LEVELS BETWEEN 12% TO 16% MAXIMUM. FIXINGS AT STANDARD FIXING PATTERN 150mm CRS AT SHEET EDGES AND WITHIN THE PANEL AT NO MORE THAN 300mm CRS.

BLOCKING TO JOISTS

PROVIDE PARTIAL BLOCKING TO JOISTS AS NECESSARY.

FIXTURE DRAINAGE

REFER TO GROUND FLOOR DRAINAGE PLAN & PLUMBING ISOMETRIC FOR FURTHER DETAILS.

STRUCTURAL ENGINEER

JOHNSON ZHANG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

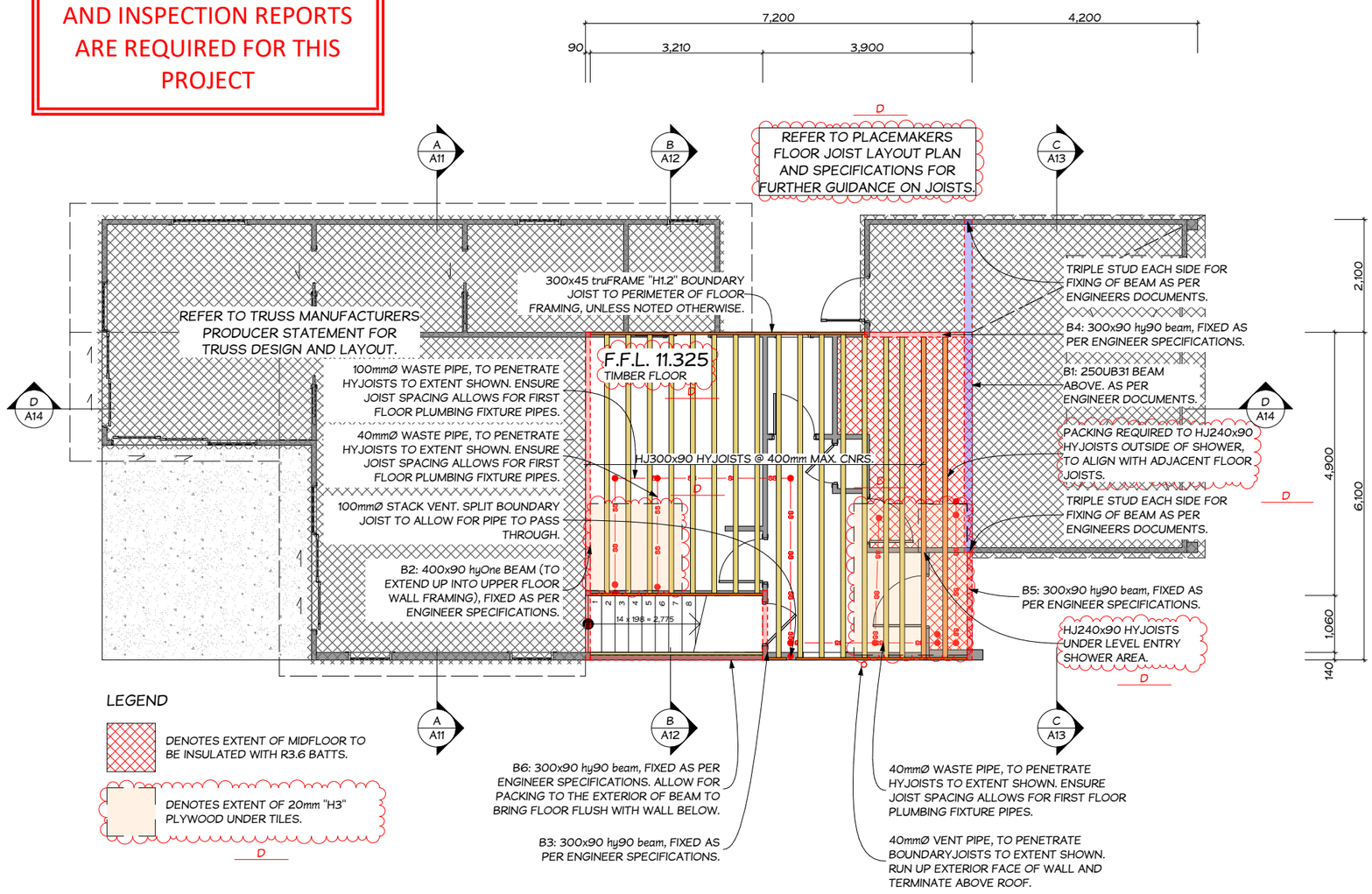
INSPECTIONS

LAL CINZAH
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT




# MID-FLOOR PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | G.J. Gardner. HOMES<br>PREMIER SERVICES<br>Architectural Design Plus | A05 |

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# KAHIKATEA TOWNHOUSE

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE I.C. RATED.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICES.

HOUSE BRACING REQUIREMENTS

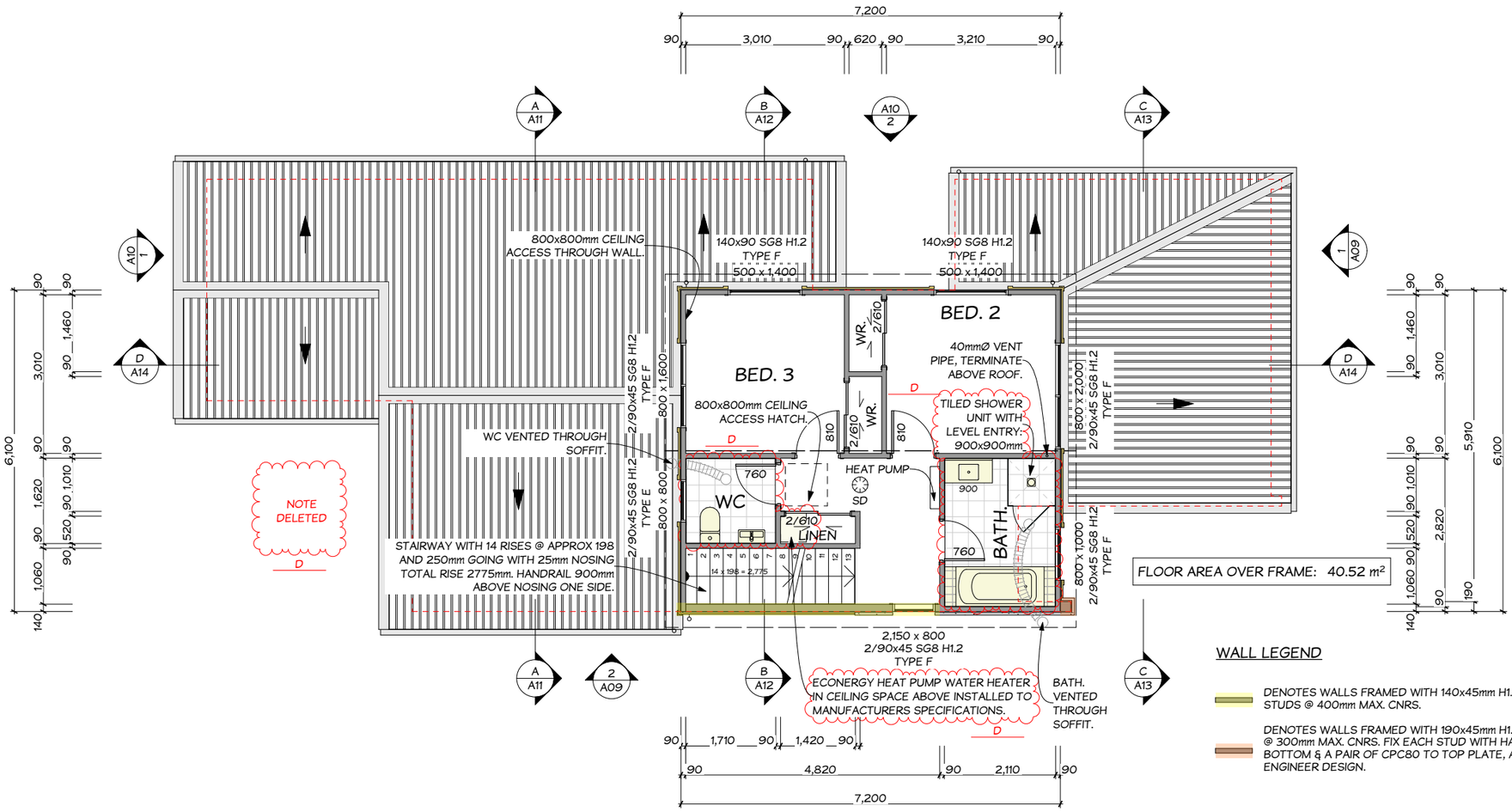
REFER TO WILTON JOUBERT CONSULTING ENGINEERS DOCUMENTS FOR FURTHER GUIDANCE ON WALL BRACING REQUIREMENTS.

## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE F = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2150x800 = OPENING SIZE (H x W)

TOWNHOUSE AS CONSENTED BY SH180022V2 APPROVED PLANS (APPENDIX A)




WALL LEGEND

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment: | Amendment: | 7/03/2022 |

# FIRST FLOOR PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | G.J. Gardner. HOMES<br>PREMIER SERVICES Architectural Design Plus | A06 |

Copyright - This drawing remains the property of G.J. Gardner Homes | contractors are required to comply with the Building Act 2004 and the Health and Safety Act 1992. Including all amendments | all dimensions are to be checked on site before commencement of work - contractor to report any discrepancy - do not scale | all workmanship and materials shall conform to the Building Act 2004, the Building Code 1992 and its current approved documents

# KAHIKATEA TOWNHOUSE

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment | 7/03/2022 |

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

BRACING NOTES

BRACED PANELS SHALL BE CONSTRUCTED TO COMPLY WITH RELEVANT "BRANZ" APPRAISAL CERTIFICATES. GIB EZYBRACE SYSTEMS 2016 HAVE BEEN APPRAISED BY THE BUILDING RESEARCH ASSOCIATION OF NEW ZEALAND (BRANZ), APPRAISAL NO. 928 (2016) GIB EZYBRACE®SYSTEMS, 2016. IT IS OF PRIME IMPORTANCE TO COMPLY WITH THE DETAILS OF DESIGN, CONSTRUCTION AND WORKMANSHIP IN THE EZYBRACE SYSTEMS SPECIFICATION AND INSTALLATION MANUAL.

STRUCTURAL ENGINEER

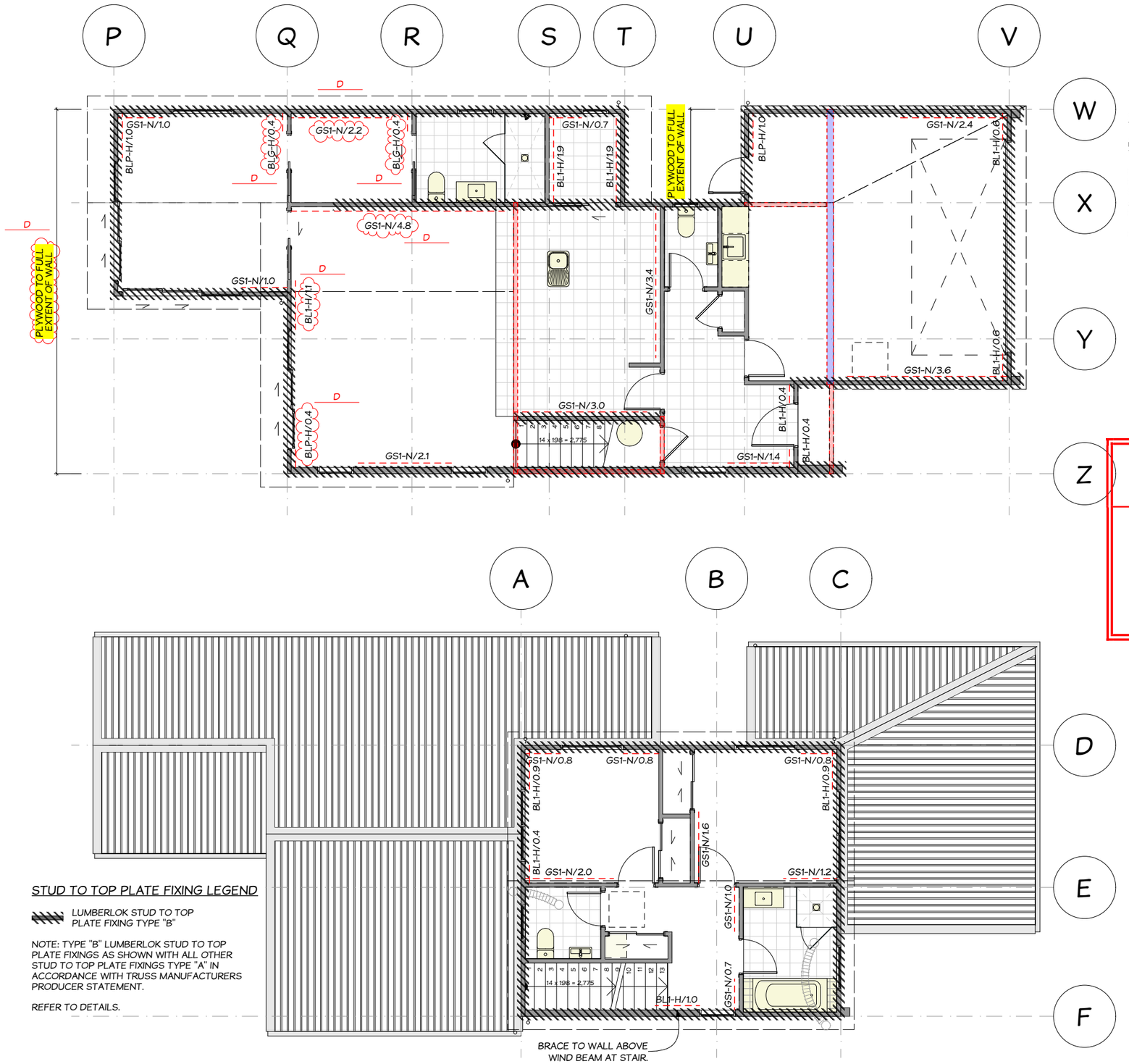
JOHNSON ZHANG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

INSPECTIONS

LAL CINZAH
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.

**ENGINEER DESIGN**
BRACING COVERED BY ENGINEER PS1, REFER TO ENGINEER DOCUMENTS FOR FURTHER GUIDANCE ON BRACING SPECIFICATIONS.




*STUD TO TOP PLATE FIXING LEGEND*

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS AS SHOWN WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

REFER TO DETAILS.

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

# BRACING PLANS

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | G.J. Gardner. HOMES<br>PREMIER SERVICES<br>Architectural Design Plus | A07 |

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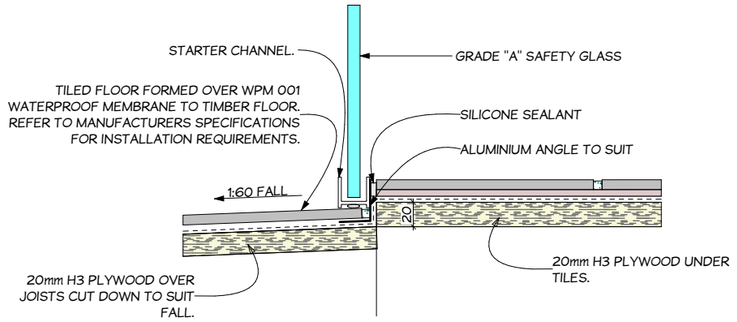
# KAHIKATEA TOWNHOUSE

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment | 7/03/2022 |
| | | | |




123 SHOWER FIRST FLOOR RECESS DETAIL
1:5




125 FIRST FLOOR SHOWER WALL BASE DETAIL
1:5

D

D

PROPRIETARY SHOWER DETAILS REMOVED.

# SHOWER DETAILS

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:5 | G.J. Gardner. HOMES<br>PREMIER SERVICES Architectural Design Plus | A29 |

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# KAHIKATEA TOWNHOUSE

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment | 7/03/2022 |

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

FOUL WATER/SANITARY PLUMBING

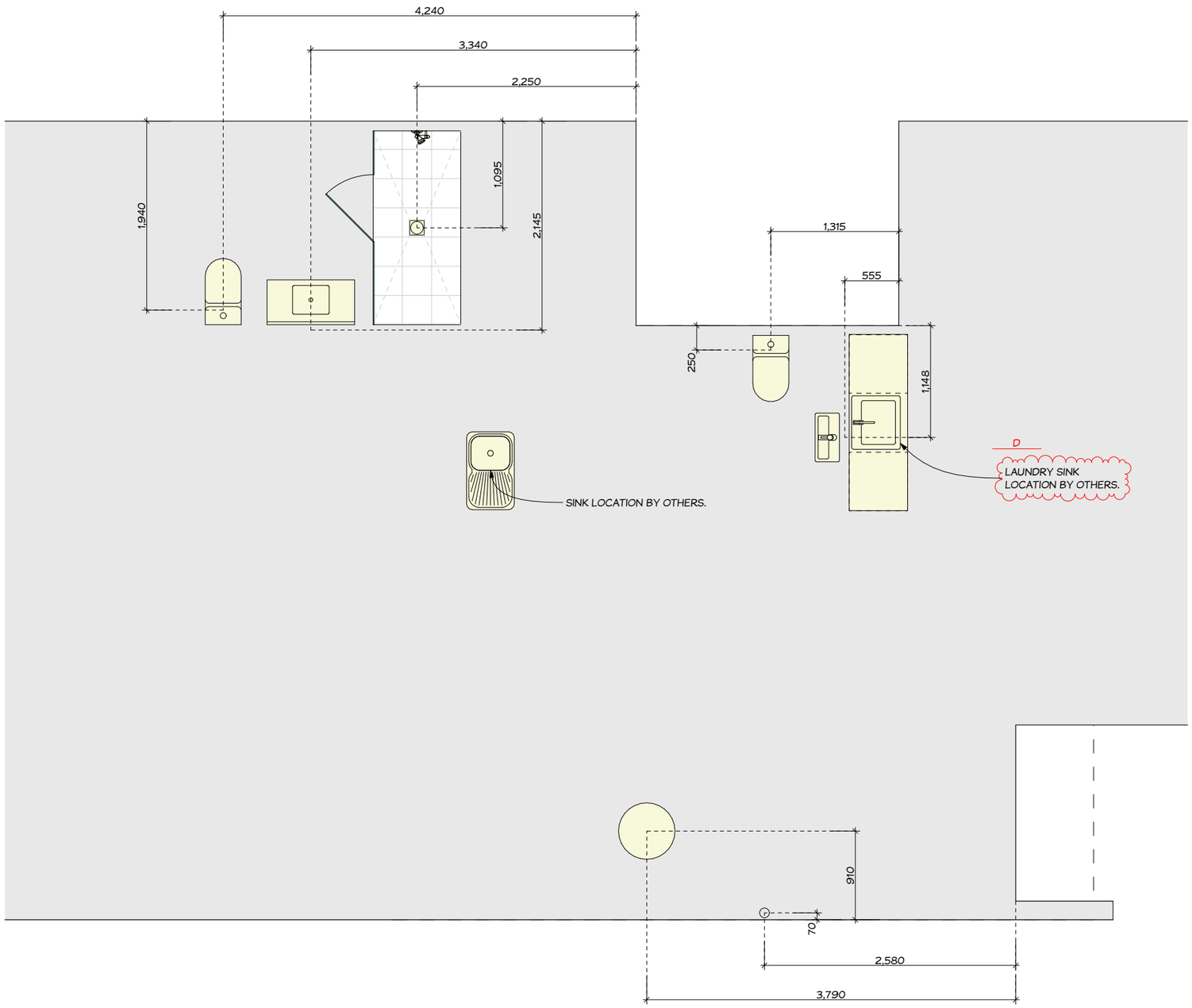
SANITARY DRAINAGE SYSTEM TO NEW ZEALAND BUILDING CODE CLAUSE G13/AS1 (FOUL WATER)

| FIXTURE DISCHARGE PIPE SIZES AND GRADIENT | | |
|---|---|---|
| SANITARY FIXTURE OR APPLIANCE | DISCHARGE PIPE (mm) | MINIMUM GRADIENT |
| Basin/Vanity | 40ø | 1:40 |
| Bathtub | 40ø | 1:40 |
| Shower | 40ø | 1:40 |
| Water Closet Pan | 100ø | 1:40 |
| Kitchen Sink | 50ø | 1:40 |
| Laundry Tub | 50ø | 1:40 |
| | | |

WATER SUPPLY

ALL COLD-WATER SUPPLY PIPEWORK SHALL BE MEDIUM/HIGH-DENSITY POLYETHYLENE (MDPE/HDPE), ARRANGED AND FIXED SO THAT ALL JOINTS ARE IN A FULLY 'RELAXED' CONDITION, WITHOUT ANY STRESS OR TENSION.

INSTALL CONVENIENTLY LOCATED ISOLATING VALVES TO TURN OFF EACH GROUP OF FITTINGS, AND INSTALL A SMALL ISOLATING VALVE ALONGSIDE EACH TOILET CISTERN NOT INTEGRALLY FITTED WITH ONE.




# FIXTURE LAYOUT PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:50 | G.J. Gardner. HOMES<br>PREMIER SERVICES<br>Architectural Design Plus | A31 |

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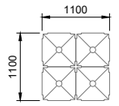
## LEGEND:




CUPOLEX MODULE LAYOUT

SET OUT POINT FOR CUPOLEX MODULES

2/HD12 x 1500mm LONG TIED TO UNDERSIDE OF MESH

300mm WIDE CONCRETE BEAM

150mm WIDE CONCRETE BEAM

BETON PACKERS

200mm DEEP CUPOLEX MODULE FOR SHOWER REBATES

FLOOR AREA: 135m²
200 DOME COUNT: 299
260 DOME COUNT: 6
BENTON STOP COUNT: 157
COUNTS APPROXIMATE ONLY AND ARE SUBJECT TO CONFIRMATION

APPROXIMATE COUNT ADDED. SUBJECT TO CONFIRMATION

## NOTES:

1. CHECK THE BUILDING CONSENT DOCUMENTATION FOR ANY INSPECTIONS THAT ARE REQUIRED BY THE BUILDING CONSENT AUTHORITY.
2. FOUNDATION LAYOUT DIMENSIONS PROVIDED FOR INFORMATION ONLY. ARCHITECTS FOUNDATION DIMENSIONS TO TAKE PRECEDENCE.
3. REFER TO ARCHITECTS DRAWINGS FOR ALL SLAB REBATE DIMENSIONS AND LOCATIONS.
4. DESIGN BASED ON ASSUMPTION OF GOOD GROUND AS PER NZS3604:2011 AS SPECIFIED IN DAVIS OGILVIE GEOTECHNICAL REPORT DATE 06 SEPTEMBER 2021, REF 37435. ENGINEER TO CONFIRM SOIL BEARING CAPACITY IS CONSISTENT WITH THE DESIGN ASSUMPTIONS ON SITE.
5. WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.
6. TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE PODS SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 60mm THICK TOPPING FOR THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENTS.
7. FOR SET-OUT DIMENSIONS AND SITE LEVELS REFER ARCHITECTS DRAWINGS.
8. CONCRETE TO BE 25MPa AT 28 DAYS.
9. SLAB REINFORCING TO BE SE62 WITH MIN LAPS OF 225mm. OR 665 MESH FOR SUBSITUTION.
10. LOAD BEARING PADS TO BE REINFORCED WITH HD12's @ 200mm CRS EACH WAY TOP & BOTTOM.
11. ALL SAWCUTS TO BE AS PER NZS3604:2011 SECTION 7.
12. REFER TO SPECIFICATION ON SHEET 003 FOR BOTTOM PLATE FIXINGS.

## INSPECTIONS:

IN ORDER FOR CGW CONSULTING ENGINEERS TO PROVIDE A PS4, AT A MINIMUM WE MUST UNDERTAKE THE FOLLOWING INSPECTIONS:

1. SUBGRADE INSPECTION ONCE ALL TOPSOIL AND ORGANIC MATERIAL HAVE BEEN REMOVED FROM THE EXCAVATION.
2. INSPECTION OF FILL MATERIALS AND TESTING AS REQUIRED.
3. PRE POUR INSPECTION.

WE REQUIRE 24HRS NOTICE BEFORE ANY INSPECTION.

TO BOOK AN INSPECTION CALL: 03 548-8259
AND QUOTE THIS NUMBER: 220237

NOTE: THIS DESIGN HAS BEEN PRODUCED PRIOR TO DRAINAGE PLANS BEING AVAILABLE. IT IS THE CONTRACTORS RESPONSIBILITY TO CHECK FOR THE LOCATION OF ALL COUNCIL PIPES AND SOAKPITS TO ENSURE THEY DO NOT CLASH WITH THE SLAB DESIGN. SHOULD EITHER OF THESE BE FOUND ON SITE AND THE HOUSE FOOTPRINT BE LOCATED WITHIN THE ZONE OF INFLUENCE (TYPICALLY 45 DEGREES FROM THE PIPE INVERT) THEN CGW SHALL BE CONTACTED FOR COMMENT PRIOR TO CONSTRUCTION.

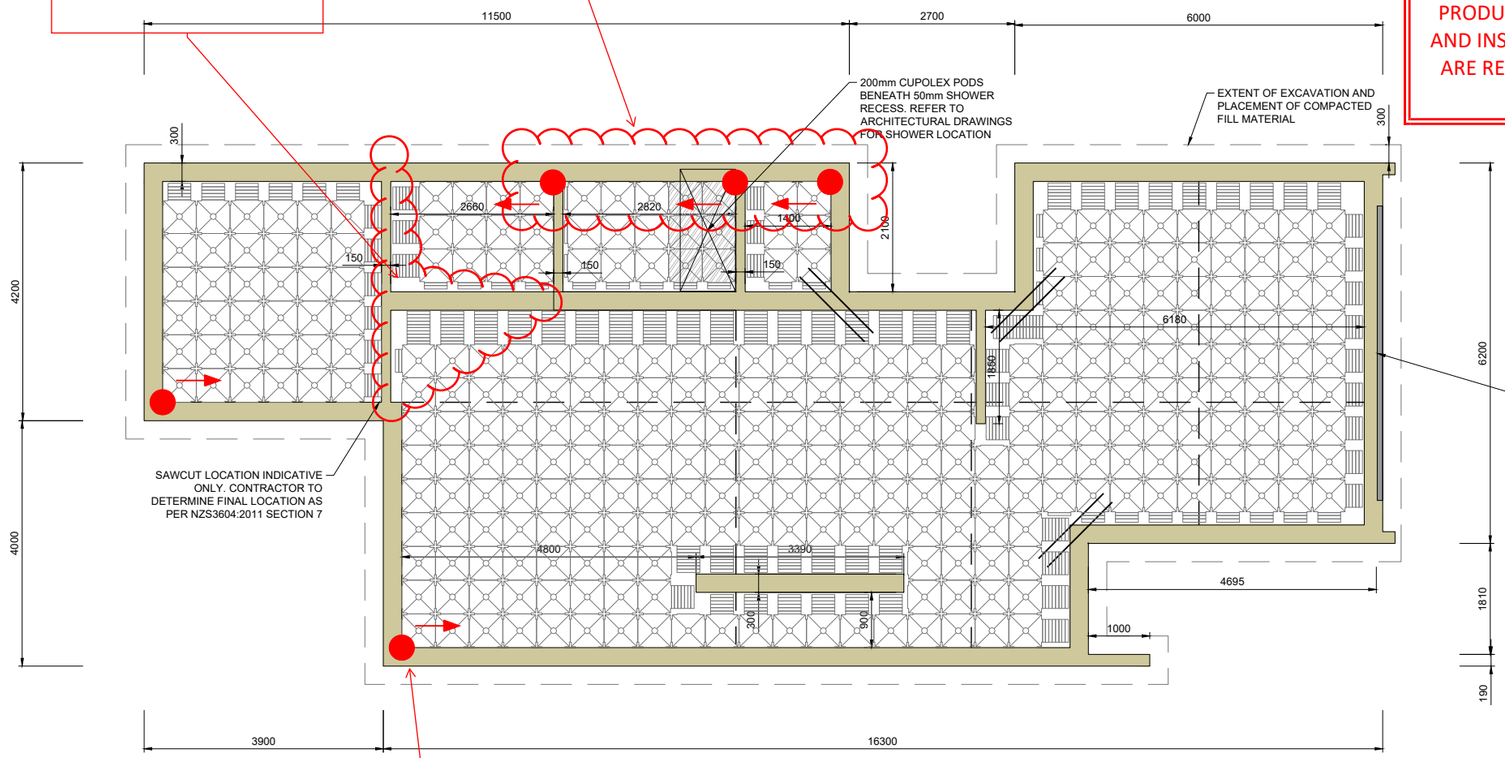
## GENERAL CHANGES

- CUPOLEX DOME LAYOUT ADJUSTED WHERE INTERNAL BEAMS ADDED.
- SAWCUT LOCATIONS UPDATED WHERE APPROPRIATE.
- DIMENSIONS ADDED FOR CLARITY.

SET OUT MARKERS ADDED

NEW 150mm INTERNAL BEAM MEETING EXTENDED 300mm INTERNAL BEAM.

REFER TO NOTE 9 FOR MESH SUBSTITUTION.




CUPOLEX FOUNDATION LAYOUT PLAN
SCALE 1:100 A3

SET OUT MARKER ADDED

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

GENERAL NOTES A3

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2. VERIFY ALL DIMENSIONS ON SITE
3. DO NOT SCALE FROM DRAWINGS
4. THE ADEQUACY OF THE DESIGN INCORPORATED ON THE PLANS IS SUBJECT TO THE REQUIREMENTS INCLUDED IN THE SPECIFICATION FOR THE WORKS AND THE DESIGN ASSUMPTIONS INCORPORATED IN THE CALCULATIONS AND REPORTS FOR THE PROJECT

REVISION AND DESIGNER UPDATED

CGW CONSULTING ENGINEERS
NELSON • CHRISTCHURCH • WANAKA • AUCKLAND
03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: G J GARDNER HOMES
18 KAHIKATEA WAY, RICHMOND

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

DRAWING TITLE: FOUNDATION PLAN AND SPECIFICATION

DESIGNED BY: TOM LOTT
DRAFTED BY: TOM LOTT

| REV | DATE | REVISION | CHD | APD |
|---|---|---|---|---|
| B | 16.03.22 | SECOND ISSUE | AF | RC |
| A | 10.08.21 | FIRST ISSUE | AF | RC |

FOR CONSTRUCTION

| SCALE | SIZE |
|---|---|
| AS SHOWN | A3 |

| PROJECT NO | TYPE | SHEET | REV |
|---|---|---|---|
| 220237 | DWG | S-01-01 | B |

GENERAL NOTES A3

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2. VERIFY ALL DIMENSIONS ON SITE
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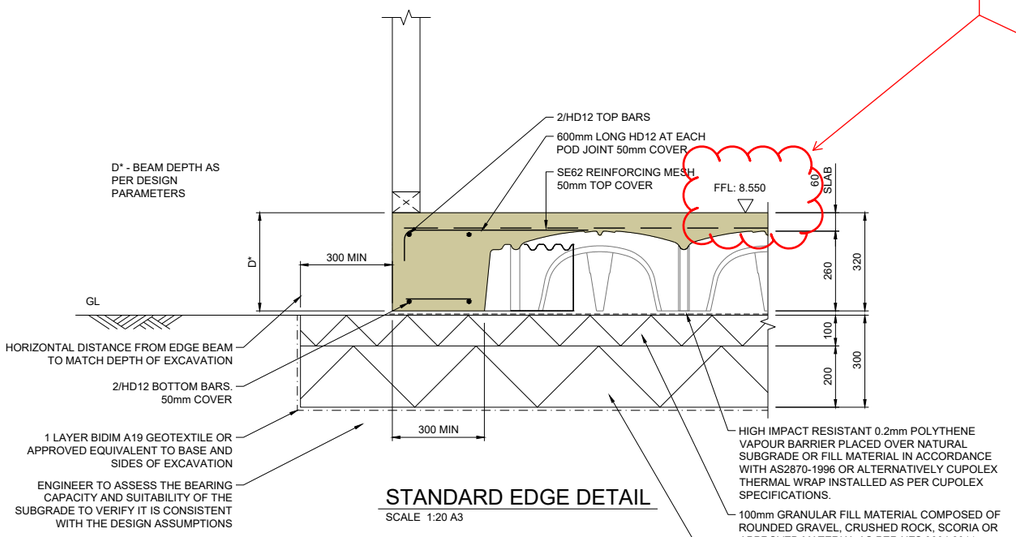
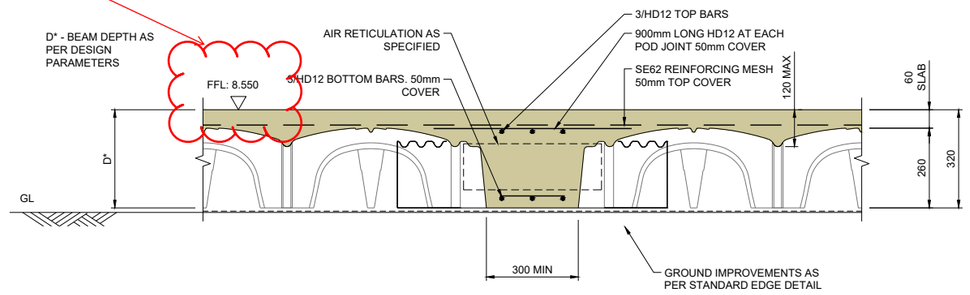
FFL SPECIFIED




## STANDARD EDGE DETAIL
SCALE 1:20 A3

NOTE: DEPTH OF GRAVEL RAFT IS INDICATIVE ONLY. GRAVEL DEPTH TO BE THE MAXIMUM OF;
- 75mm OF GRANULAR FILL MATERIAL COMPOSED OF ROUNDED GRAVEL, CRUSHED ROCK, SCORIA OR APPROVED MATERIAL AS PER NZS 3604:2011 CLAUSE 7.5.3.2 TO ACHIEVE A LEVEL SURFACE,
- TOPSOIL DEPTH,
- DEPTH TO 200kPA SOIL
- OR AS OTHERWISE SPECIFIED IN THE GEOTECHNICAL REPORT.

FILL MAY BE SWAPPED OUT WITH APPROVED EQUIVALENT BY GEOTECHNICAL ENGINEER INSPECTING SITE CUT.

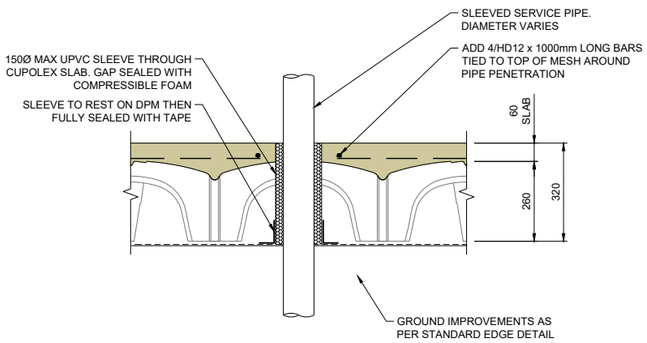



## 300mm INTERNAL BEAM DETAIL
SCALE 1:20 A3

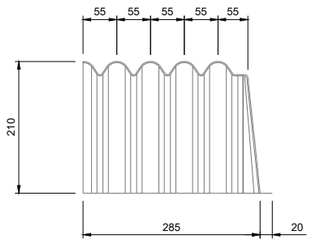
FILL COMPACTION NOTES:
- CHECK THE BUILDING CONSENT CONDITIONS BEFORE COMMENCING CONSTRUCTION. IF COUNCIL REQUIRES A PS4, CONTACT A CONSULTING ENGINEER BEFORE STARTING EARTHWORKS. NO INSPECTION = NO PS4.
- ANY FILL DEPTH OVER 300mm NOT CONFINED BY A FOUNDATION WALL WILL NEED TO BE TESTED. CONTACT AN ENGINEER BEFORE STARTING WORKS.
- AS A GUIDE THE FOLLOWING COMPACTION METHOD MAY BE USED:
  1. MINIMUM 350 KG PLATE COMPACTOR TO BE USED TO COMPACT FILL.
  2. MINIMUM OF 6 PASSES OF PLATE COMPACTOR WITH SUFFICIENT WATER TO MEET SELECTED FILL MOISTURE REQUIREMENTS.
  3. FILL TO BE PLACED IN MAXIMUM 150mm THICK LAYERS.
  4. REFER TO SUBGRADE NOTES ON THE SPECIFICATION PAGE OF THESE DRAWINGS REGARDING THE USE OF ALTERNATE MATERIALS. CONTACT THE GEOTECHNICAL ENGINEER IF YOU INTEND TO USE SOMETHING DIFFERENT THAN THE MATERIALS SPECIFIED

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT




## PIPE PENETRATION DETAIL
SCALE 1:20 A3




## BETON STOP DETAIL
SCALE 1:10 A3

REVISION AND DESIGNER UPDATED

CGW CONSULTING ENGINEERS
NELSON • CHRISTCHURCH • WANAKA • AUCKLAND
03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: G J GARDNER HOMES
18 KAHIKATEA WAY, RICHMOND

Tasman District Council BUILDING CONSENT AUTHORITY RECEIVED Date: 23/02/22

DRAWING TITLE: CUPOLEX FOUNDATION DETAILS

DESIGNED BY: TOM LOTT
DRAFTED BY: TOM LOTT

| REV | DATE | REVISION | CHD | APD |
|---|---|---|---|---|
| B | 16.03.22 | SECOND ISSUE | AF | RC |
| A | 10.08.21 | FIRST ISSUE | AF | RC |

FOR CONSTRUCTION

| SCALE | SIZE |
|---|---|
| AS SHOWN | A3 |

| PROJECT NO | TYPE | SHEET | REV |
|---|---|---|---|
| 220237 | DWG | S-01-02 | B |

# SPECIFICATION:

GENERAL

CHECK THE BUILDING CONSENT DOCUMENTATION FOR ANY INSPECTIONS THAT ARE REQUIRED BY THE "BUILDING CONSENT AUTHORITY"

FOR SET-OUT DIMENSIONS AND SITE LEVELS REFER ARCHITECTS DRAWINGS

SUBGRADE

DESIGN BASED ON ASSUMPTION OF GOOD GROUND AS PER NZS3604:2011 AS SPECIFIED IN DAVIS OBIVIE GEOTECHNICAL REPORT DATE 06 SEPTEMBER 2021, REF 37435. ENGINEER TO CONFIRM SOIL BEARING CAPACITY IS CONSISTENT WITH THE DESIGN ASSUMPTIONS ON SITE.

WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.

UNLESS SPECIFIED, HARDFILL SHALL BE TNZ M4/AP40 COMPACTED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY.

THE CONTRACTOR MAY SUBMIT ALTERNATIVES FOR CONSTRUCTION MATERIALS AS A MEANS OF COMPLIANCE TO THESE DRAWINGS AND SPECIFICATIONS. THESE SHALL BE SUBSTANTIATED WITH PAST PERFORMANCE RESULTS AND SUPPORTING EVIDENCE THAT THE ALTERNATIVES WILL ACHIEVE THE REQUIRED RESULTS BEFORE APPROVAL WILL BE GIVEN BY THE ENGINEER FOR THEIR USE.

BLINDING

MAXIMUM 25mm OF COMPACTED GAP 7 OR CRUSHER DUST.

CONCRETE

ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH NZS:3109:1997.

CONCRETE TO BE FINISHED TO NZS3114:1987.

ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH F'C OF 25MPA AT 28 DAYS.

ALL CONCRETE SHALL BE SUPPLIED FROM A READY MIXED CONCRETE BATCHING PLANT WHICH HOLDS A MINIMUM OF "HIGH GRADE" PRODUCTION STANDARD AS DEFINED BY NZS3109.

ALL CONCRETE SHALL BE FULLY COMPACTED BY APPROVED VIBRATION EQUIPMENT.

VIBRATION SHALL BE APPLIED IN A UNIFORM PATTERN WITH CARE TAKEN NOT TO OVER-VIBRATE.

THE FLOOR SLAB SHALL BE PLACED CONTINUOUSLY AND WITH STRICT ATTENTION TO AVOIDANCE OF COLD JOINTS AND PLASTIC SHRINKAGE.

SHOULD DELAYS OCCUR WITH CONCRETE SUPPLY, THE UNFORMED EDGES OF FRESHLY PLACED CONCRETE SHALL BE COATED WITH AN EVAPORATION RETARDANT (SIKAFILM OR SIMILAR APPROVED) AND JOINS SHALL BE SUITABLY VIBRATED UPON CONTINUATION OF PLACING.

EVAPORATION RETARDANT SHALL BE APPLIED GENERALLY TO FLOOR SURFACE TO PREVENT PLASTIC SHRINKAGE UNDER ADVERSE AMBIENT CONDITIONS (IE, CAUSING RAPID BLEED WATER EVAPORATION).

THE FLOOR SLAB SHALL BE MOIST CURED BY COMPLETE FLOODING WITH WATER ONCE CONCRETE HAS ACHIEVED INITIAL SET. FLOODING SHALL BE TO SUFFICIENT DEPTH TO PREVENT FROST ICE FORMING ON THE CONCRETE SURFACE AND SHALL BE APPLIED FOR AS LONG AS POSSIBLE BUT NOT LESS THAN 7 DAYS. ALTERNATIVELY SPECIALIST SUPPORT SHALL BE SOUGHT FROM MARKHAM AND THEIR DESIGN TEAM TO ASCERTAIN THAT A CURING AGENT SUCH AS 'AQURON 2000' OR SIMILAR PRODUCT IS A FEASIBLE ALTERNATIVE FOR THE PROJECT.

CONCRETE SURFACE FINISHES SHALL BE IN ACCORDANCE WITH NZS3114, AS FOLLOWS:

| | |
|---|---|
| FOOTING | U2 (WOOD) |
| FLOOR SLAB | U3 (STEEL FLOAT) |
| PRECAST | F5 / U3 (STEEL TROWEL) |

REINFORCING

ALL REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF AS/NZS4671:2001.

SLAB REINFORCING TO BE SE62 WITH MIN LAPS OF 225mm. OR 665 MESH FOR SUBSTITUTION.

LOAD BEARING PADS TO BE REINFORCED WITH HD12'S @ 200mm CRS EACH WAY TOP & BOTTOM.

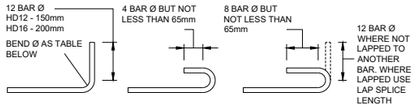
MINIMUM 50mm COVER TO BE MAINTAINED TO REINFORCING ON OUTER FACES. 30mm ELSEWHERE UNLESS SPECIFIED ON DRAWINGS.

SPLICING OF REINFORCEMENT WHETHER BY LAPPING, WELDING OR MECHANICAL SPLICE, SHALL BE AS SHOWN ON THE DRAWINGS OR AS SPECIFICALLY APPROVED BY THE ENGINEER.

TOP REINFORCEMENT SHALL BE SUPPORTED BY BAR CHAIRS OR OTHER APPROVED METHODS.

DEFORMED BARS SHALL BE OF SEISMIC GRADE MICRO-ALLOY STEEL, (GRADE 300E & GRADE 500E MA) AS MANUFACTURED BY PACIFIC STEEL LTD.

BENDS FOR ALL BARS EXCEPT STIRRUPS AND TIES:



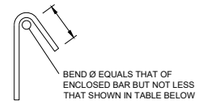

STANDARD HOOK STANDARD 180° HOOK WALL OR SLAB BAR BENT AROUND ANOTHER BAR

| STEEL GRADE | BAR DIA (mm) | MINIMUM DIA. OF BEND |
|---|---|---|
| GRADE 300E/500E | 6-20 | 5x BAR DIA. |
| GRADE 300E/500E | 25-40 | 6x BAR DIA. |

ALL HOOKS ON STIRRUPS AND TIES MUST FIT CLOSELY AROUND MAIN BARS.

THE FIRST STIRRUP SHALL NOT TO BE PLACED FURTHER THAN THE LESSER OF 1/2 STIRRUP SPACING OR 50mm FROM SUPPORT FACE.

BENDS FOR STIRRUPS AND TIES:




STANDARD STIRRUP & TIE HOOKS

| STEEL GRADE | BAR DIA (mm) | MINIMUM DIA. OF BEND | |
|---|---|---|---|
| | | PLAIN BARS | DEFORMED BARS |
| GRADE 300E/500E | 6-20 | 2 BAR DIA. | 4 BAR DIA. |
| GRADE 300E/500E | 25-40 | 3 BAR DIA. | 6 BAR DIA. |

BAR SPLICE LENGTHS (Ldb)

| BAR SIZE | CONCRETE STRENGTH | MIN LAP LENGTH |
|---|---|---|
| HD12 | 25MPa | 550mm |
| HD16 | 25MPa | 700mm |
| HD20 | 25MPa | 900mm |

RECESSED SHOWERS

TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE PODS SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 60mm THICK TOPPING FOR THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENTS.

SEALANT'S

ALL SEALANT'S AND WATERSTOPS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS.

STEEL

ALL EXPOSED STEEL ITEMS AND FIXING DEVICES SHALL BE HOT DIP GALVANIZED OR STAINLESS STEEL IF NOTED.

IMMERSED BOLTS AND FASTENERS SHALL BE MINIMUM GRADE 304 STAINLESS STEEL.

HOLD DOWN BOLTS

EXTERNAL WALL BOTTOM PLATE FIXINGS AND HOLD DOWN BOLTS TO BE TO NZS3604:2011

BRACING

THE BOTTOM PLATE FIXINGS FOR INTERNAL BRACING WALLS (SUCH AS GS1-N AND GS2-N THAT DO NOT REQUIRE BOLTED HOLD DOWNS) OR PARTITION WALLS THAT ARE NOT LOAD BEARING SHALL BE AS PER THE MANUFACTURERS SPECIFICATIONS FOR NAIL FIXINGS, OR AS PER NZS3604:2011 (E.G. 75x3.8mm SHOT FIRED FASTENERS WITH 16mm DISC, 150mm AND 300mm FROM EACH END OF THE BRACING ELEMENT AND AT 600mm CRS THEREAFTER). SHOT FIRED FASTENERS AS ABOVE ARE THE PREFERRED METHOD FOR BOTTOM PLATE FIXINGS WHEN APPLICABLE.

WHERE BOLTED HOLD DOWNS ARE USED A 150mm WIDE THICKENING IS REQUIRED BELOW. THE BOLT MAY BE SED TO REDUCE EMBEDMENT AND REMOVE THE NEED FOR A RIB.

POLISHED CONCRETE FINISH

NO ALLOWANCE HAS BEEN MADE FOR POLISHED CONCRETE FLOORS.

UNDERFLOOR HEATING

NO ALLOWANCE HAS BEEN MADE FOR UNDERFLOOR HEATING.

GENERAL NOTES A3

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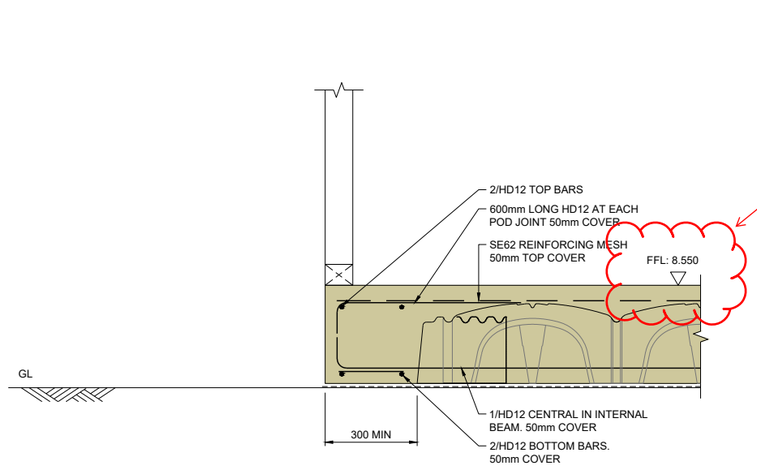
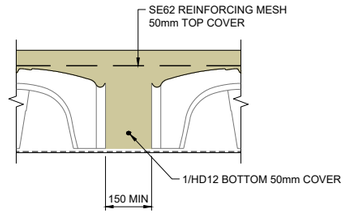


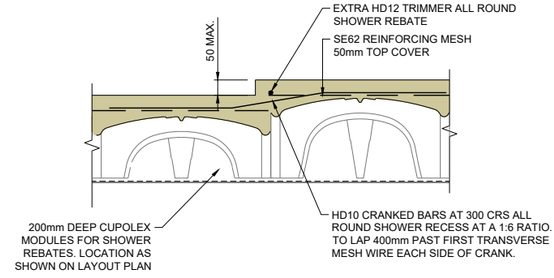

150mm BEAM EDGE DETAIL
SCALE 1:20 A3




150mm BEAM INTERNAL DETAIL
SCALE 1:20 A3

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT




SHOWER RECESS DETAIL
SCALE 1:20 A3

REVISION AND DESIGNER UPDATED

CGW CONSULTING ENGINEERS
NELSON • CHRISTCHURCH • WANAKA • AUCKLAND
03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: G J GARDNER HOMES
18 KAHIKATEA WAY, RICHMOND

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

DRAWING TITLE: CUPOLEX FOUNDATION DETAILS

DESIGNED BY: TOM LOTT
DRAFTED BY: TOM LOTT

| REV | DATE | REVISION | CHD | APD |
|---|---|---|---|---|
| B | 16.03.22 | SECOND ISSUE | AF | RC |
| A | 10.08.21 | FIRST ISSUE | AF | RC |

FOR CONSTRUCTION

| SCALE | SIZE |
|---|---|
| AS SHOWN | A3 |

| PROJECT NO | TYPE | SHEET | REV |
|---|---|---|---|
| 220237 | DWG | S-01-03 | B |

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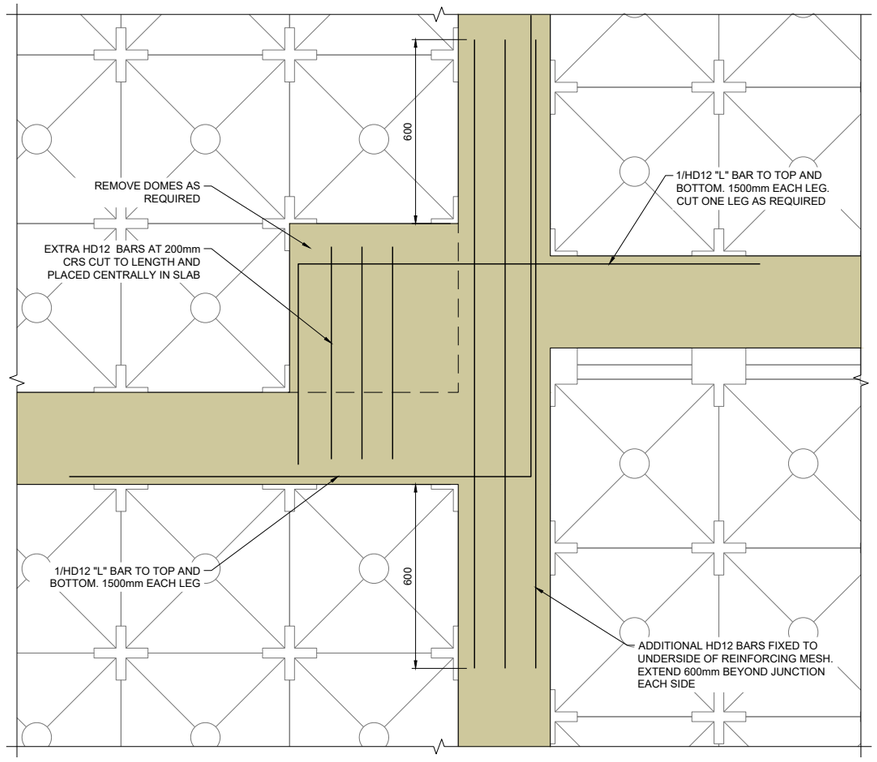
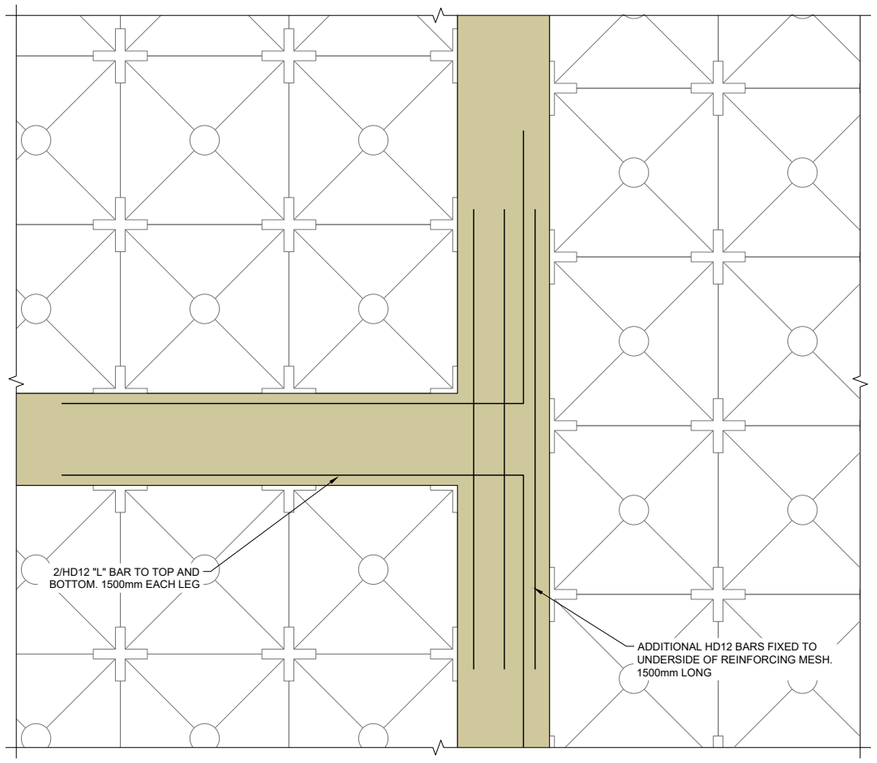
Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT




DOUBLE OFFSET JUNCTION
SCALE 1:20 A3




SINGLE JUNCTION
SCALE 1:20 A3

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FOR CONSTRUCTION

| SCALE | SIZE |
|---|---|
| AS SHOWN | A3 |

| PROJECT NO | TYPE | SHEET | REV |
|---|---|---|---|
| 220237 | DWG | S-01-04 | B |

Original Sheet Size A3 (420x297) File Path: \\dc-server\NonSync\Tom\Documents\220237 - 18 Kahikatea Way, Richmond - cupolex redesign\New DWG\220237-DWG-001-B.dwg - S-01-04

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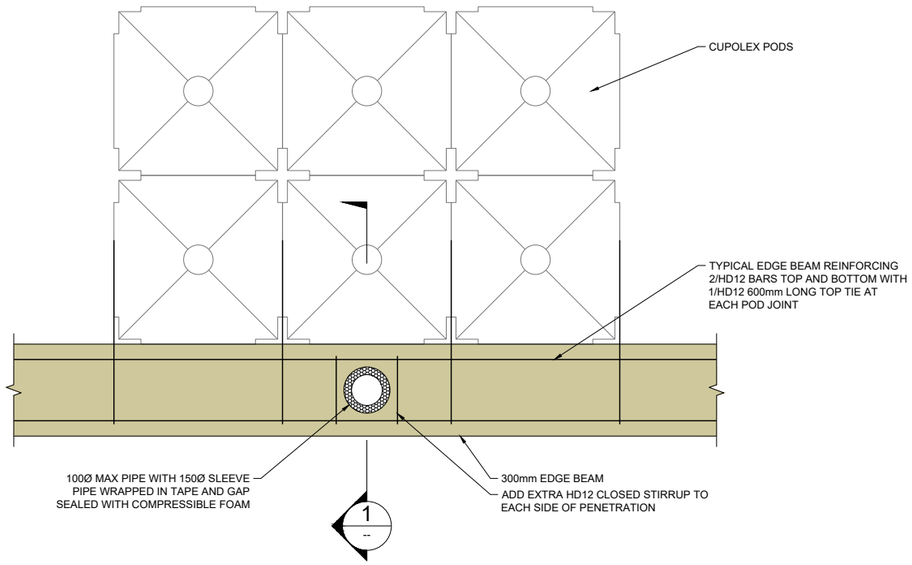
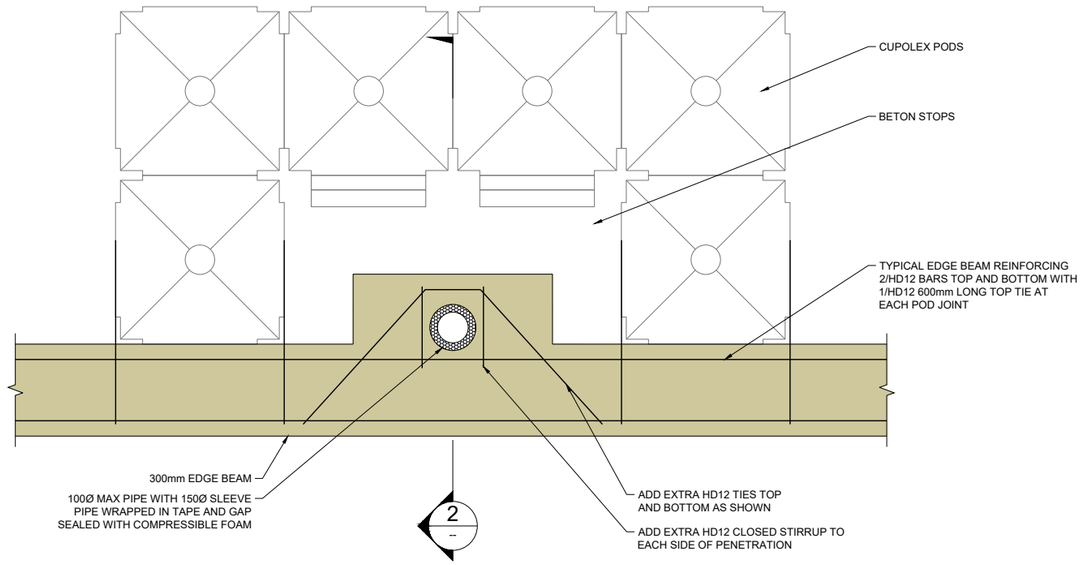
Tasman District Council
BUILDING CONSENT AUTHORITY

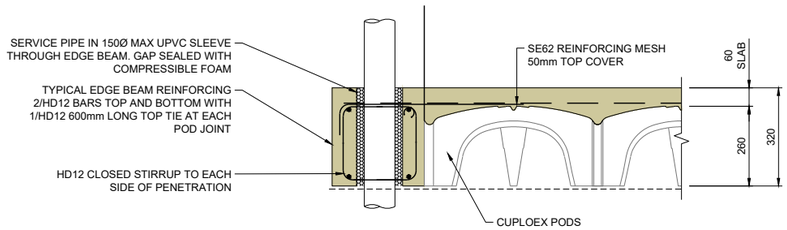
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT




EDGE BEAM PIPE PENETRATIONS A
SCALE 1:20 A3




EDGE BEAM PIPE PENETRATIONS B
SCALE 1:20 A3

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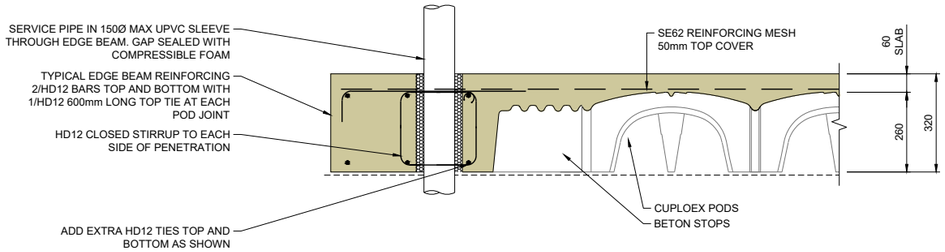


2
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REVISION AND DESIGNER UPDATED

CGW CONSULTING ENGINEERS
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03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: G J GARDNER HOMES
18 KAHIKATEA WAY, RICHMOND

Tasman District Council
BUILDING CONSENT AUTHORITY
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Date: 23/02/22

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FOR CONSTRUCTION

| SCALE | SIZE |
|---|---|
| AS SHOWN | A3 |

| PROJECT NO | TYPE | SHEET | REV |
|---|---|---|---|
| 220237 | DWG | S-01-05 | B |

LaylTout

CarterHoltHarvey LVL

Date printed: 15/12/2021
Page 1 of 1
Ref. no.: FS12781

futurebuild LVL

| | |
|---|---|
| **Specifier preparing this design and layout:** | Futurebuild Residential Design Service |

**Project details:**

| | |
|---|---|
| **Site address:** | Lot 366 18 Kahikatea Way, Richmond, Tasman |
| **Constructed for:** | |
| **Constructed by:** | |

Please find attached Futurebuild Residential Design Service take off FS12781 including Joist and Beam Layouts and associated costing for the engineered wood products specified for the mid-floor framing components of the proposed dwelling at Lot 18 Kahikatea Way, Richmond, Tasman.
Please note the following assumptions apply:

^ Floor layout follows Architectural Drawing sheet A05.
^ We have applied HJ300 90 hyJOIST floor joists at 400 centres as specified on Architect Drawing.
^ We have applied HJ240 90 hyJOIST floor joists at 400 centres under the entry level shower as mentioned in your email.
^ We have applied 300x90 hy90 beams and 400x90 hyONE beams as specified on Architect Drawing.
400x90 hyONE beam is larger than floor joist system, and will be required to be built up into wall framing above.
^ We have applied HJ240 90 hyJOIST floor joists at 400 centres under the entry level shower as mentioned in your email.
^ No allowance has been made for steel beams or timber required to pack out the steel to facilitate connection.
^ Bracketry has been allowed for connection of hyJOIST's to steel supporting members within the floors.
^ Futurebuild hyJOIST products have been supplied untreated in accordance with NZS 3602, solid LVL including boundary members have been treated to H1.2 level.

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

Tasman District Council
BUILDING CONSENT AUTHORITY

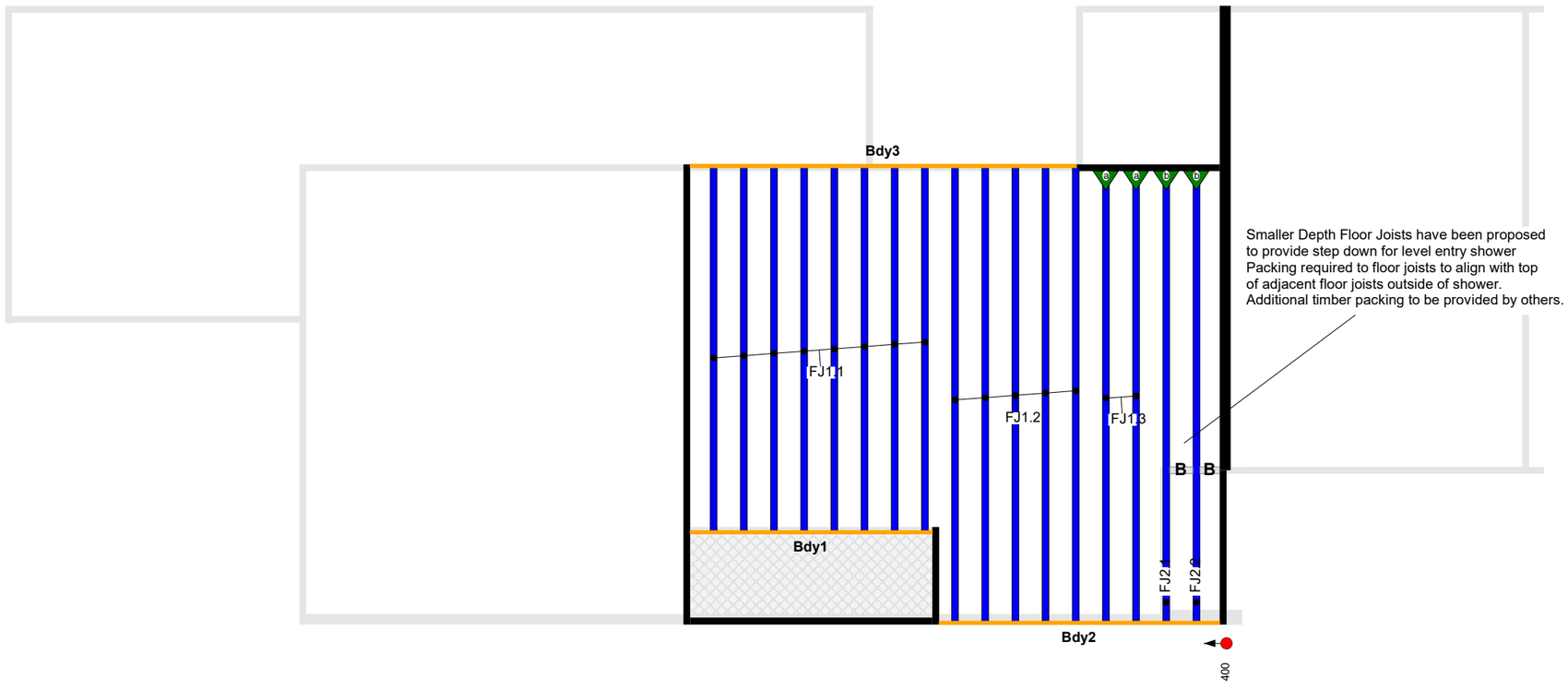
APPROVED BUILDING CONSENT DOCUMENTATION

AMENDED

ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

0 Metres 5

NOTE:
Floor joist setout as per Architectural Drawings.
Refer Architectural Drawings for more information.




| Label | Member | | No/Length (m) |
|---|---|---|---|
| | Type | Size | |
| Quantities determined by laylTout | | | |
| FJ1.1 | hyJOIST | HJ300 90 | 8/5.4 |
| FJ1.2 | hyJOIST | HJ300 90 | 5/6.6 |
| FJ1.3 | hyJOIST | HJ300 90 | 2/6.0 |
| FJ2.1 | hyJOIST | HJ240 90 | 1/6.0 |
| FJ2.2 | hyJOIST | HJ240 90 | 1/6.0 |
| Bdy3 | truFRAME H1.2 | 300 x 45 | 1/6.0 |
| Bdy2* | truFRAME H1.2 | 300 x 45 | 1/4.8 |
| Bdy1* | truFRAME H1.2 | 300 x 45 | 1/4.8 |

futurebuild LVL

Ver: 115 Sheet: 1
Drawing No.:FS12781 - FL
Date: Wednesday, 15 December 2021 Time: 3:21 pm
Specified by: Futurebuild Residential Design Service
Project: Ford
Site address: Lot 366 18 Kahikatea Way, Richmond, Tasman
For:

Symbols:
- yyy Denotes start point for laying members at yyy mm centres
- ▶ Hangers required
- B Indicates blocking
- • Rationalised member (refer to cutting list)
- Load bearing wall
- — Indicates rimboard

## Floor Joist Layout

| Bracket codes | | |
|---|---|---|
| a | IBHF30090 | 2 |
| b | IBHF24090 | 2 |

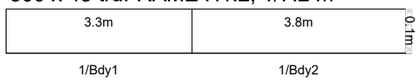
***NOTES.***
*1. Spacings given are nominal maximum spacings.*
*2. Joists to be installed in accordance with product literature.*
*3. Bearing and/or support in excess of the basic requirements may need to be specified separately. Refer designIT for Houses or Futurebuild LVL literature.*
*4. Persons relying on information provided should verify the proposed lengths, spacings and layout and check that assumptions for loading and support, as specified in the Design certificate, correspond to requirements.*

06103

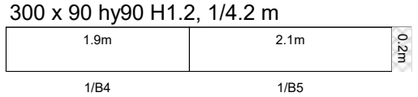
**FLOOR JOIST LAYOUT**

**laylTout**

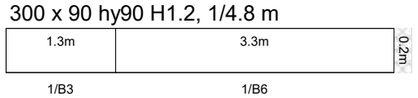
rat3 (Rationalised member)
300 x 45 truFRAME H1.2, 1/7.2 m




rat1 (Rationalised member)
300 x 90 hy90 H1.2, 1/4.2 m




rat2 (Rationalised member)
300 x 90 hy90 H1.2, 1/4.8 m




*Make sure that each Rat member is checked to correctly match its label code on the applicable layout*

futurebuild LVL

Ver: 115 Sheet: 2

Drawing No.:FS12781 - FL

Date: Wednesday, 15 December 2021 Time: 3:21 pm

Specified by: Futurebuild Residential Design Service

Project: Ford

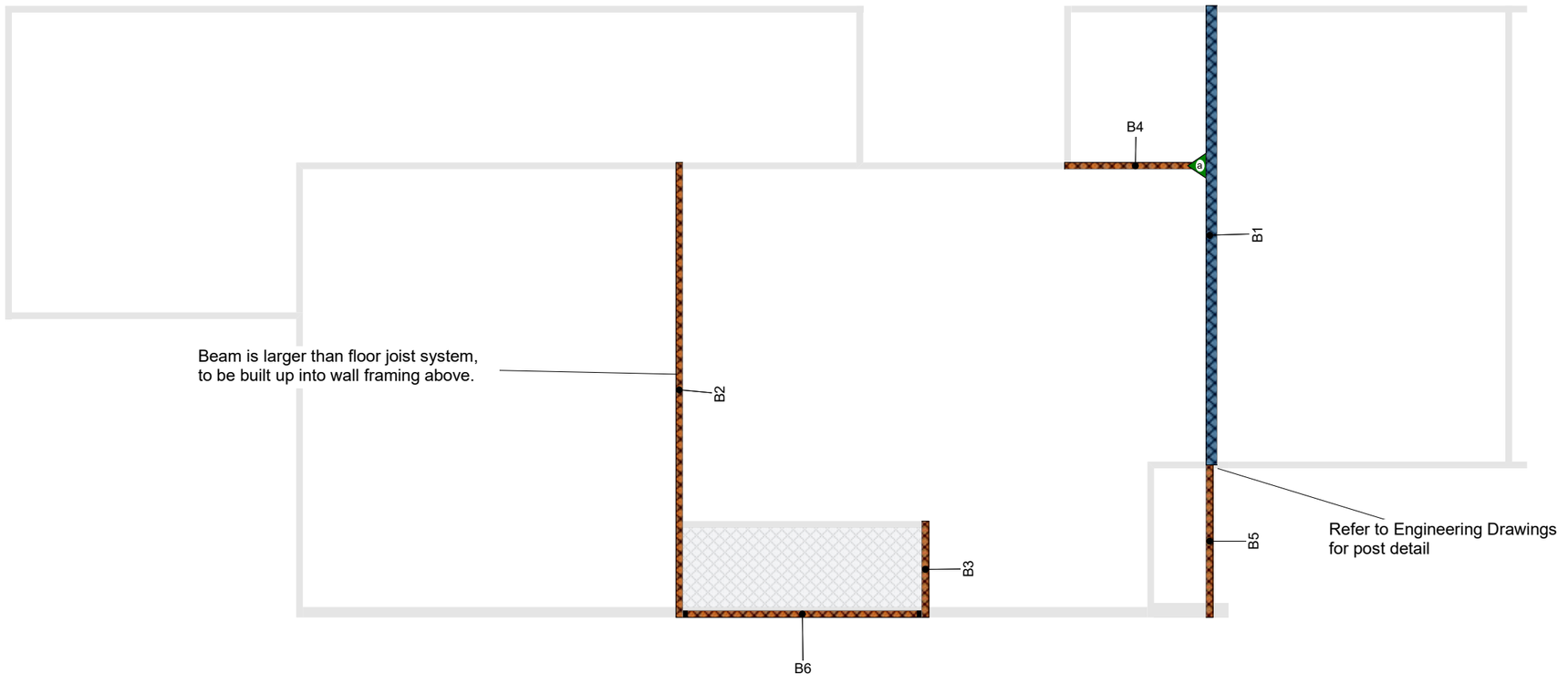
Site address: Lot 366 18 Kahikatea Way, Richmond, Tasman

For:

**FLOOR JOIST LAYOUT**
**Cutting list**

**laylTout**

0 Metres 5




## Floor beam layout

| Label | Member Type | Member Size | No/Length (m) |
|---|---|---|---|
| Beam schedule - user specified | | | |
| B1 | 250UB31.4 | | |
| B2 | hyONE H1.2 | 400 x 90 | 1/7.2 |
| B3* | hy90 H1.2 | 300 x 90 | 1/1.3 |
| B4* | hy90 H1.2 | 300 x 90 | 1/1.9 |
| B5* | hy90 H1.2 | 300 x 90 | 1/2.1 |
| B6* | hy90 H1.2 | 300 x 90 | 1/3.3 |

futurebuild LVL

Ver: 115 Sheet: 1
Drawing No.:FS12781 - FLB
Date: Wednesday, 15 December 2021 Time: 3:21 pm
Specified by: Futurebuild Residential Design Service
Project: Ford
Site address: Lot 366 18 Kahikatea Way, Richmond, Tasman
For:

Symbols:
- Post support
- Beam below floor joists
- Floor level beam
- Rationalised member

| Bracket codes | | |
|---|---|---|
| a | LVSIA-V | 1 |

***NOTES.***
*1. Futurebuild LVL solid section beams to be installed in accordance with Futurebuild LVL literature and NZS 3604.*

*2. Persons relying on information provided should verify the proposed lengths, spacings and layout and check that assumptions for loading and support, as specified in the Design certificate, correspond to requirements*

06103

**FLOOR BEAM LAYOUT**

**laylTout**

Building Code Clause(s) B1

# PRODUCER STATEMENT – PS1 – DESIGN

**ISSUED BY:** Wilton Joubert Ltd.
(Design Firm)

**TO:** G.J Gardner Homes Nelson (LSK Builders 2011 Ltd)
(Owner/Developer)

**TO BE SUPPLIED TO:** Tasman District Council
(Building Consent Authority)

**IN RESPECT OF:** structural design services
(Description of Building Work)

**AT:** 18 Kahikatea Way
(Address)

Town/City: Richmond **LOT** 366 **DP** ..... **SO** .....
(Address)

We have been engaged by the owner/developer referred to above to provide:

structural beams, wing wall frame, wall bracing (rev01)

(Extent of Engagement)

services in respect of the requirements of Clause(s) B1 of the Building Code for:

☐ All or ■ Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

☑ Compliance Documents issued by the Ministry of Business, Innovation & Employment B1/VM1,VM4 or
(verification method/acceptable solution)

☐ Alternative solution as per the attached schedule

The proposed building work covered by this producer statement is described on the drawings titled:

12 Kahikatea Way, Richmond and numbered SD0, SD1, sheet A04, A05, A06, A07, A19
together with the specification, and other documents set out in the schedule attached to this statement.

**On behalf of the Design Firm,** and subject to:
(i) Site verification of the following design assumptions .....
(ii) All proprietary products meeting their performance specification requirements;

**I believe on reasonable grounds** that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation:

☐ CM1 ■ CM2 ☐ CM3 ☐ CM4 ☐ CM5 (Engineering Categories) or ☐ as per agreement with owner/developer (Architectural)

I, David Lau am: ■ CPEng 221906 # ☐ Reg Arch ..... #
(Name of Design Professional)

I am a member of: ☐ Engineering New Zealand ☐ NZIA and hold the following qualifications: BE(Hons),PhD,CMEngNZ,CPEng,IntPE
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Design Firm is a member of ACENZ: ☐

**SIGNED BY** David Lau (Signature)
(Name of Design Professional)

**ON BEHALF OF** Wilton Joubert Ltd. Date 25/01/2022
(Design Firm)

*Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000*.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

**THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, ENGINEERING NEW ZEALAND AND NZIA**

BC220131 TASMAN DISTRICT COUNCIL APPROVED AMENDMENT 24/03/2022


WILTON JOUBERT
Consulting Engineers

Recommended Site Inspections / Construction Review

WJ Job #: 110906 rev01

Site Address: 18 Kahikatea Way

Important Notes:

- Check building consent conditions for any inspections that are required by the Building Consent Authority.

Ultimately, it is up to the building consent authority to determine which step of the construction process requires an engineer's review. Please check your eventual building consent conditions thoroughly for these. In support of your application for building consent, the following inspections / construction reviews are suggested:

- Beams and wing wall frame connections
- 
- 
- 
- 
- 
- 
- 
- 
- 

Tasman District Council
BUILDING CONSENT AUTHORITY
PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

WILTON JOUBERT
Consulting Engineers

Site address: 18 Kahikatea Way

## Re: B2 (Durability) Compliance

To whom it may concern,

We have provided a Producer Statement for Design (PS1) for clause B1 of the Building Act - Structure. Our PS1 does not cover clause B2 of the Building Act – Durability because there is no effective means of compliance for structural durability in the Building Code. However, we can confirm that the structural elements shown in our documentation have been treated as noted below:

### Timber

The timber has been specified in accordance with NZS3640:2003. The quality of timber treatment is dependent on the QA systems of manufacturers, suppliers and the onsite contractors and sub-contractors. Refer to the contractor's PS3 and QA records where available.

### Concrete

Compliance with cover and concrete quality requirements for B2/AS1 are in accordance with NZS3101:2006 Section 3.

### Reinforced Concrete Masonry

Compliance with cover and concrete quality requirements for B2/AS1 are in accordance with NZS4230:2004 Section 4.

### Mild Steel

Protective coatings as specified in building consent documentation (may be by others) in accordance with AS/NZS 2312:2014 and SNZ TS 3404:2018 on a life to first major maintenance basis.

The quality of mild steel protective coatings is dependent on:

- Steel preparation
- Quality and production consistency of the coating products
- QA of the application and curing
- QA of the handling, protection and repair

Refer to:

- Contractor's and sub-contractor's PS3s and QA records where available
- Third-party inspection and test results

On-going maintenance plan (attached)

Yours faithfully

David Lau, Wilton Joubert Ltd. Dated: 25/01/2022

WILTON JOUBERT
Consulting Engineers

# STRUCTURAL MAINTENANCE SCHEDULE

This schedule of ongoing inspection and maintenance of structural elements shall be included with the O&M manuals and provided to the Owner/Body Corporate and building managers.

| **Inspection/Maintenance timeframe and item** | |
|---|---|
| (a) Half-yearly | Wash down all exposed steelwork that is not in a fully interior environment including:<br>• Veranda steelwork<br>• Steel carpark structure (beams, columns, braces etc)<br>• Deck and balcony steelwork<br>• Exposed façade steelwork, both primary and secondary structure<br>• Sub-ground floor mild-steel structures such as beams. |
| (b) 5-yearly | Inspect and repair sealant that encloses structural mild-steel components and/or timber with mild-steel fixings. |
| (c) 10-yearly | Check exposed timber fixings for corrosion, repair as required. |
| | Inspect/replace sealant that encloses structural mild-steel components and/or timber with mild-steel fixings. This will typically include sealants around the perimeter of precast panels. **Note that 10 years is the expected useful life for many sealants.** |
| | Check all exposed steelwork that is not in a fully interior environment for signs of corrosion. Repair protective coatings as required. |
| (d) 25-yearly | Inspect samples of structural steel that is hidden from view but not enclosed within a vapour barrier, and repair protective coatings as necessary. A typical example is a veranda with built-in steelwork (Such steelwork should typically have duplex protective coatings). Inspection may typically require removal of claddings and/or the drilling of holes for borescope access. Repair as required. |
| | Inspect all exposed, external timber. Repair as required. |
| | Inspect all exposed, external reinforced concrete for signs of spalling. Repair as required. |
| Following seismic shaking > SLS1 event | Inspections and repair as per b), c) and d) above. |

BC220131 TASMAN DISTRICT COUNCIL APPROVED AMENDMENT 24/03/2022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# PRODUCER STATEMENTS – Advisory Note

Producer Statements shall be submitted to territorial authorities or building consent authority in order for Code of Compliance Certificates to be issued. The requirement for consultants to issue the related Producer Statements may appear as a condition under the building consent documents or as a separate letter from the territorial authority or building certifier. **It is the owner's (or consent applicant) responsibility to check the building consent documentation and notify Wilton Joubert Ltd. in relation to the requirement for construction inspections required (and the subsequent PS4: Producer Statement for Construction Review) as stated on the consent documents. Please note, we cannot issue PS4 if we did not carry out the inspection.**

In order to secure our inspection services, it is strongly recommended that Wilton Joubert Ltd. be given at least 48 hours notice prior to time of inspection. Our inspections are limited to items that have been designed and detailed by us. We are also unable to inspect non-consented or unauthorised work. Building consented, stamped plans with consent numbers (or legible copy of the same) including amendments where applicable shall be made available on site during inspections.

In some cases due to the distance of the job from our offices, it may be more practical and cost effective to contact a local professional engineer to carry out the inspection, who may contact us with any questions that may arise. The engineer who carried out the inspection would subsequently be responsible for the issue of the producer statement for construction review.

The costs associated with site inspections and issuing of Producer Statements are separate from any previous work that we have been engaged for, such as engineering design of works. The costs for carrying out the inspections and related work are based on time spent travelling to site, time on site and other associated costs. Please contact us for an estimate of costs. Our assumptions are that the person(s) who arranged the inspection is responsible for payment of the fees, unless otherwise stated at time of engagement.

engineering new zealand

# CERTIFICATE OF DESIGN WORK
# MEMORANDUM FROM LICENSED BUILDING PRACTITIONER

## Section 30C and Section 45, Building Act 2004

### The Building

| | | | |
|---|---|---|---|
| **Street address** | 18 Kahikatea Way | | |
| **Suburb** | | **Town/city** | Richmond |
| **Postcode** | | **Building consent no.** | |

### The Owner

| | | | |
|---|---|---|---|
| **Name(s)** | G.J Gardner Homes Nelson (LSK Builders 2011 Ltd) | | |
| **Email** | nelson@gjgardner.co.nz | **Phone** | 03 543 9502 |
| **Address** | 195 Queen Street, RICHMOND 7020 | | |

## Basis for providing this memorandum

I am providing this memorandum in my role as the **specialist** designer who carried out or supervised specific Primary structure elements of restricted building work (RBW) design work as described in this memorandum. Other designers will provide memoranda covering the remaining RBW design work. Refer also to the attached PS1.

## Identification of restricted building work (RBW) design work

I, David Lau carried out or supervised the following RBW design work:

### Primary structure: B1

| Design work that is RBW | | Description (as required) and reference to plans and specifications | Carried out or supervised |
|---|---|---|---|
| Foundations and subfloor framing | ✗ | | |
| Retaining walls | ✗ | | |
| Beams | ✓ | SED Beams and Wing Wall Frame as per SD0, SD1, sheet A04, A05, A06, A19 | Supervised |
| Portal | ✗ | | |
| Bracing | ✓ | SED Wall bracing as per sheet A07 | Supervised |
| Other (primary) | ✗ | | |

Note: SED = Elements subject to Specific Engineering Design outside of the scope of NZS3604:2011, unless otherwise noted.

**Initial** _____ **Date** 25/01/2022

## Waivers and modifications

**Are waivers or modifications of the Building Code required?** No

If yes, please provide details of the waivers or modifications:

| Building Code clause | Waiver/modification required |
|---|---|
| N/A | N/A |

## Issued by

| | | | |
|---|---|---|---|
| **Name** | David Lau | **Design entity/company** | Wilton Joubert Ltd. |
| **Chartered status** | CPEng | **Chartered no.** | 221906 |
| **Email** | david@wjl.co.nz | **Website** | www.wiltonjoubert.co.nz |
| **Phone (daytime)** | 09 527 0196 | **Phone (after hours)** | |
| **Mobile** | | | |
| **Postal address** | PO Box 11381 Ellerslie, Auckland 1542 | | |
| **Physical address** | 108 Lunn Avenue, Mt. Wellington, Auckland 1072 | | |

## Declaration

I, David Lau, LBP state that I have applied the skills and care reasonably required of a competent design professional in carrying out or supervising the RBW described in this memorandum and that based on this, I certify that the RBW described in this memorandum:

- complies with the Building Code; or
- ~~complies with the Building Code subject to any waiver or modification of the Building Code described in this memorandum.~~

**Signature** **Date** 25/01/2022

WILTON JOUBERT
Consulting Engineers

Northland: 021 401388
Auckland: 09 5791114
Canterbury: 021 801984
Southern Lakes: 021 494586

www.wiltonjoubert.co.nz
email: jobs@wjl.co.nz

**Project Name:** Lot 366, 18 Kahikatea Way

**Job Number:** 110906 rev01

| | |
|---|---|
| Wind zone: | High |
| Earthquake zone: | 2 |
| Soil class: | D & E |

***Section 1 Dwelling - two storeys on concrete slab:***

| | | | | | |
|---|---|---|---|---|---|
| Building height to apex: | 7.5 | m | Roof weight: | light | |
| Roof height above eaves: | 2.4 | m | Cladding weights: | | |
| Stud height: | | m | upper | light | |
| upper | 2.4 | m | lower | light | |
| lower | 2.4 | m | | | |

| | | | | | |
|---|---|---|---|---|---|
| Upper building length: | 7.2 | m | Lower building length: | 7.2 | m |
| Upper building width: | 6.1 | m | Lower building width: | 7.2 | m |
| Upper building area: | 44.0 | $m^2$ | Lower building area: | 44.0 | $m^2$ |
| Roof pitch: | 35.0 | degrees | | | |

BUs required for Wind (From NZS3604:2011)

| | | |
|---|---|---|
| upper storey across | 50 | BUs/m |
| upper storey along | 52 | BUs/m |
| lower storey across | 107.5 | BUs/m |
| lower storey along | 106 | BUs/m |

BUs required for EQ (From NZS3604:2011)

| | | |
|---|---|---|
| upper storey E = | 7.2 | $BUs/m^2$ |
| lower storey E = | 12.8 | $BUs/m^2$ |

***Section 2 dwelling - single storey on concrete slab:***

| | | | | | |
|---|---|---|---|---|---|
| Building height to apex: | 3.8 | m | Roof weight: | light | |
| Roof height above eaves: | 0.0 | m | Cladding weights: | light | |
| Stud height: | 2.4 | m | | | |

| | | |
|---|---|---|
| Building length: | 13.2 | m |
| Building width: | 2.0 | m |
| Building area: | 91.0 | $m^2$ |
| Roof pitch: | 8.0 | degrees |

BUs required for Wind (From NZS3604:2011)

| | | |
|---|---|---|
| single storey across | 43.0 | BUs/m |
| single storey along | 43.0 | BUs/m |

BUs required for EQ (From NZS3604:2011)

| | | |
|---|---|---|
| single storey E = | 4.8 | $BUs/m^2$ |

***Upper Floor:***
**Direction:** Across

| Bracing Line | Bracing Required | | | | | | | | Bracing Provided | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Earthquake | | | | Wind | | BU's req. (Wind) | BU's req. (EQ) | Length | Height | Block? (y/n) | Wind BU's/m | EQ BU's/m | Wind BU's prov. | EQ BU's prov. | |
| | Length | Width | Area | BU's /m2 | Width | BU's /m | | | | | | | | | | |
| A | 6.1 | 2.2 | 13.42 | 7.2 | 2.2 | 50 | 110 | 97 | 0.9 | 2.4 | n | 90 | 100 | 81 | 90 | BL1-H |
| | | | | | | | | | 0.4 | 2.4 | n | 90 | 100 | 36 | 40 | BL1-H |
| | | | | | | Subtotal | **110** | **97** | | | | | | **117** | **130** | **OK** |
| B | 6.1 | 3.6 | 21.96 | 7.2 | 3.6 | 50 | 180 | 158 | 1.6 | 2.4 | n | 70 | 60 | 112 | 96 | GS1-N |
| | | | | | | | | | 1 | 2.4 | n | 50 | 55 | 50 | 55 | GS1-N |
| | | | | | | | | | 0.7 | 2.4 | n | 50 | 55 | 35 | 39 | GS1-N |
| | | | | | | Subtotal | **180** | **158** | | | | | | **197** | **190** | **OK** |
| C | 6.1 | 1.4 | 8.54 | 7.2 | 1.4 | 50 | 70 | 61 | 0.9 | 2.4 | n | 90 | 100 | 81 | 90 | BL1-H |
| | | | | | | Subtotal | **70** | **61** | | | | | | **81** | **90** | **OK** |
| | 0 | | | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | 0 | | | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | 0 | | | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |

7.2 43.92

***Upper Floor:***
**Direction:** Along

| Bracing Line | Bracing Required | | | | | | | | Bracing Provided | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Earthquake | | | | Wind | | BU's req. (Wind) | BU's req. (EQ) | Length | Height | Block? (y/n) | Wind BU's/m | EQ BU's/m | Wind BU's prov. | EQ BU's prov. | |
| | Length | Width | Area | BU's /m2 | Width | BU's /m | | | | | | | | | | |
| D | 7.2 | 1.5 | 10.8 | 7.2 | 1.5 | 52 | 78 | 78 | 0.8 | 2.4 | n | 50 | 55 | 40 | 44 | GS1-N |
| | | | | | | | | | 0.8 | 2.4 | n | 50 | 55 | 40 | 44 | GS1-N |
| | | | | | | | | | 0.8 | 2.4 | n | 50 | 55 | 40 | 44 | GS1-N |
| | | | | | | Subtotal | **78** | **78** | | | | | | **120** | **132** | **OK** |
| E | 7.2 | 3.1 | 22.32 | 7.2 | 3.1 | 52 | 161 | 161 | 2 | 2.4 | n | 70 | 60 | 140 | 120 | GS1-N |
| | | | | | | | | | 1.2 | 2.4 | n | 70 | 60 | 84 | 72 | GS1-N |
| | | | | | | Subtotal | **161** | **161** | | | | | | **224** | **192** | **OK** |
| F | 7.2 | 1.5 | 10.8 | 7.2 | 1.5 | 52 | 78 | 78 | 1 | 2.4 | n | 90 | 100 | 90 | 100 | BL1-H |
| | | | | | | Subtotal | **78** | **78** | | | | | | **90** | **100** | **OK** |
| | | | 0 | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | | | 0 | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | | | 0 | | | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |

6.1 43.92

***Lower Floor:***
**Direction:** Across

| Bracing Line | Bracing Required | | | | | | | | Bracing Provided | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Earthquake | | | | Wind | | BU's req. (Wind) | BU's req. (EQ) | Length | Height | Block? (y/n) | Wind BU's/m | EQ BU's/m | Wind BU's prov. | EQ BU's prov. | |
| | Length | Width | Area | BU's /m2 | Width | BU's /m | | | | | | | | | | |
| P | 4.2 | 2.2 | 9.24 | 4.8 | 2.2 | 43 | 95 | 44 | 1 | 2.4 | n | 135 | 135 | 135 | 135 | BLP-H |
| | | | | | | Subtotal | **95** | **44** | | | | | | **135** | **135** | **OK** |
| Q | 6 | 4.5 | 27 | 4.8 | 4.5 | 43 | 194 | 130 | 1.1 | 2.4 | n | 90 | 100 | 99 | 110 | BL1-H |
| | | | | | | | | | 0.4 | 2.4 | n | 110 | 115 | 44 | 46 | BLG-H |
| | | | | | | | | | 0.4 | 2.4 | n | 135 | 135 | 54 | 54 | BLP-H |
| | | | | | | Subtotal | **194** | **130** | | | | | | **197** | **210** | **OK** |
| R | 8.2 | 1 | 8.2 | 4.8 | 1 | 43 | 43 | 39 | 0.4 | 2.4 | n | 110 | 115 | 44 | 46 | BLG-H |
| | | | | | | Subtotal | **43** | **39** | | | | | | **44** | **46** | **OK** |
| S | 7.4 | 2.1 | 15.54 | 12.8 | 2.1 | 107.5 | 226 | 199 | 1.9 | 2.4 | n | 125 | 105 | 238 | 200 | BL1-H |
| | | | | | | Subtotal | **226** | **199** | | | | | | **238** | **200** | **OK** |
| T | 7.2 | 4.3 | 30.96 | 12.8 | 4.3 | 107.5 | 462 | 396 | 1.9 | 2.4 | n | 125 | 105 | 238 | 200 | BL1-H |
| | | | | | | | | | 3.4 | 2.4 | n | 70 | 60 | 238 | 204 | GS1-N |
| | | | | | | Subtotal | **462** | **396** | | | | | | **476** | **404** | **OK** |
| U | 7.9 | 3.8 | 30.02 | 12.8 | 3.8 | 107.5 | 409 | 384 | 0.4 | 2.4 | n | 90 | 100 | 36 | 40 | BL1-H |
| | | | | | | | | | 0.4 | 2.4 | n | 90 | 100 | 36 | 40 | BL1-H |
| | | | | | | | | | 1.7 | 2.4 | n | 125 | 105 | 213 | 179 | BL1-H |
| | | | | | | | | | 1 | 2.4 | n | 135 | 135 | 135 | 135 | BLP-H |
| | | | | | | Subtotal | **409** | **384** | | | | | | **420** | **394** | **OK** |
| V | 5.7 | 2.5 | 14.1375 | 4.8 | 2.5 | 43 | 108 | 68 | 0.6 | 2.4 | n | 90 | 100 | 54 | 60 | BL1-H |
| | | | | | | | | | 0.6 | 2.4 | n | 90 | 100 | 54 | 60 | BL1-H |
| | | | | | | Subtotal | **108** | **68** | | | | | | **108** | **120** | **OK** |

20.4 135.1

***Lower Floor:***
**Direction:** Along

| Bracing Line | Bracing Required | | | | | | | | Bracing Provided | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Earthquake | | | | Wind | | BU's req. (Wind) | BU's req. (EQ) | Length | Height | Block? (y/n) | Wind BU's/m | EQ BU's/m | Wind BU's prov. | EQ BU's prov. | |
| | Length | Width | Area | BU's /m2 | Width | BU's /m | | | | | | | | | | |
| W | 18.5 | 2 | 37 | 4.8 | 2 | 43 | 86 | 178 | 1 | 2.4 | n | 50 | 55 | 50 | 55 | GS1-N |
| | | | | | | | | | 2.2 | 2.4 | n | 70 | 60 | 154 | 132 | GS1-N |
| | | | | | | | | | 2.4 | 2.4 | n | 70 | 60 | 168 | 144 | GS1-N |
| | | | | | | Subtotal | **86** | **178** | | | | | | **372** | **331** | **OK** |
| X | 7.2 | 1.9 | 13.68 | 12.8 | 1.9 | 106 | 201 | 175 | 4.8 | 2.4 | n | 70 | 60 | 336 | 288 | GS1-N |
| | 9.8 | 1.9 | 18.62 | 4.8 | | | 0 | 89 | | | | | | | | |
| | | | | | | Subtotal | **201** | **264** | | | | | | **336** | **288** | **OK** |
| Y | 7.2 | 2.8 | 20.16 | 12.8 | 2.8 | 106 | 297 | 258 | 1 | 2.4 | n | 50 | 55 | 50 | 55 | GS1-N |
| | 9.8 | 2.8 | 27.44 | 4.8 | | | 0 | 132 | 3 | 2.4 | n | 70 | 60 | 210 | 180 | GS1-N |
| | | | | | | | | | 3.6 | 2.4 | n | 70 | 60 | 252 | 216 | GS1-N |
| | | | | | | Subtotal | **297** | **390** | | | | | | **512** | **451** | **OK** |
| Z | 7.2 | 1.5 | 10.8 | 12.8 | 1.5 | 106 | 159 | 138 | 2.1 | 2.4 | n | 70 | 60 | 147 | 126 | GS1-N |
| | 4.9 | 1.5 | 7.2975 | 4.8 | | | 0 | 35 | 1.4 | 2.4 | n | 70 | 60 | 98 | 84 | GS1-N |
| | | | | | | Subtotal | **159** | **173** | | | | | | **245** | **210** | **OK** |
| | | | | | 0 | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |
| | | | | | 0 | | | | | | | | | | | |
| | | | | | | Subtotal | **0** | **0** | | | | | | **0** | **0** | **OK** |

PREMIER SERVICES
Architectural Design Plus

# BUILDING CONSENT DRAWINGS

## KAHIKATEA TOWNHOUSE FOR DAVID & SUSAN FORD.
## AT 18 KAHIKATEA WAY, RICHMOND

| Sheet Index | | |
|---|---|---|
| **Layout ID** | **Layout Name** | Transmittal Set ID |
| 00 | COVER SHEET | A |
| A01 | DRAINAGE PLAN | A |
| A02 | PLUMBING ISOMETRIC | A |
| A03 | SLAB PLAN | A |
| A04 | GROUND FLOOR PLAN | A |
| A05 | MID-FLOOR PLAN | A |
| A06 | FIRST FLOOR PLAN | A |
| A07 | BRACING PLANS | A |
| A08 | ROOF PLAN | A |
| A09 | ELEVATIONS | A |
| A10 | ELEVATIONS | A |
| A11 | CROSS SECTION A-A | A |
| A12 | CROSS SECTION B-B | A |
| A13 | CROSS SECTION C-C | A |
| A14 | CROSS SECTION D-D | A |
| A15 | DETAILS | A |
| A16 | DETAILS | A |
| A17 | DETAILS | A |
| A18 | DETAILS | A |
| A19 | DETAILS | A |
| A20 | DETAILS | A |
| A21 | DETAILS | A |
| A22 | JUNCTION DETAILS | A |
| A23 | JUNCTION DETAILS | A |
| A24 | JUNCTION DETAILS | A |
| A25 | OPENING DETAILS | A |
| A26 | OPENING DETAILS | A |
| A27 | OPENING DETAILS | A |
| A28 | SHOWER DETAILS | A |
| A29 | SHOWER DETAILS | A |
| A30 | BATH DETAILS | A |
| A31 | FIXTURE LAYOUT PLAN | A |

David Joubert (B.E.N.Z.)
*B.E. (Hons), Ph.D., MIPENZ, CPEng*

WILTON JOUBERT
Consulting Engineers

## GENERAL NOTES

**DIMENSIONS NOTED ON THESE DRAWINGS ARE FROM STRUCTURAL SURFACES UNLESS OTHERWISE INDICATED. ALL DIMENSIONS ARE GIVEN IN MILLIMETERS.**

The Contractor is responsible for the correct setting out of the building on site. Boundary pegs are to be located, and setting out points are to be verified on site against information provided prior. All levels/dimensions are to be confirmed onsite before commencing any work and any discrepancies are to be brought to the attention of the Premier Services Limited.

Where available, Engineering drawings are to be read in conjunction with this documentation, any discrepancies to be reported to Premier Services Limited.

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PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

Job No. 21109

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE I.C. RATED.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICES.

PUMP CHAMBER CONTROL PANEL

POWER SUPPLY AND CONTROL PANEL FOR SEWER PRESSURIZED PUMP TO BE LOCATED ON EXTERIOR WALL ON DWELLING ADJACENT TO GARAGE.

HOUSE BRACING REQUIREMENTS

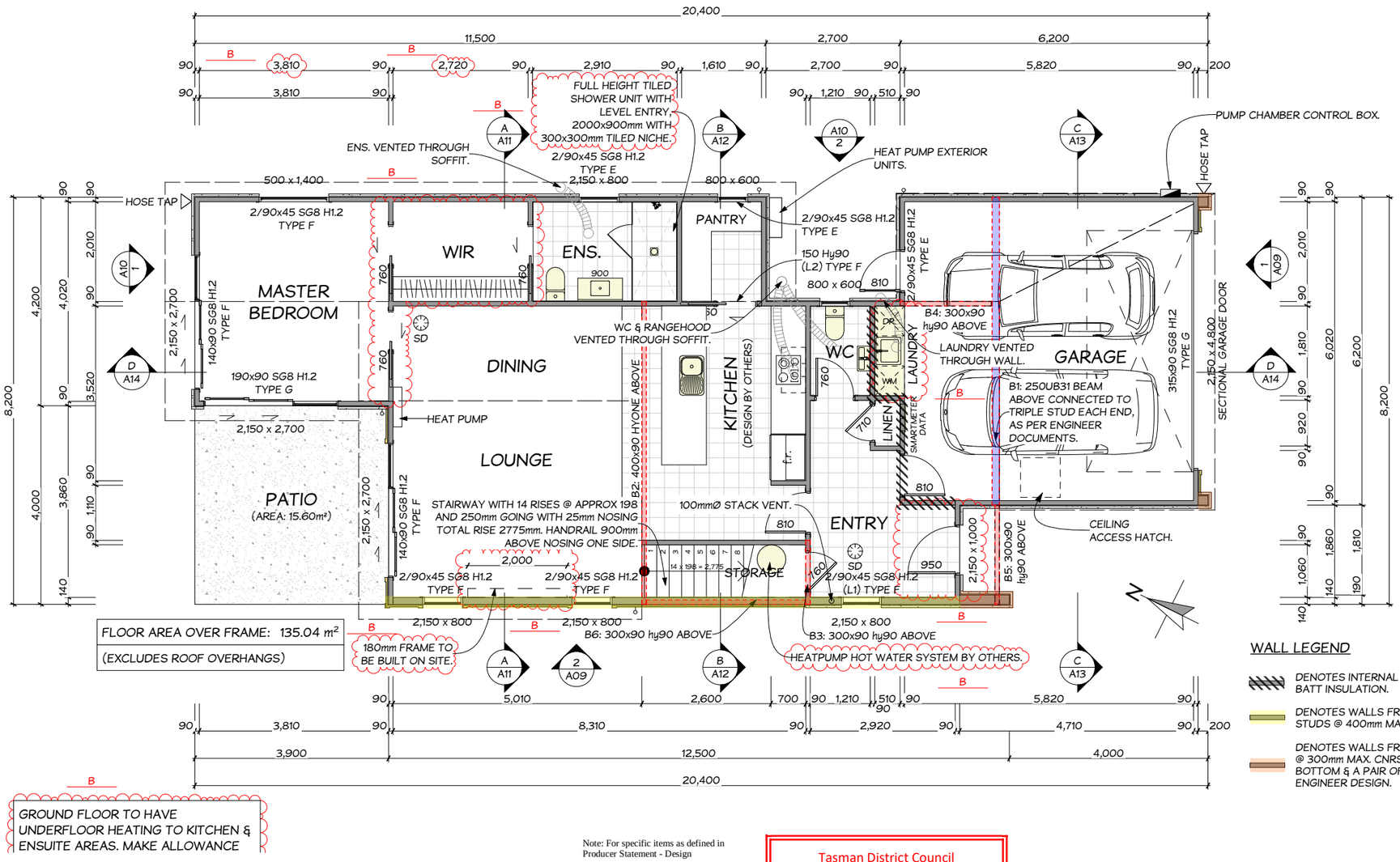
REFER TO WILTON JOUBERT CONSULTING ENGINEERS DOCUMENTS FOR FURTHER GUIDANCE ON WALL BRACING REQUIREMENTS.

## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE F = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2150x800 = OPENING SIZE (H x W)

TOWNHOUSE AS CONSENTED BY SH180022V2
APPROVED PLANS (APPENDIX A)




### WALL LEGEND

DENOTES INTERNAL WALLS TO BE INSULATED WITH R2.6 BATT INSULATION.

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

Note: For specific items as defined in Producer Statement - Design

signed by: David B.N. Lau
*B.E. (Hons), Ph.D., MIPENZ, CPEng*

WILTON JOUBERT
Consulting Engineers

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

All work is to be carried out in full accordance with the NZBC and Territorial Authority requirements as they apply. Any queries and discrepancies must be confirmed with the Designer before beginning any work

A04 SHEET : original A3
BUILDING CONSENT REVISION :
19/01/2022 DATE :
1:100 SCALE :
JM, CW DRAWN :

Job No. 21109

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | Building Consent | 19/11/2021 |
| B - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

DAVID & SUSAN FORD. CLIENT :

KAHIKATEA TOWNHOUSE PROJECT :

18 KAHIKATEA WAY, RICHMOND LOCATION :

GROUND FLOOR PLAN DRAWING :

PREMIER SERVICES
Architectural Design Plus

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

BRACING NOTES

BRACED PANELS SHALL BE CONSTRUCTED TO COMPLY WITH RELEVANT "BRANZ" APPRAISAL CERTIFICATES. GIB EZYBRACE SYSTEMS 2016 HAVE BEEN APPRAISED BY THE BUILDING RESEARCH ASSOCIATION OF NEW ZEALAND (BRANZ), APPRAISAL NO. 928 (2016) GIB EZYBRACE®SYSTEMS, 2016. IT IS OF PRIME IMPORTANCE TO COMPLY WITH THE DETAILS OF DESIGN, CONSTRUCTION AND WORKMANSHIP IN THE EZYBRACE SYSTEMS SPECIFICATION AND INSTALLATION MANUAL.

STRUCTURAL ENGINEER

JOHNSON ZHANG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

INSPECTIONS

LAL CINZAH
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

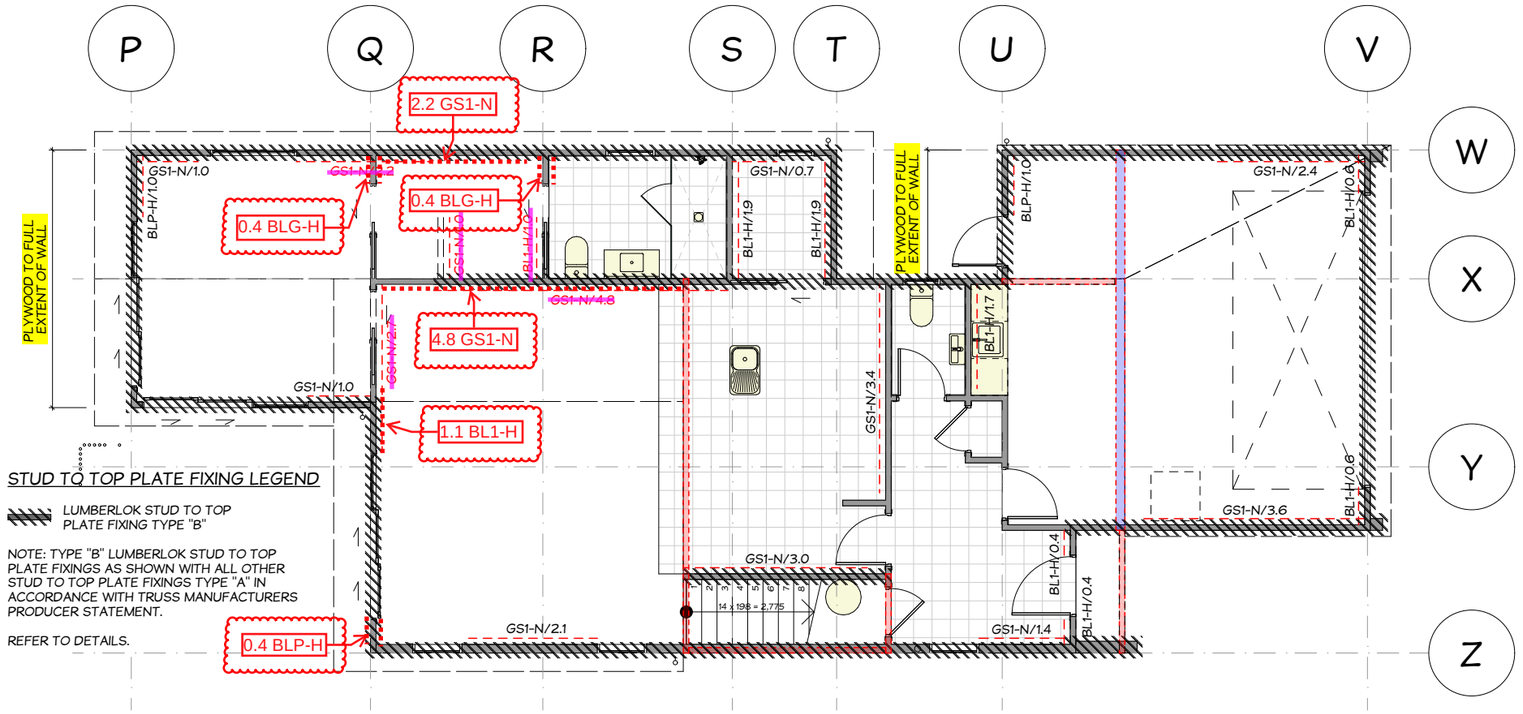
PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.

**ENGINEER DESIGN**

BRACING COVERED BY ENGINEER PS1, REFER TO ENGINEER DOCUMENTS FOR FURTHER GUIDANCE ON BRACING SPECIFICATIONS.

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

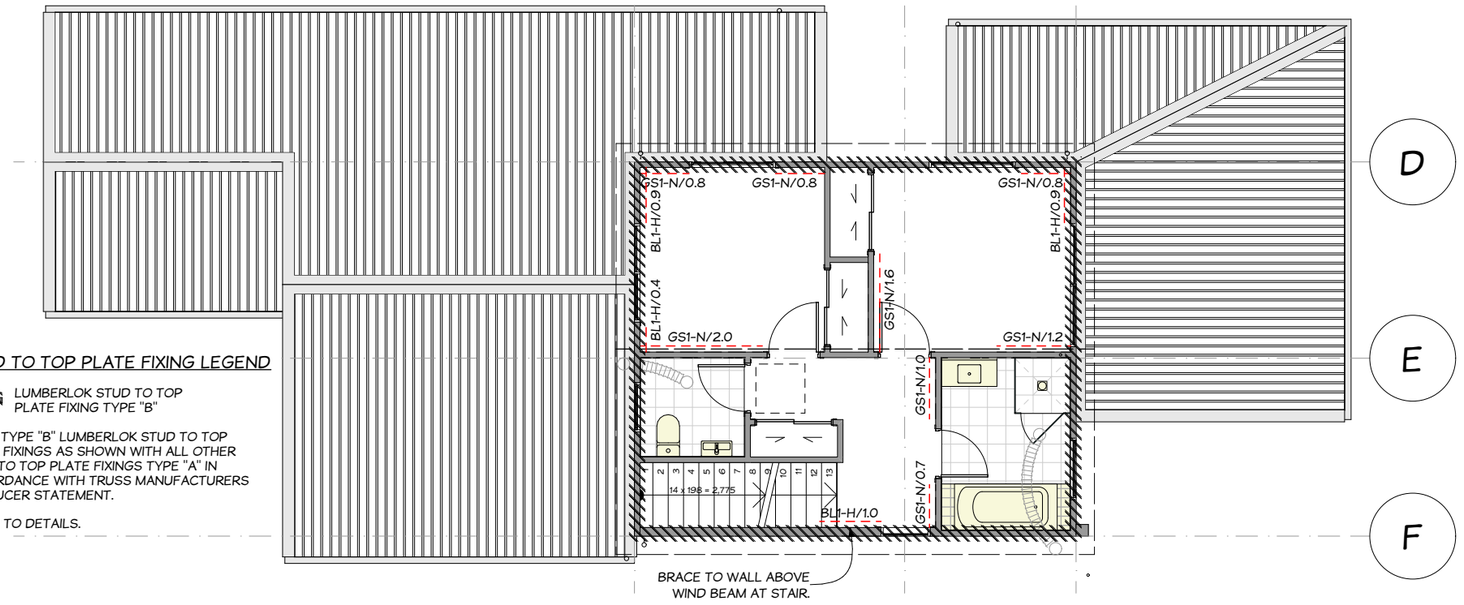



STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS AS SHOWN WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

REFER TO DETAILS.




STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS AS SHOWN WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

REFER TO DETAILS.

Note: For specific items as defined in Producer Statement - Design

signed by: David B.N. Lau
*B.E. (Hons), Ph.D., MIPENZ, CPEng*

WILTON JOUBERT Consulting Engineers

A07 — SHEET : original A3
BUILDING CONSENT — REVISION :
19/01/2022 — DATE :
1:100 — SCALE :
JM, CW — DRAWN :

Job No. 21109

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| B - WIP | Building Consent | | Work in Progress |

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

DAVID & SUSAN FORD. — CLIENT :

KAHIKATEA TOWNHOUSE — PROJECT :

18 KAHIKATEA WAY, RICHMOND — LOCATION :

BRACING PLANS — DRAWING :

PREMIER SERVICES
Architectural Design Plus

BC220131 TASMAN DISTRICT COUNCIL APPROVED AMENDMENT 24/03/2022


CGW Ref: 220237-LET-001-A
Date: 16 March 2022

Tasman District Council
189 Queen Street
Richmond

Dear Sir/Madam,

## RE: 220237 – 18 Kahikatea Way, Richmond -BC220131 - RFI

Please find attached updated building consent documentation including:

- Revised cupolex plan to include thickening of slab below bracing wall shown on the bracing plan of the architectural drawings number 145596 and dated 07/03/2022.
- Calculation checking the bearing below point load: page 3 of cupolex design calculations.

Yours faithfully,

Prepared by

Tom Lott

Structural Engineer

Reviewed

Audrey Farreyre

Senior Structural Engineer

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

Tasman District Council
BUILDING CONSENT AUTHORITY

RECEIVED
Date: 23/02/22

BC220131 TASMAN DISTRICT COUNCIL APPROVED AMENDMENT 24/03/2022


CGW
CONSULTING ENGINEERS

# Building Consent Documentation

## 18 Kahikatea Way, Richmond, New Zealand

## G J Gardner Homes

Document Number: 220237-BCD-001-A

Date: 16 March 2022

Prepared by

Tom Lott

Structural Engineer

BEng(Hons)

Approved by

Audrey Farreyre

Senior Structural Engineer

MSc, CMEngNZ, CPEng

**Consulting Civil, Structural, Environmental & Geotechnical Engineers**
**Directors:** V.J. Anderson BE C&M • R.A. Puklowski NZCE (Civil) REA MEngNZ • C.F. Short BBS PG Dip Man • A.R. Wilton BE CMEngNZ CPEng IntPE DipMS

**Cameron Gibson & Wells Limited**
**Nelson Office** Level 4, 241 Hardy Street, PO Box 711, Nelson • Tel: +64 3 548 8259
**Christchurch Office** Level 2, 124 Peterborough Street, PO Box 21441, Edgeware, Christchurch • Tel: +64 3 348 1000
**Wanaka Office** 4 Helwick St, PO Box 169, Wanaka • Tel: +64 3 548 8259
**office@cgwl.co.nz • www.cgwl.co.nz**

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

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CONSULTING ENGINEERS

## Contents

1. Producer Statement – PS1 – Design ..... 3
2. Producer statement – PS1 - Schedule ..... 4
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6. Drawings ..... 12
7. Supporting Documents ..... 13

Tasman District Council
BUILDING CONSENT AUTHORITY
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Date: 23/02/22

# 1. Producer Statement – PS1 – Design

Building Code Clause(s): B1 JOB NUMBER: 220237

ISSUED BY: CGW Consulting Engineers
(Engineering Design Firm)

To: G J Gardner Homes
(Owner/Developer)

TO BE SUPPLIED TO: Tasman District Council
(Building consent authority)

IN RESPECT OF : Cupolex Foundation
(Description of building work)

AT: 18 Kahikatea Way, Richmond, New Zealand

LEGAL DISCRIPTION: Lot 366 DP 561194 N/A: ☐

We have been engaged by the owner/developer referred to above to provide (extent of engagement):

Engineering design and sketches

In respect of the requirements of the Clause(s) of the building code specified above Part only , as specified in the schedule, of the proposed building work.

The Design carried out by us has been prepared in accordance with:

☒ Compliance Documents issued by the Ministry of Business, Innovation & Employment (verification method/acceptable solution) B1/VM1/VM4 or

☒ Alternative solution as per the attached schedule.

The proposed building work covered by this producer statement is described on the drawings specified on the schedule, together with the specification, and other documents set out in the schedule.

On Behalf of the Engineering Design Firm, and subject to

- Site verification of the following design assumptions 200kPa UBC
- All Proprietary products meeting their performance specifications requirements.

I believe on reasonable grounds

- the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that
- The persons who have undertaken the design have the necessary competency to do so.

I also recommend the CM 4 level of construction monitoring.

I, (Name of Design Review Professional) Audrey Farreyre am:

☒ CPEng 1009889

And hold the following qualifications: MSc, CMEng, CPEng

The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*. The Design Firm is a member of ACENZ.

SIGNED BY *(Name of Design Review Professional)* Audrey Farreyre
*(Signature Below)*:

ON BEHALF OF *(Design Review Firm)*: CGW Consulting Engineers Date: 16/3/2022

*Note: This statement has been prepared soley for the Building Consent Authority named above and shall not be relied upon by any other person or entity. Any liability in relation to this statement accrues to the Engineering Design Firm only. As a condition of reliance on this statement, the Building Consents authority accepts that the total maximum amount of liability of any kind arising from this statement and all other statements provided to the building content authority in relation to this building work, whether in tort or otherwise, is limited to the sum of $200,000.*

This form is to accompany Form 2 of the Building (Forms) Regulations 2004 for the application of a Building Consent.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACE NEW ZEALAND AND ENGINEERING NEW ZEALAND



Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

BC220131 TASMAN DISTRICT COUNCIL APPROVED AMENDMENT 24/03/2022


## 2. Producer statement – PS1 - Schedule

Alternative Solution Schedule for Residential Cupolex Flooring Systems

Items covered by this Producer Statement:

| | |
|---|---|
| 1 | Cupolex Foundation |

Drawings describing the work covered by this Producer Statement:

| Drawings | Prepared by | Reference | Items listed above |
|---|---|---|---|
| CGW Sketches Titled '18 Kahikatea Way, Richmond' Sheets S-01-01 to S-01-05 | Tom Lott | Rev. B | 1 |

Tasman District Council
BUILDING CONSENT AUTHORITY
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Date: 23/02/22

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CONSULTING ENGINEERS

**RE: Alternative Solution Schedule for Residential Cupolex Flooring Systems for TC1 and NZS3604:2011 "Good Ground" for Building Code Compliance**

On the 1st December 2005, Auckland UniServices conducted a series of tests on the Cupolex® flooring system to confirm its compliance under AS/NZS1170.1:2002 loading requirements. The Cupolex® flooring system was tested using 260mm deep modules with a 40mm minimum topping and a variety of reinforcing layout including 668 mesh. This system was founded on a 50mm polystyrene sheet.

The test samples were 2170 mm by 2170 mm consisting of 9 domes, 95 mm of Beton Stop® and 150 mm of perimeter beam. The point load was applied over a square with sides of 300mm and the central pillar of the Cupolex beneath this load was shortened by 50 mm to simulate the slab on an uneven surface.

The results were as follows:

- An elastic load of 60 kN
- An ultimate load of 102 kN

On the basis of these results CGW consider that the system meets the requirement of the 13KN as required for garages under AS/NZS1170.2002.

CGW has carried out bearing capacity calculations for the Cupolex® modules and found that the system can handle domestic and garage loads on soils with bearing capacities no less than 200 kPa. Though this bearing capacity was not implicitly accounted for by UniServices' test regime, they included polystyrene under the Cupolex; this test configuration simulates the flexibility and limited bearing capacity.

UniServices recorded a deflection of 0.25 mm under the 13 kN point load.

The following design assumptions and limitations have been made for the Cupolex beams:

1. The shear reduction factor for a beam without shear reinforcing has been taken equal to 0.85 instead of the 0.5 value suggested by NZS3101:2006.
2. The design has been carried out so that no ULS point load greater than 23kN may be applied to any one place along the main foundation beam.
3. Maximum bracing capacity for proprietary not SED bracing system fixed to the Cupolex is to be limited to 7.5kN/m or 150BU/m.



Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

**Cameron Gibson & Wells Limited**
**Nelson Office** Level 1, 44 Halifax Street, Nelson • Tel: +64 3 548 8259
**Christchurch Office** Level 2, 124 Peterborough Street, PO Box 21441, Edgeware, Christchurch • Tel: +64 3 348 1000
**Wanaka Office** 4 Helwick Street, PO Box 169, Wanaka • Tel: +64 3 548 8259
**office@cgwl.co.nz • www.cgwl.co.nz**

Telarc Registered
Quality ISO 9001
Health & Safety ISO 45001
ACENZ

The above assumptions are justified by the low risk imposed to the people inside the building or adjacent structures by failure of the foundation under a ULS.

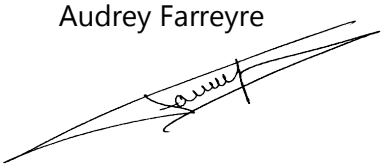
On the basis of the above, as Chartered Professional Engineers the Cupolex System for residential application meets the performance requirement of the Building Code.

We believe this document supplies evidence for the Territorial or Building Consent Authority to be satisfied on Reasonable grounds that the design complies with the Building Code.

Yours faithfully,

Prepared by

Audrey Farreyre



Senior Structural Engineer

MSc, CMEngNZ, CPEng

Reviewed by

Andy Wilton

Director

BE, CMEngNZ, CPEng, IntPE, DipMS

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

## 3. B2 (Durability) Compliance

CGW Ref: 220237-LET-001-A
Date: 16 March 2022

Tasman District Council
189 Queen Street
Richmond

Dear Sir/Madam,

## RE: B2 (Durability) Compliance

Your council has requested a Producer Statement for Design (PS1) Design for Clause B2 (Structural Durability) of the Building Code.

Producer statements are a statement from a professional designer, that may be used by the council as part of their reasonable grounds for accepting a design.

Engineers typically supply producer statements to cover elements of the design work that is justified by means of a verification method (ie. B1/VM4 for foundations).

We are not able to provide a producer statement stating B2 compliance, as currently there is not an effective verification method contained within the building code to specifically design for durability and we do not intend to be attempting to justify durability outside of the acceptable solutions presented in the building code.

We can however confirm that, where present in our documentation:

**Concrete** mix and covers have been selected in accordance with NZS 3101 (Concrete Structures) part 1 section 3 – Again, this is an acceptable solution, not a verification method.

Yours faithfully,

Prepared by

Tom Lott

Structural Engineer

Reviewed

Audrey Farreyre

Senior Structural Engineer

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

CGW CONSULTING ENGINEERS

# 4. Memorandum from Licensed Building Practitioner – Certificate of Design Work

## Section 45 and Section 30C, Building Act 2004

Please fill in the form as fully and correctly as possible.
If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

| The Building | | | |
|---|---|---|---|
| Address: | 18 Kahikatea Way, Richmond, New Zealand | | |
| Town/City: | Richmond | Postcode: | 7020 |

| The Owner(s) | | | |
|---|---|---|---|
| Name(s): | | | |
| Mailing Address: | 18 Kahikatea Way, Richmond, New Zealand | | |
| Suburb: | | | |
| Town/City: | Richmond | Postcode: | 7020 |
| Email address: | | Phone Number: | |

| Basis For Providing This Memorandum | |
|---|---|
| I am providing this memorandum in my role as the: (Please tick the option that applies) | |
| ☐ | sole designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design myself – no other person will be providing any additional memoranda for the project |
| ☐ | lead designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and no other person will be providing any additional memoranda for the project |
| ☐ | lead designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the other designers will provide their own memoranda relating to their specific RBW design |
| ☒ | specialist designer who supervised the design of specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work |

| Identification of Design Work That is Restricted Building Work (RBW) |
|---|
| I Audrey Farreyre supervised the following design work that is restricted building work. |

Tasman District Council
BUILDING CONSENT AUTHORITY
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Date: 23/02/22

| Design Work That is RBW | Description of RBW (if appropriate) | Carried out or supervised | Reference to plans and specifications (if appropriate) |
|---|---|---|---|
| Primary Structure: B1 | | | |
| Foundations and subfloor framing<br>☒ Included<br>☐ Excluded | Cupolex Foundation | ☐ Carried Out<br>☒ Supervised | CGW Sketches Titled '18 Kahikatea Way, Richmond' Sheets S-01-01 to S-01-05 |
| Walls<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Roof<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Columns and beams<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Bracing<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Other<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

| Design Work That is RBW | Description of RBW (if appropriate) | Carried out or supervised | Reference to plans and specifications (if appropriate) |
|---|---|---|---|
| External Moisture Management Systems: E2 | | | |
| Damp Proofing<br>☒ Included<br>☐ Excluded | | ☐ Carried Out<br>☒ Supervised | CGW Sketches Titled '18 Kahikatea Way, Richmond' Sheets S-01-01 to S-01-05 |
| Roof cladding or roof cladding system<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Ventilation system (for example subfloor or cavity)<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Wall cladding or wall cladding system<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Waterproofing<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Other<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |

Tasman District Council
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RECEIVED
Date: 23/02/22

| Design Work That is RBW | Description of RBW (if appropriate) | Carried out or supervised | Reference to plans and specifications (if appropriate) |
|---|---|---|---|
| Fire Safety Systems: C1 – C6 | | | |
| Emergency warning systems<br>Evacuation and fire service operation systems<br>Suppressions control systems<br>Other<br>☐ Included<br>☒ Excluded | | ☐ Carried Out<br>☐ Supervised | |
| Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011 | | | |

| Waivers and Modifications | |
|---|---|
| Waivers or modifications of the Building Code are required: ☐ Yes ☒ No | |
| If Yes, provide details of the waivers or modifications below: | |
| Clause<br>List relevant clause numbers of building code | Waiver/modification required<br>Specify nature of waiver or modification of building code required |
| | |
| | |
| | |

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

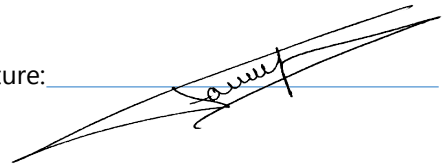
CGW CONSULTING ENGINEERS

| Issued By | | | |
|---|---|---|---|
| Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work | | | |
| Name: | Audrey Farreyre | LBP or Registration Number: | 1009889 |
| The practitioner is: ☐ Design LBP ☐ Registered architect ☒ Chartered Professional Engineer | | | |
| Design Entity or Company: Cameron Gibson and Wells Ltd | | | |
| Mailing address (if different from below): | | | |
| Street Address/Registered Office: Level 4, 241 Hardy Street | | | |
| Suburb: Nelson City | | Town/City: Nelson | |
| Phone number: (03) 548 8259 | | Mobile: | |
| After Hours: | | Fax: | |
| Email address: audrey@cgwl.co.nz | | Website: www.cgwl.co.nz | |

## Declaration

I, Audrey Farreyre, LBP, state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code, or
- Complies with the building code subject to any waiver or modification of the building code recorded on this form

Signature: 

Date: 16/03/2022

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

CGW CONSULTING ENGINEERS

## 5. Inspection Schedule

Job Number: 220237

Date: 16/03/22

Job Description: Cupolex Foundation

Job Location: 18 Kahikatea Way, Richmond, New Zealand

Client: G J Gardner Homes

---

- CGW Consulting Engineers have been engaged by the client to carry out the site inspections listed in the attached schedule of inspections.
- It is a requirement of the building consent that these inspections are carried out.
- On completion of the inspections and the satisfactory completion of the work on site, Cameron Gibson & Wells Ltd will issue a Producer Statement for Construction Review covering the work inspected.
- If we are not notified of an inspection, or our engagement is terminated, or our ability to issue a Producer Statement for Construction Review is otherwise affected, then we will notify the controlling Territorial Authority.
- If we are unable to issue a Producer Statement for Construction Review, then the controlling Territorial Authority will not be able to issue a Code Compliance Certificate for the works until they are satisfied that the work complies with the New Zealand Building Code.

| Inspections | | | | |
|---|---|---|---|---|
| No | Description | Time Inspection is Due | Date Inspected | Carried Out By |
| 1 | Subgrade inspection once all topsoil and organic material has been removed from the excavation. | | TBC | Geotechnical Engineer |
| 2 | Inspection of fill, or NDT/Clegg testing if fill is required. | | TBC | Geotechnical Engineer |
| 3 | Pre-pour inspection. | | TBC | Structural Engineer |

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

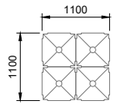
Tasman District Council
BUILDING CONSENT AUTHORITY

RECEIVED
Date: 23/02/22

## 6. Drawings

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

## LEGEND:




CUPOLEX MODULE LAYOUT

SET OUT POINT FOR CUPOLEX MODULES

2/HD12 x 1500mm LONG TIED TO UNDERSIDE OF MESH

300mm WIDE CONCRETE BEAM

150mm WIDE CONCRETE BEAM

BETON PACKERS

200mm DEEP CUPOLEX MODULE FOR SHOWER REBATES

FLOOR AREA: 135m$^2$
200 DOME COUNT: 299
260 DOME COUNT: 6
BENTON STOP COUNT: 157
COUNTS APPROXIMATE ONLY AND ARE SUBJECT TO CONFIRMATION

APPROXIMATE COUNT ADDED. SUBJECT TO CONFIRMATION

## NOTES:

1. CHECK THE BUILDING CONSENT DOCUMENTATION FOR ANY INSPECTIONS THAT ARE REQUIRED BY THE BUILDING CONSENT AUTHORITY.
2. FOUNDATION LAYOUT DIMENSIONS PROVIDED FOR INFORMATION ONLY. ARCHITECTS FOUNDATION DIMENSIONS TO TAKE PRECEDENCE.
3. REFER TO ARCHITECTS DRAWINGS FOR ALL SLAB REBATE DIMENSIONS AND LOCATIONS.
4. DESIGN BASED ON ASSUMPTION OF GOOD GROUND AS PER NZS3604:2011 AS SPECIFIED IN DAVIS OGILVIE GEOTECHNICAL REPORT DATE 06 SEPTEMBER 2021, REF 37435. ENGINEER TO CONFIRM SOIL BEARING CAPACITY IS CONSISTENT WITH THE DESIGN ASSUMPTIONS ON SITE.
5. WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.
6. TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE PODS SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 60mm THICK TOPPING FOR THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENTS.
7. FOR SET-OUT DIMENSIONS AND SITE LEVELS REFER ARCHITECTS DRAWINGS.
8. CONCRETE TO BE 25MPa AT 28 DAYS.
9. SLAB REINFORCING TO BE SE62 WITH MIN LAPS OF 225mm. OR 665 MESH FOR SUBSITUTION.
10. LOAD BEARING PADS TO BE REINFORCED WITH HD12's @ 200mm CRS EACH WAY TOP & BOTTOM.
11. ALL SAWCUTS TO BE AS PER NZS3604:2011 SECTION 7.
12. REFER TO SPECIFICATION ON SHEET 003 FOR BOTTOM PLATE FIXINGS.

## INSPECTIONS:

IN ORDER FOR CGW CONSULTING ENGINEERS TO PROVIDE A PS4, AT A MINIMUM WE MUST UNDERTAKE THE FOLLOWING INSPECTIONS:

1. SUBGRADE INSPECTION ONCE ALL TOPSOIL AND ORGANIC MATERIAL HAVE BEEN REMOVED FROM THE EXCAVATION.
2. INSPECTION OF FILL MATERIALS AND TESTING AS REQUIRED.
3. PRE POUR INSPECTION.

WE REQUIRE 24HRS NOTICE BEFORE ANY INSPECTION.

TO BOOK AN INSPECTION CALL: 03 548-8259
AND QUOTE THIS NUMBER: 220237

NOTE: THIS DESIGN HAS BEEN PRODUCED PRIOR TO DRAINAGE PLANS BEING AVAILABLE. IT IS THE CONTRACTORS RESPONSIBILITY TO CHECK FOR THE LOCATION OF ALL COUNCIL PIPES AND SOAKPITS TO ENSURE THEY DO NOT CLASH WITH THE SLAB DESIGN. SHOULD EITHER OF THESE BE FOUND ON SITE AND THE HOUSE FOOTPRINT BE LOCATED WITHIN THE ZONE OF INFLUENCE (TYPICALLY 45 DEGREES FROM THE PIPE INVERT) THEN CGW SHALL BE CONTACTED FOR COMMENT PRIOR TO CONSTRUCTION.

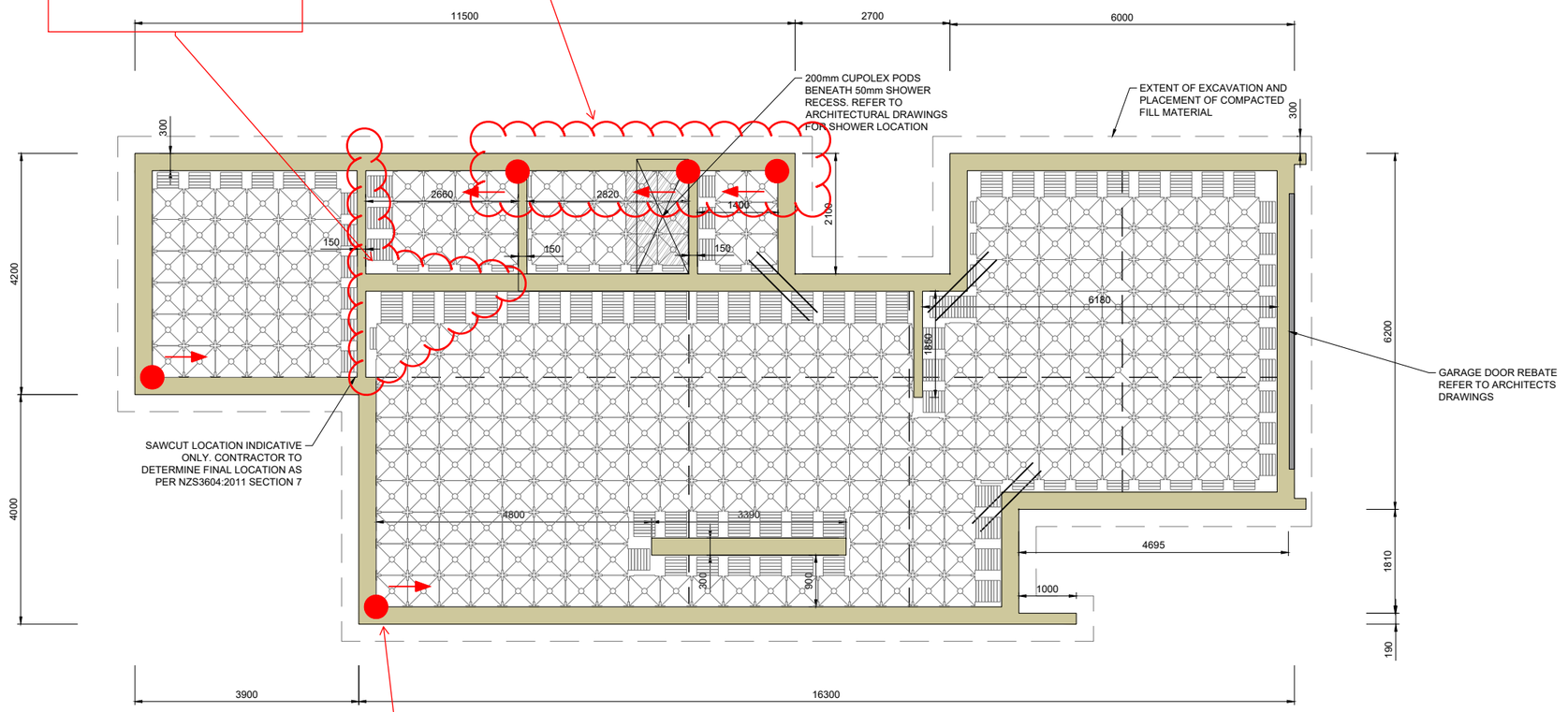
## GENERAL CHANGES

- CUPOLEX DOME LAYOUT ADJUSTED WHERE INTERNAL BEAMS ADDED.
- SAWCUT LOCATIONS UPDATED WHERE APPROPRIATE.
- DIMENSIONS ADDED FOR CLARITY.

SET OUT MARKERS ADDED

NEW 150mm INTERNAL BEAM MEETING EXTENDED 300mm INTERNAL BEAM.

REFER TO NOTE 9 FOR MESH SUBSTITUTION.




CUPOLEX FOUNDATION LAYOUT PLAN
SCALE 1:100 A3

SET OUT MARKER ADDED

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT

REVISION AND DESIGNER UPDATED

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CGW CONSULTING ENGINEERS
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03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: G J GARDNER HOMES
18 KAHIKATEA WAY, RICHMOND

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

DRAWING TITLE: FOUNDATION PLAN AND SPECIFICATION

DESIGNED BY: TOM LOTT
DRAFTED BY: TOM LOTT

| REV | DATE | REVISION | CHD | APD |
|---|---|---|---|---|
| B | 16.03.22 | SECOND ISSUE | AF | RC |
| A | 10.08.21 | FIRST ISSUE | AF | RC |

FOR CONSTRUCTION

| SCALE | SIZE |
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| AS SHOWN | A3 |

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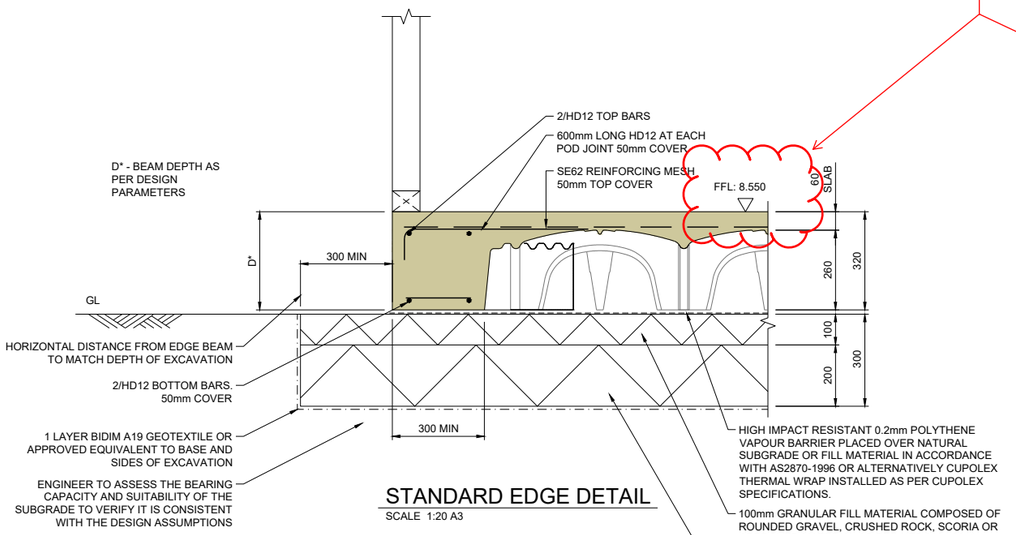
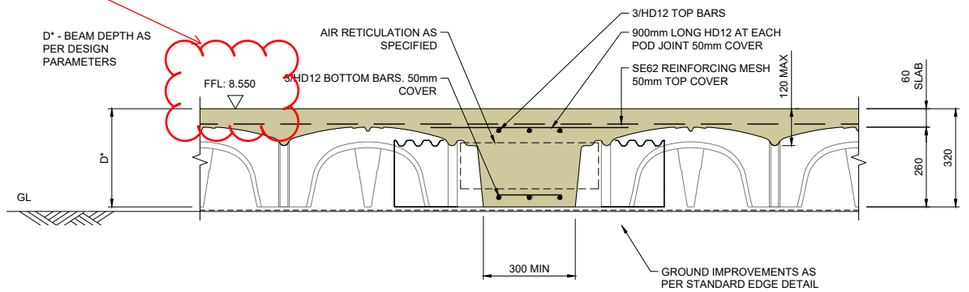
FFL SPECIFIED




## STANDARD EDGE DETAIL
SCALE 1:20 A3




## 300mm INTERNAL BEAM DETAIL
SCALE 1:20 A3

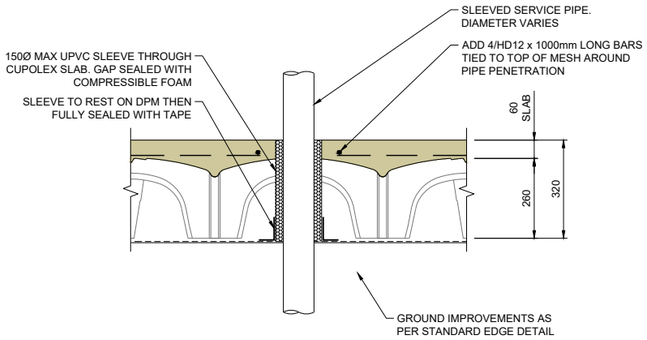
NOTE: DEPTH OF GRAVEL RAFT IS INDICATIVE ONLY. GRAVEL DEPTH TO BE THE MAXIMUM OF;
- 75mm OF GRANULAR FILL MATERIAL COMPOSED OF ROUNDED GRAVEL, CRUSHED ROCK, SCORIA OR APPROVED MATERIAL AS PER NZS 3604:2011 CLAUSE 7.5.3.2 TO ACHIEVE A LEVEL SURFACE,
- TOPSOIL DEPTH,
- DEPTH TO 200kPA SOIL
- OR AS OTHERWISE SPECIFIED IN THE GEOTECHNICAL REPORT.

FILL MAY BE SWAPPED OUT WITH APPROVED EQUIVALENT BY GEOTECHNICAL ENGINEER INSPECTING SITE CUT.

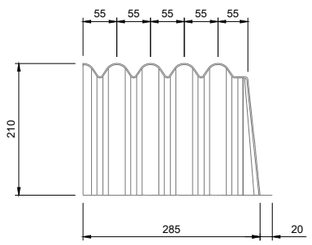
FILL COMPACTION NOTES:
- CHECK THE BUILDING CONSENT CONDITIONS BEFORE COMMENCING CONSTRUCTION. IF COUNCIL REQUIRES A PS4, CONTACT A CONSULTING ENGINEER BEFORE STARTING EARTHWORKS. NO INSPECTION = NO PS4.
- ANY FILL DEPTH OVER 300mm NOT CONFINED BY A FOUNDATION WALL WILL NEED TO BE TESTED. CONTACT AN ENGINEER BEFORE STARTING WORKS.
- AS A GUIDE THE FOLLOWING COMPACTION METHOD MAY BE USED:
  1. MINIMUM 350 KG PLATE COMPACTOR TO BE USED TO COMPACT FILL.
  2. MINIMUM OF 6 PASSES OF PLATE COMPACTOR WITH SUFFICIENT WATER TO MEET SELECTED FILL MOISTURE REQUIREMENTS.
  3. FILL TO BE PLACED IN MAXIMUM 150mm THICK LAYERS.
  4. REFER TO SUBGRADE NOTES ON THE SPECIFICATION PAGE OF THESE DRAWINGS REGARDING THE USE OF ALTERNATE MATERIALS. CONTACT THE GEOTECHNICAL ENGINEER IF YOU INTEND TO USE SOMETHING DIFFERENT THAN THE MATERIALS SPECIFIED

Tasman District Council
BUILDING CONSENT AUTHORITY

PRODUCER STATEMENTS AND INSPECTION REPORTS ARE REQUIRED FOR THIS PROJECT




## PIPE PENETRATION DETAIL
SCALE 1:20 A3




## BETON STOP DETAIL
SCALE 1:10 A3

REVISION AND DESIGNER UPDATED

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CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: G J GARDNER HOMES
18 KAHIKATEA WAY, RICHMOND

Tasman District Council BUILDING CONSENT AUTHORITY RECEIVED Date: 23/02/22

DRAWING TITLE: CUPOLEX FOUNDATION DETAILS

DESIGNED BY: TOM LOTT
DRAFTED BY: TOM LOTT

| REV | DATE | REVISION | CHD | APD |
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| AS SHOWN | A3 |

| PROJECT NO | TYPE | SHEET | REV |
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# SPECIFICATION:

GENERAL

CHECK THE BUILDING CONSENT DOCUMENTATION FOR ANY INSPECTIONS THAT ARE REQUIRED BY THE "BUILDING CONSENT AUTHORITY"

FOR SET-OUT DIMENSIONS AND SITE LEVELS REFER ARCHITECTS DRAWINGS

SUBGRADE

DESIGN BASED ON ASSUMPTION OF GOOD GROUND AS PER NZS3604:2011 AS SPECIFIED IN DAVIS OBIVIE GEOTECHNICAL REPORT DATE 06 SEPTEMBER 2021, REF 37435. ENGINEER TO CONFIRM SOIL BEARING CAPACITY IS CONSISTENT WITH THE DESIGN ASSUMPTIONS ON SITE.

WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.

UNLESS SPECIFIED, HARDFILL SHALL BE TNZ M4/AP40 COMPACTED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY.

THE CONTRACTOR MAY SUBMIT ALTERNATIVES FOR CONSTRUCTION MATERIALS AS A MEANS OF COMPLIANCE TO THESE DRAWINGS AND SPECIFICATIONS. THESE SHALL BE SUBSTANTIATED WITH PAST PERFORMANCE RESULTS AND SUPPORTING EVIDENCE THAT THE ALTERNATIVES WILL ACHIEVE THE REQUIRED RESULTS BEFORE APPROVAL WILL BE GIVEN BY THE ENGINEER FOR THEIR USE.

BLINDING

MAXIMUM 25mm OF COMPACTED GAP 7 OR CRUSHER DUST.

CONCRETE

ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH NZS:3109:1997.

CONCRETE TO BE FINISHED TO NZS3114:1987.

ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH F'C OF 25MPA AT 28 DAYS.

ALL CONCRETE SHALL BE SUPPLIED FROM A READY MIXED CONCRETE BATCHING PLANT WHICH HOLDS A MINIMUM OF "HIGH GRADE" PRODUCTION STANDARD AS DEFINED BY NZS3109.

ALL CONCRETE SHALL BE FULLY COMPACTED BY APPROVED VIBRATION EQUIPMENT.

VIBRATION SHALL BE APPLIED IN A UNIFORM PATTERN WITH CARE TAKEN NOT TO OVER-VIBRATE.

THE FLOOR SLAB SHALL BE PLACED CONTINUOUSLY AND WITH STRICT ATTENTION TO AVOIDANCE OF COLD JOINTS AND PLASTIC SHRINKAGE.

SHOULD DELAYS OCCUR WITH CONCRETE SUPPLY, THE UNFORMED EDGES OF FRESHLY PLACED CONCRETE SHALL BE COATED WITH AN EVAPORATION RETARDANT (SIKAFILM OR SIMILAR APPROVED) AND JOINS SHALL BE SUITABLY VIBRATED UPON CONTINUATION OF PLACING.

EVAPORATION RETARDANT SHALL BE APPLIED GENERALLY TO FLOOR SURFACE TO PREVENT PLASTIC SHRINKAGE UNDER ADVERSE AMBIENT CONDITIONS (IE, CAUSING RAPID BLEED WATER EVAPORATION).

THE FLOOR SLAB SHALL BE MOIST CURED BY COMPLETE FLOODING WITH WATER ONCE CONCRETE HAS ACHIEVED INITIAL SET. FLOODING SHALL BE TO SUFFICIENT DEPTH TO PREVENT FROST ICE FORMING ON THE CONCRETE SURFACE AND SHALL BE APPLIED FOR AS LONG AS POSSIBLE BUT NOT LESS THAN 7 DAYS. ALTERNATIVELY SPECIALIST SUPPORT SHALL BE SOUGHT FROM MARKHAM AND THEIR DESIGN TEAM TO ASCERTAIN THAT A CURING AGENT SUCH AS 'AQURON 2000' OR SIMILAR PRODUCT IS A FEASIBLE ALTERNATIVE FOR THE PROJECT.

CONCRETE SURFACE FINISHES SHALL BE IN ACCORDANCE WITH NZS3114, AS FOLLOWS:

| | |
|---|---|
| FOOTING | U2 (WOOD) |
| FLOOR SLAB | U3 (STEEL FLOAT) |
| PRECAST | F5 / U3 (STEEL TROWEL) |

REINFORCING

ALL REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF AS/NZS4671:2001.

SLAB REINFORCING TO BE SE62 WITH MIN LAPS OF 225mm. OR 665 MESH FOR SUBSTITUTION.

LOAD BEARING PADS TO BE REINFORCED WITH HD12'S @ 200mm CRS EACH WAY TOP & BOTTOM.

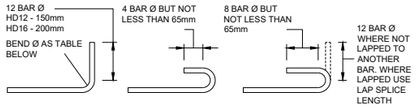
MINIMUM 50mm COVER TO BE MAINTAINED TO REINFORCING ON OUTER FACES. 30mm ELSEWHERE UNLESS SPECIFIED ON DRAWINGS.

SPLICING OF REINFORCEMENT WHETHER BY LAPPING, WELDING OR MECHANICAL SPLICE, SHALL BE AS SHOWN ON THE DRAWINGS OR AS SPECIFICALLY APPROVED BY THE ENGINEER.

TOP REINFORCEMENT SHALL BE SUPPORTED BY BAR CHAIRS OR OTHER APPROVED METHODS.

DEFORMED BARS SHALL BE OF SEISMIC GRADE MICRO-ALLOY STEEL, (GRADE 300E & GRADE 500E MA) AS MANUFACTURED BY PACIFIC STEEL LTD.

BENDS FOR ALL BARS EXCEPT STIRRUPS AND TIES:



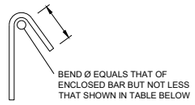

STANDARD HOOK STANDARD 180° HOOK WALL OR SLAB BAR BENT AROUND ANOTHER BAR

| STEEL GRADE | BAR DIA (mm) | MINIMUM DIA. OF BEND |
|---|---|---|
| GRADE 300E/500E | 6-20 | 5x BAR DIA. |
| GRADE 300E/500E | 25-40 | 6x BAR DIA. |

ALL HOOKS ON STIRRUPS AND TIES MUST FIT CLOSELY AROUND MAIN BARS.

THE FIRST STIRRUP SHALL NOT TO BE PLACED FURTHER THAN THE LESSER OF 1/2 STIRRUP SPACING OR 50mm FROM SUPPORT FACE.

BENDS FOR STIRRUPS AND TIES:




STANDARD STIRRUP & TIE HOOKS

| STEEL GRADE | BAR DIA (mm) | MINIMUM DIA. OF BEND | |
|---|---|---|---|
| | | PLAIN BARS | DEFORMED BARS |
| GRADE 300E/500E | 6-20 | 2 BAR DIA. | 4 BAR DIA. |
| GRADE 300E/500E | 25-40 | 3 BAR DIA. | 6 BAR DIA. |

BAR SPLICE LENGTHS (Ldb)

| BAR SIZE | CONCRETE STRENGTH | MIN LAP LENGTH |
|---|---|---|
| HD12 | 25MPa | 550mm |
| HD16 | 25MPa | 700mm |
| HD20 | 25MPa | 900mm |

RECESSED SHOWERS

TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE PODS SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 60mm THICK TOPPING FOR THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENTS.

SEALANT'S

ALL SEALANT'S AND WATERSTOPS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS.

STEEL

ALL EXPOSED STEEL ITEMS AND FIXING DEVICES SHALL BE HOT DIP GALVANIZED OR STAINLESS STEEL IF NOTED.

IMMERSED BOLTS AND FASTENERS SHALL BE MINIMUM GRADE 304 STAINLESS STEEL.

HOLD DOWN BOLTS

EXTERNAL WALL BOTTOM PLATE FIXINGS AND HOLD DOWN BOLTS TO BE TO NZS3604:2011

BRACING

THE BOTTOM PLATE FIXINGS FOR INTERNAL BRACING WALLS (SUCH AS GS1-N AND GS2-N THAT DO NOT REQUIRE BOLTED HOLD DOWNS) OR PARTITION WALLS THAT ARE NOT LOAD BEARING SHALL BE AS PER THE MANUFACTURERS SPECIFICATIONS FOR NAIL FIXINGS, OR AS PER NZS3604:2011 (E.G. 75x3.8mm SHOT FIRED FASTENERS WITH 16mm DISC, 150mm AND 300mm FROM EACH END OF THE BRACING ELEMENT AND AT 600mm CRS THEREAFTER). SHOT FIRED FASTENERS AS ABOVE ARE THE PREFERRED METHOD FOR BOTTOM PLATE FIXINGS WHEN APPLICABLE.

WHERE BOLTED HOLD DOWNS ARE USED A 150mm WIDE THICKENING IS REQUIRED BELOW. THE BOLT MAY BE SED TO REDUCE EMBEDMENT AND REMOVE THE NEED FOR A RIB.

POLISHED CONCRETE FINISH

NO ALLOWANCE HAS BEEN MADE FOR POLISHED CONCRETE FLOORS.

UNDERFLOOR HEATING

NO ALLOWANCE HAS BEEN MADE FOR UNDERFLOOR HEATING.

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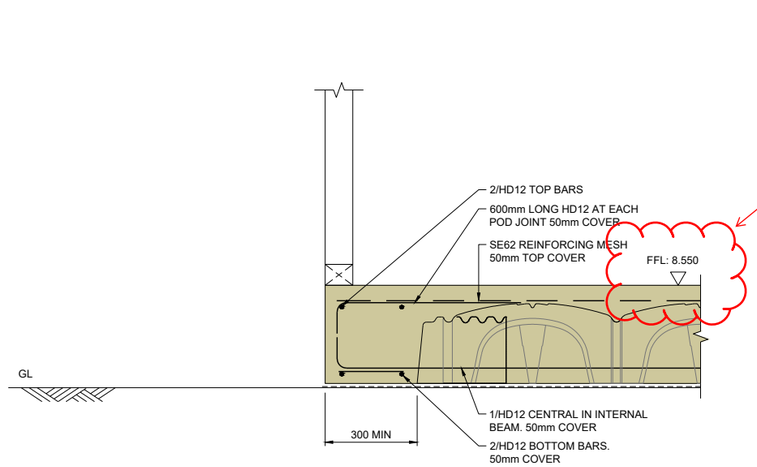
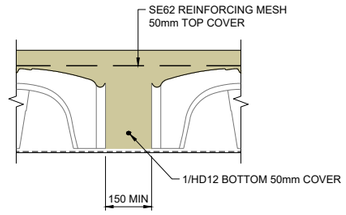



150mm BEAM EDGE DETAIL
SCALE 1:20 A3




150mm BEAM INTERNAL DETAIL
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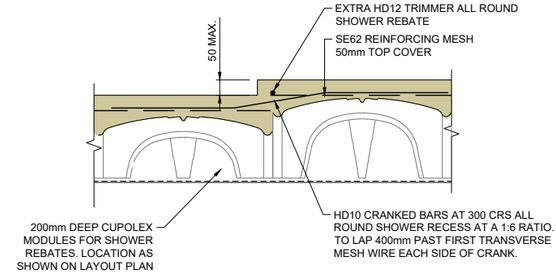


SHOWER RECESS DETAIL
SCALE 1:20 A3

Tasman District Council
BUILDING CONSENT AUTHORITY

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REVISION AND DESIGNER UPDATED

CGW CONSULTING ENGINEERS
NELSON • CHRISTCHURCH • WANAKA • AUCKLAND
03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: G J GARDNER HOMES
18 KAHIKATEA WAY, RICHMOND

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

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DESIGNED BY: TOM LOTT
DRAFTED BY: TOM LOTT

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|---|---|
| AS SHOWN | A3 |

| PROJECT NO | TYPE | SHEET | REV |
|---|---|---|---|
| 220237 | DWG | S-01-03 | B |

Original Sheet Size A3 (420x297) File Path: \\dc-server\NonSync\Tom\Documents\220237 - 18 Kahikatea Way, Richmond - cupolex redesign\New DWG\220237-DWG-001-B.dwg - S-01-03

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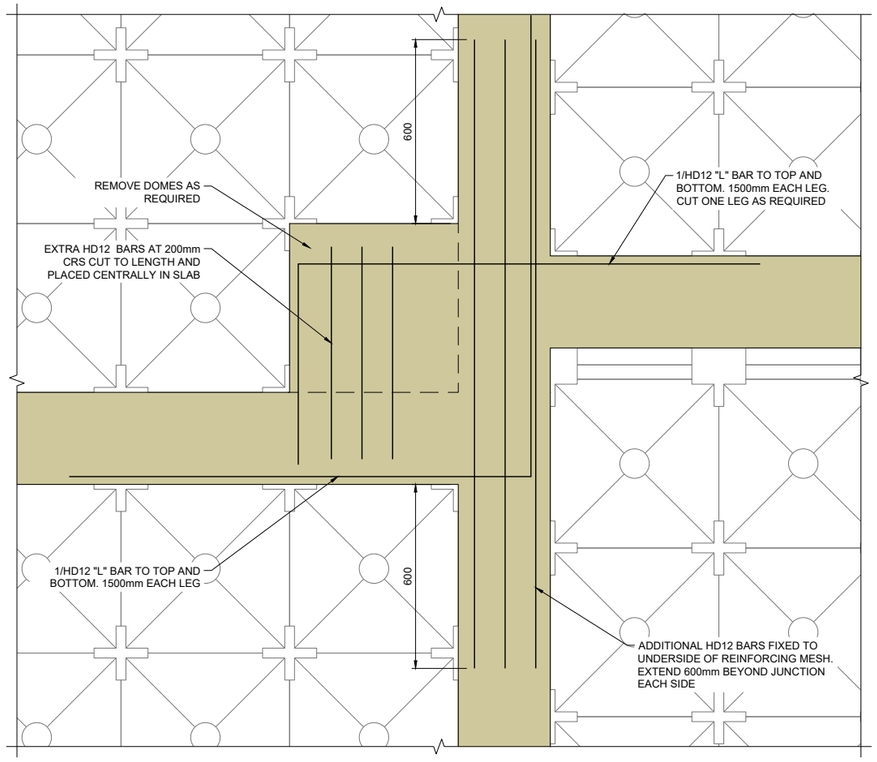
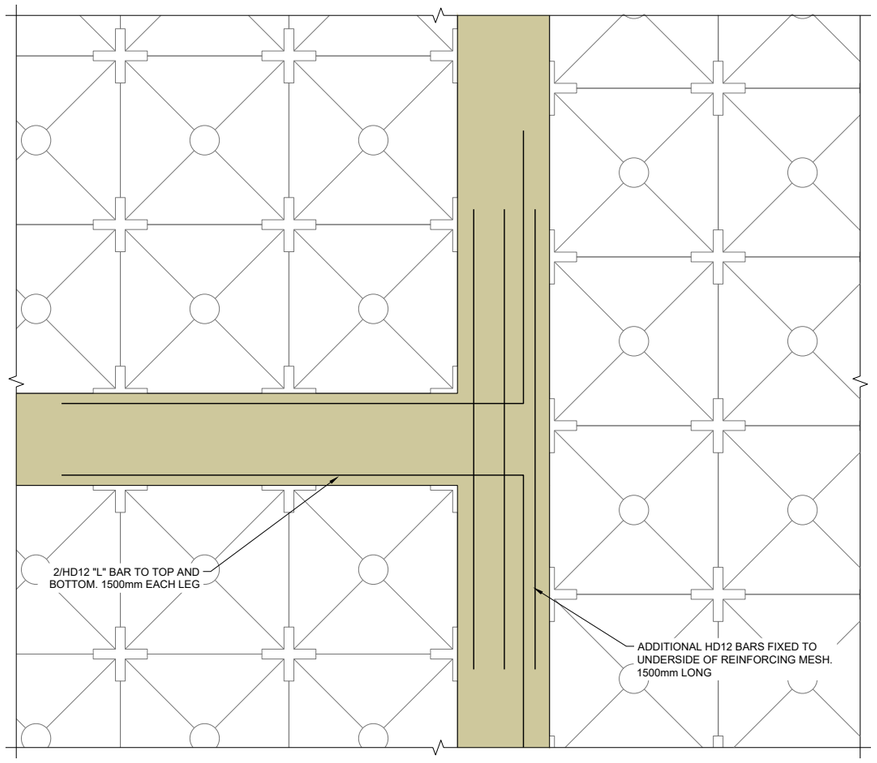



DOUBLE OFFSET JUNCTION
SCALE 1:20 A3




SINGLE JUNCTION
SCALE 1:20 A3

REVISION AND DESIGNER UPDATED

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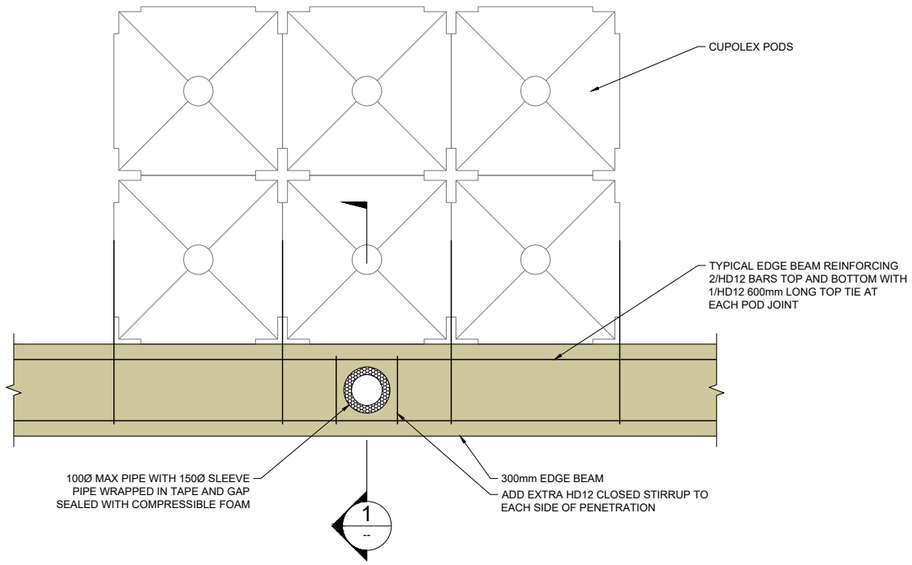
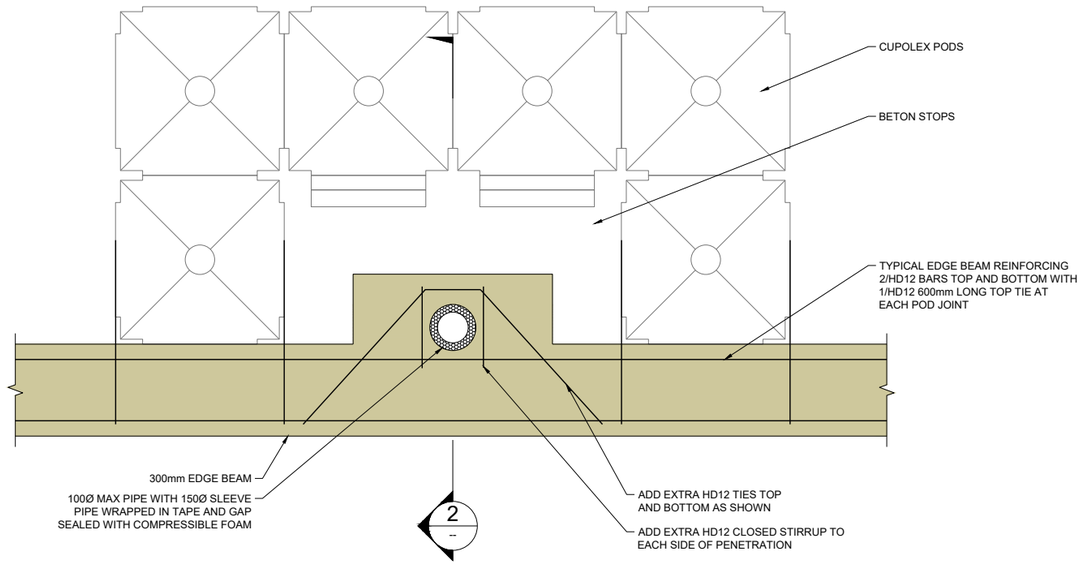
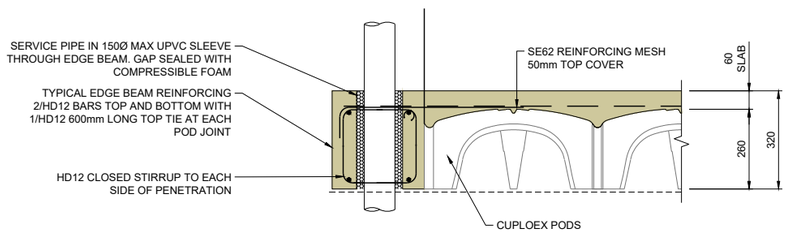



EDGE BEAM PIPE PENETRATIONS A
SCALE 1:20 A3




EDGE BEAM PIPE PENETRATIONS B
SCALE 1:20 A3

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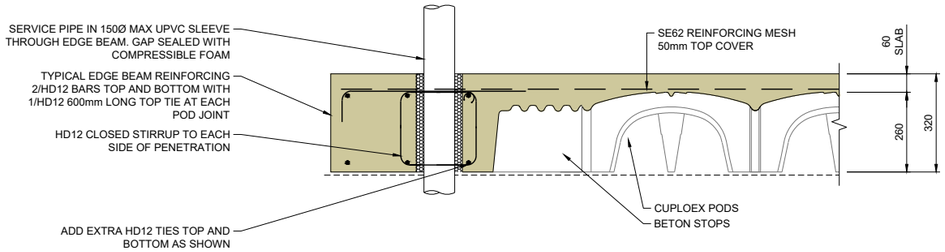


2
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REVISION AND DESIGNER UPDATED

CGW CONSULTING ENGINEERS
NELSON • CHRISTCHURCH • WANAKA • AUCKLAND
03 548 8259 03 348 1000 www.cgwl.co.nz

CLIENT: CUPOLEX BUILDING SYSTEMS

JOB TITLE: G J GARDNER HOMES
18 KAHIKATEA WAY, RICHMOND

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

DRAWING TITLE: CUPOLEX FOUNDATION DETAILS

DESIGNED BY: TOM LOTT
DRAFTED BY: TOM LOTT

| REV | DATE | REVISION | CHD | APD |
|---|---|---|---|---|
| B | 16.03.22 | SECOND ISSUE | AF | RC |
| A | 10.08.21 | FIRST ISSUE | AF | RC |

FOR CONSTRUCTION

| SCALE | SIZE |
|---|---|
| AS SHOWN | A3 |

| PROJECT NO | TYPE | SHEET | REV |
|---|---|---|---|
| 220237 | DWG | S-01-05 | B |

# 7. Supporting Documents

## 7.1. Calculations

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

14 March 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**REQUEST FOR FURTHER INFORMATION**

**REFERENCE:** BC220131
**LOCATION:** 18 Kahikatea Way, Richmond
**PROJECT:** Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

Your building consent application has been assessed and the following information or clarification is required in order to demonstrate compliance with the Building Act 2004.

The 20 day statutory clock is currently suspended awaiting a full response to all items below:

## Amendment 1

**Section 45: Consent Documents**
Section 45: consent documents: please provide the following further information so that processing of the application can proceed. Processing of your application will be suspended until this information is received.

As discussed please provide the updated floor slab PS1 plans to accompany structural changes included with amendment documents.

Processing will continue once these are received

Ensure all items are addressed in a single response, and that this includes:

- A covering note outlining the response to each item
- Revised documents that clearly identify changes (e.g. referenced by revision clouds and document versions)
- Files that are in PDF format and to scale
- Only provide information specifically relating to this project

Tasman District Council
BUILDING CONSENT AUTHORITY
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Date: 23/02/22

http://www.tasman.govt.nz
189 Queen Street, Richmond 7020
Tel.: 03 543 8400 Email: building.support@tasman.govt.nz

**Please respond to this request within 20 working days or we may refuse to grant the consent. If you have any questions please contact me on 03 543 8400.**

The 20 day statutory clock will be re-started when all the items above have been fully addressed.

You may receive requests for further information from other areas of Council, and these should be addressed separately to this request.

Yours sincerely

Hazel Thelin

Building Technical Officer (Processing)
On behalf of **Tasman District Council**

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

Date : 16/03/2022
Designer : TL
Checker : AF
Job Number : 220237

# Cupolex Design

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : SLAB

## Loadings

**General Working Areas**

Dead:

| | | | | |
|---|---|---|---|---|
| Cupolex ID | = | C1026 | | |
| Self weight | = | 0.83 | kPa | |
| Slab Thickness | = | 60 | mm | |
| Slab Dead Load | = | 1.44 | kPa | |
| Superimposed Deal Load | = | 0.25 | kPa | |
| Total Dead Load | = | 2.52 | kPa | |

Live:

| | | | | |
|---|---|---|---|---|
| Live | = | 1.50 | kPa | |

Combinations:

| | | | | |
|---|---|---|---|---|
| 1.2G+1.5Q | = | 5.27 | kPa | |

## Demand

Ultimate Moment:

| | | | | |
|---|---|---|---|---|
| M* | = | $wl^2/16$ | kNm/m | |
| | = | 0.10 | kNm/m | |

## Capacity

Capacity:

| | | | | |
|---|---|---|---|---|
| ΦMn | = | ΦAsfy(d'-a/2) | | |
| Mesh ID | = | SE62 | | |
| diameter | = | 6 | mm | |
| As | = | 146 | $mm^2$ | |
| b | = | 560 | mm | |
| d' | = | 51 | mm | |
| Φ | = | 0.85 | | |
| f'c | = | 25 | MPa | |
| fy | = | 500 | MPa | |
| alpha | = | 0.85 | | |
| a | = | 6.13 | | |
| ΦMn | = | 2.97 | kNm/m | **OK** |

## Other Checks

Skrinkage:

| | | | | |
|---|---|---|---|---|
| 0.7/fy | = | 0.0014 | | **OK** |
| As/Ac | = | 0.0043 | | **OK** |

Punching Shear:

| | | | | |
|---|---|---|---|---|
| $b_o$ | = | $(\sqrt{(350mm^2)}+2xd_{eff})x4$ | | |
| | = | 458.83 | | |
| $v_n$ | = | $(V_Q*1.5)/(0.75*d_{eff}*b_o)$ | | |
| | = | 0.16 | MPa | |
| $v_c$ | = | 1.67 | MPa | **OK** |

Tasman District Council
BUILDING CONSENT AUTHORITY
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Date: 23/02/22

Date : 16/03/2022
Designer : TL
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Job Number : 220237

# Cupolex Design

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : SLAB

## Loadings

**Garage Area**

Dead:

| | | | |
|---|---|---|---|
| Cupolex ID | = | C1026 | |
| Self weight | = | 0.83 | kPa |
| Garage Slab Thickness | = | 60 | mm |
| Dead Load | = | 1.44 | kPa |
| Total Dead Load | = | 2.27 | kPa |

Live:

| | | | |
|---|---|---|---|
| $Live_{Pressure}$ | = | 2.50 | kPa |
| $Live_{Point}$ | = | 13 | kN |

Combinations:

| | | | |
|---|---|---|---|
| $1.2G+1.5Q_{Pressure}$ | = | 6.47 | kPa |
| $1.2G+1.5Q_{Point}$ | = | See Below | |
| from WJ 1.2G+1.5Q | = | 16.8 | kN |

## Demand

Ultimate Moment:

| | | | |
|---|---|---|---|
| $M^*_{UDL}$ | = | $wl^2/16$ | |
| | = | 0.13 | kNm |
| $M^*_{UDL+Point}$ | = | $(1.2*wl^2/16+1.5*Pl/8)$ | |
| | = | 0.055 | kNm |

## Capacity

Capacity:

| | | | | |
|---|---|---|---|---|
| ΦMn | = | ΦAsfy(d'-a/2) | | |
| Mesh ID | = | SE62 | | |
| As | = | 146 | $mm^2$ | |
| Diameter | = | 6 | mm | |
| b | = | 560 | mm | |
| d' | = | 51 | mm | |
| Φ | = | 0.85 | | |
| f'c | = | 25 | MPa | |
| fy | = | 500 | MPa | |
| alpha | = | 0.85 | | |
| a | = | 6.13 | | |
| ΦMn | = | 2.97 | kNm | **OK** |

## Other Checks

Skrinkage:

| | | | | |
|---|---|---|---|---|
| 0.7/fy | = | 0.0014 | | **OK** |
| As/Ac | = | 0.0043 | | **OK** |

Punching Shear:

| | | | |
|---|---|---|---|
| $b_o$ | = | $(\sqrt{(350mm^2)}+2xd_{eff})x4$ | |
| | = | 458.83 | |
| $v_n$ | = | $(V_Q*1.5)/(0.75*d_{eff}*b_o)$ | |
| | = | 1.18 | MPa |
| $v_c$ | = | 1.67 | MPa |

OK Tasman District Council BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

Date : 16/03/2022
Designer : TL
Checker : AF
Job Number : 220237

# Cupolex Design

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : SLAB

## Bearing

Geotech Information:

| | | | | |
|---|---|---|---|---|
| Scala Bearing Capacity | = | 200 | kPa | |
| Correction Factor | = | 1.5 | | |
| Corrected Bearing Capacity | = | 300 | kPa | |
| Ultimate Bearing Capacity | = | 180 | kPa | |
| Allowable Bearing Capacity | = | 100 | kPa | |

Cupolex Properties:

| | | | | |
|---|---|---|---|---|
| Bearing area of leg | = | 0.0144 | $m^2$ | |
| Bearing area of central leg | = | 0.00062 | $m^2$ | |
| Bearing area of plate | = | | $m^2$ | |
| Total bearing area | = | 0.0150 | $m^2$ | |

Bearing Loads:

| | | | | |
|---|---|---|---|---|
| Working Area Load | = | 110.1 | kPa | |
| FS | = | 1.63 | | **OK** |
| Garage Area $Load_{Pressure}$ | = | 135.2 | kPa | |
| FS | = | 1.33 | | **OK** |
| Garage Area $Load_{Point}$ | = | 180.0 | kPa | |
| FS | = | 1.00 | | **OK** |
| Garage Area $Load_{Point}$ | = | 93.3 | kPa | |
| FS | = | 0.52 | | **OK** |

Settlement:

Working Area

| | | | | |
|---|---|---|---|---|
| G+0.4Q | = | 3.12 | kPa | |
| Working Area Load | = | 65.2 | kPa | |
| FS | = | 1.53 | | **OK** |

Garage Area

| | | | | |
|---|---|---|---|---|
| $G+0.4Q_{UDL}$ | = | 2.44 | kPa | |
| Working Area Load | = | 51.0 | kPa | |
| FS | = | 1.96 | | **OK** |
| $G+0.4Q_{Point}$ | = | 13.45 | kN | |
| Working Area Load | = | 99.54 | kPa | |
| FS | = | 1.00 | | **OK** |
| Superstructure point load | = | 16.80 | kN | |
| Working Area Load | = | 93.33 | kPa | |
| FS | = | 0.93 | | **OK** |

Tasman District Council
BUILDING CONSENT AUTHORITY
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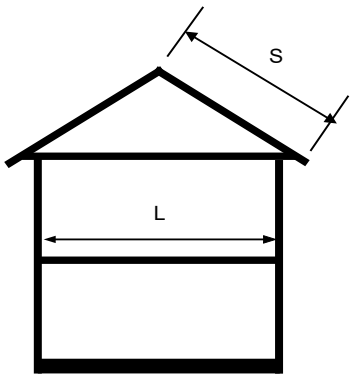
# Cupolex Design

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : EDGE BEAM

## Loadings

*Upper Wall must be Timber*




Tributary Roof and Floor Lengths

**WALLS**

Lower: Timber — (North/South Taupo)

| | | | |
|---|---|---|---|
| | = | 50 | kg/m² |
| | = | 0.49 | kPa |
| Height | = | 2.50 | m |
| Load/m | = | 1.23 | kN/m |

Upper: Timber — (North/South Taupo)

| | | | |
|---|---|---|---|
| | = | 50.00 | kg/m² |
| | = | 0.49 | kPa |
| Height | = | 2.40 | m |
| Load/m | = | 1.18 | kN/m |

Other (Specify Wall Weight)

| | | | | |
|---|---|---|---|---|
| Weight | = | 50 | kg/m² | ** |
| | = | 0.49 | kPa | |
| Height | = | | m | ** |
| Load | = | | kN/m | |

**SUSPENDED MID-FLOOR** — Tributary Length L/2

| | | | |
|---|---|---|---|
| Unit/Floor | = | Timber | |
| Topping | = | N/A | |
| | = | 0.38 | kPa |
| Live Loading | = | 1.50 | kPa |
| Super Imposed Dead | = | | kPa |
| Tributary Span | = | 2.74 | m |
| Dead Load/m | = | 1.04 | kN/m |
| Live Load/m | = | 4.11 | kN/m |

**ROOF** Light — Tributary Length = S

| | | | | |
|---|---|---|---|---|
| | = | 0.46 | kPa | |
| Live Loading | | 0.25 | kPa | |
| Tributary Span | = | 3.80 | m | ** |
| Dead Load/m | = | 1.75 | kN/m | |
| Live Load/m | = | | kN/m | |

## Loadings Summary

| | | | |
|---|---|---|---|
| Walls | 2.40 | kN/m | Dead |
| Mid Floors | 1.04 | kN/m | Dead |
| | 4.11 | kN/m | Live |
| Slab* | 3.17 | kN/m | Dead+SDL |
| | 0.90 | kN/m | Live |
| Roof | 1.75 | kN/m | Dead |
| | | kN/m | Live^ |
| Extra Dead | | kN/m | Dead |
| Extra Live | | kN/m | Live |

* Includes Edge Beam Weight, SDL = 0.5 kPa LL = 1.5 kPa

^ Roof LL not added if midfloor exists else LL = 0.25 kPa

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BC220131 TASMAN DISTRICT COUNCIL APPROVED AMENDMENT 24/03/2022


| | |
|---|---|
| Date : | 16/03/2022 |
| Designer : | TL |
| Checker : | AF |
| Job Number : | 220237 |

# Cupolex Design

CGW CONSULTING ENGINEERS

| | |
|---|---|
| Site Address : | Light Weight Roof/Clad - 8m Tributary |
| Description : | EDGE BEAM |

## Working Loads

| | | | | |
|---|---|---|---|---|
| | Dead | | 8.36 | kN/m |
| | Live | | 5.01 | kN/m |
| Ultimate Loads (1.2G + 1.5Q) | Dead | | 10.03 | kN/m |
| | Live | | 7.52 | kN/m |
| Total Ultimate Load on Edge | | w = | 17.55 | kN/m |

## Edge Beam Details

Wall Construction Type: Timber Clad Frame min beam width 200mm

| | | |
|---|---|---|
| Beam Width = | 300 | mm |
| Cupolex Depth = | 260 | mm |
| Top slab Depth = | 60 | mm |
| Self Weight = | 2.30 | kN/m |
| Construction Type = | Standard | |

## Bearing Check

| | | |
|---|---|---|
| Dependable bearing capacity: | 100 | kPa |
| Bearing Check = | OK! | |
| Working Pressure = | 36 | kPa |

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Date : 16/03/2022
Designer : TL
Checker : AF
Job Number : 220237

# Cupolex Design

CGW CONSULTING ENGINEERS

Site Address : Light Weight Roof/Clad - 8m Tributary
Description : INTERNAL RIB

## Loadings

**WALLS**

Lower: Timber

Internal (North/South Taupo)

| | | | |
|---|---|---|---|
| | = | 30 | kg/m² |
| | = | 0.29 | kPa |
| Height | = | 2.50 | m |
| Load/m | = | 0.74 | kN/m |

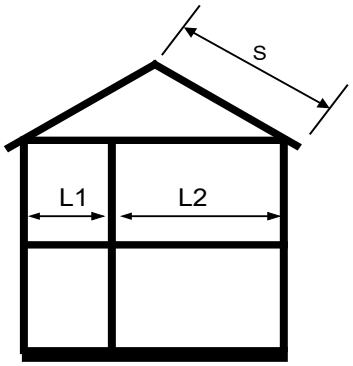
Upper: Timber

Internal (North/South Taupo)

| | | | |
|---|---|---|---|
| | = | 30 | kg/m² |
| | = | 0.29 | kPa |
| Height | = | 2.40 | m |
| Load/m | = | 0.71 | kN/m |

Other (Specify Wall Weight)

| | | | | |
|---|---|---|---|---|
| Weight | = | 30 | kg/m² | ** |
| | = | 0.29 | kPa | |
| Height | = | | m | ** |
| Load | = | | kN/m | |



Tributary Roof and Floor Lengths

**SUSPENDED MID-FLOOR** Tributary Length = $(L_1+L_2)/2$

| | | | |
|---|---|---|---|
| Unit/Floor | = | Timber | |
| Topping | = | N/A | |
| | = | 0.38 | kPa |
| Live Loading | = | 1.50 | kPa |
| Super Imposed Dead | = | | kPa |
| Tributary Span | = | 2.40 | m |
| Dead Load/m | = | 0.91 | kN/m |
| Live Load/m | = | 3.60 | kN/m |

**ROOF** Tributary Length = S (Check if Rafter or Truss)

| | | | | |
|---|---|---|---|---|
| Light | = | 0.46 | kPa | |
| Live Loading | | 0.25 | kPa | |
| Tributary Span | = | 4.30 | m | ** |
| Dead Load/m | = | 1.98 | kN/m | |
| Live Load/m | = | | kN/m | |

## Loadings Summary

| | | | |
|---|---|---|---|
| Walls | 1.44 | kN/m | Dead |
| Mid Floors | 0.91 | kN/m | Dead |
| | 3.60 | kN/m | Live |
| Slab* | 4.03 | kN/m | Dead+SDL |
| | 1.80 | kN/m | Live |
| Roof | 1.98 | kN/m | Dead |
| | | kN/m | Live^ |
| Extra Dead | | kN/m | Dead |
| Extra Live | | kN/m | Live |

* Includes Internal Rib Weight, LL = 1.5 kPa

^ Roof LL not added if midfloor exists else LL = 0.25 kPa

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BUILDING CONSENT AUTHORITY
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Date: 23/02/22

BC220131 TASMAN DISTRICT COUNCIL APPROVED AMENDMENT 24/03/2022


| | |
|---|---|
| Date : | 16/03/2022 |
| Designer : | TL |
| Checker : | AF |
| Job Number : | 220237 |

# Cupolex Design

CGW CONSULTING ENGINEERS

| | |
|---|---|
| Site Address : | Light Weight Roof/Clad - 8m Tributary |
| Description : | INTERNAL RIB |

## Working Loads

| | | | | |
|---|---|---|---|---|
| | Dead | | 8.36 | kN/m |
| | Live | | 5.40 | kN/m |
| Ultimate Loads (1.2G + 1.5Q) | Dead | | 10.04 | kN/m |
| | Live | | 8.10 | kN/m |
| Total Ultimate Load on Internal | | w = | 18.14 | kN/m |

## Internal Rib Details

| | | |
|---|---|---|
| Rib Width = | 300 | mm |
| Cupolex Depth = | 260 | mm |
| Top slab Depth = | 60 | mm |
| Self Weight = | 2.30 | kN/m |
| Construction Type | Standard | |

## Bearing Check

| | | |
|---|---|---|
| Dependable bearing capacity: | 100 | kPa |
| Bearing Check = | OK! | |
| Working Pressure = | 37 | kPa |

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| | |
|---|---|
| Date : | 16/03/2022 |
| Designer : | TL |
| Checker : | AF |
| Job Number : | 220237 |

**Cupolex Design**

CGW CONSULTING ENGINEERS

| | |
|---|---|
| Site Address : | Light Weight Roof/Clad - 8m Tributary |
| Description : | SLIDING RESITANCE |

## Calculation of Shear Pile Requirements

Use AS1170 design philosphy of preventing damaging movement up to an SLS event,and thereafter accepting increasing levels of damage as the event increases.

Assumed Class C soil:

| | | | |
|---|---|---|---|
| City/town: | Richmond | | |
| C(t) = Ch(t) Z R N(T,D) | | | |
| Ch(t) | 2.36 | | |
| Z | 0.27 | | |
| Rs (25 yr RP) | 0.25 | | |
| Ru 500yr | 1 | Assume T1 = 0.4 | |
| N(T,D) | 1 SLS | ku = 1 + (u-1)T1/0.7 | |
| C(t) SLS | 0.16 | ku = | 1 |
| C(t) ULS | 0.64 | | |

Cd(T1) = C(t) Sp/ku  For base sliding Sp = 1.0

| | | | |
|---|---|---|---|
| SLS Cd(T1) = | 0.16 | Note for Class D soil SLS Cd(t1) = | 0.20 |
| ULS Cd(T1) = | 0.56 | ULS Cd(t1) = | 0.71 |

Testing by Dr McManus University of Canterbury (Geotechnical Society Symposium, 2003) found the friction co-efficient of slab on polythene on sand had peak friction co-efficients of 0.42 for an unloaded slab and 0.53 for a loaded slab. Residual friction coefficient were 0.38 and 0.49 respectively.

These values are some what lower than that published by other sources, normally 0.7 peak and 0.5 residual.

Even using the lower values there will be no relative movement between the slab and the ground at SLS level event on either Class C or D. At ULS level event there may be relative movement between the slab and the ground, this may break services to the house, but will also serve to reduce the forces transferred to the structure of the house. This is acceptable within the intent of NZS 1170.5 2004.

Therefore, based on the above, shear key piles are unnecessary.

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

PREMIER SERVICES
Architectural Design Plus

# BUILDING CONSENT DRAWINGS

## KAHIKATEA TOWNHOUSE FOR DAVID & SUSAN FORD.
## AT 18 KAHIKATEA WAY, RICHMOND

| Sheet Index | | |
|---|---|---|
| **Layout ID** | **Layout Name** | Transmittal Set ID |
| 00 | COVER SHEET | D |
| A01 | DRAINAGE PLAN | B |
| A02 | PLUMBING ISOMETRIC | A |
| A03 | SLAB PLAN | D |
| A04 | GROUND FLOOR PLAN | D |
| A05 | MID-FLOOR PLAN | D |
| A06 | FIRST FLOOR PLAN | D |
| A07 | BRACING PLANS | D |
| A08 | ROOF PLAN | A |
| A09 | ELEVATIONS | C |
| A10 | ELEVATIONS | C |
| A11 | CROSS SECTION A-A | A |
| A12 | CROSS SECTION B-B | A |
| A13 | CROSS SECTION C-C | A |
| A14 | CROSS SECTION D-D | A |
| A15 | DETAILS | A |
| A16 | DETAILS | A |
| A17 | DETAILS | A |
| A18 | DETAILS | A |
| A19 | DETAILS | A |
| A20 | DETAILS | A |
| A21 | DETAILS | A |
| A22 | JUNCTION DETAILS | A |
| A23 | JUNCTION DETAILS | A |
| A24 | JUNCTION DETAILS | A |
| A25 | OPENING DETAILS | A |
| A26 | OPENING DETAILS | A |
| A27 | OPENING DETAILS | A |
| A28 | SHOWER DETAILS | A |
| A29 | SHOWER DETAILS | D |
| A30 | BATH DETAILS | A |
| A31 | FIXTURE LAYOUT PLAN | D |
| A32 | SITE PLAN | B |
| A33 | SEDIMENT CONTROL & SETOUT PLAN | B |

### GENERAL NOTES

**DIMENSIONS NOTED ON THESE DRAWINGS ARE FROM STRUCTURAL SURFACES UNLESS OTHERWISE INDICATED. ALL DIMENSIONS ARE GIVEN IN MILLIMETERS.**

The Contractor is responsible for the correct setting out of the building on site. Boundary pegs are to be located, and setting out points are to be verified on site against information provided prior. All levels/dimensions are to be confirmed onsite before commencing any work and any discrepancies are to be brought to the attention of the Premier Services Limited.

Where available, Engineering drawings are to be read in conjunction with this documentation, any discrepancies to be reported to Premier Services Limited.

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Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

Job No. 145596

# KAHIKATEA TOWNHOUSE

| RevID | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment: | Amendment: | 7/03/2022 |

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

CUPOLEX BUILDING SYSTEM

CUPOLEX FLOOR SLAB REINFORCED WITH FLETCHERS DUCTILE MESH SE62. UNLESS NOTED OTHERWISE PERIMETER FOUNDATION BEAM TO BE 300mm WIDE x 320mm DEEP REINFORCED WITH 2/HD12 TO BOTTOM & 2/HD12 TO UNDERSIDE OF DUCTILE MESH. REFER TO CUPOLEX RIBRAFT FOUNDATION LAYOUT PLAN FOR FURTHER GUIDANCE.

(A) WHERE FILLED ABOVE CGL/FGL, THE BUILDING PLATFORM SHALL BE EXTENDED MIN. 350mm BEYOND THE BUILDING FOOTPRINT TO A MAX HEIGHT OF 150mm ABOVE THE CGL/FGL.
(B) TO ACHIEVE RECESS FOR TILED SHOWER OR SIMILAR (IF REQUIRED), THE PODS SHALL BE REDUCED IN HEIGHT SO AS TO MAINTAIN A CONSISTENT 60mm THICK TOPPING FOR THE SLAB SHALL BE POURED SOLID BENEATH THE RECESS. REFER TO THE SHOWER RECESS DETAIL FOR STEEL REQUIREMENTS.
(C) CONCRETE TO BE 25MPa AT 28 DAYS.
(D) SLAB REINFORCING TO BE SE62 WITH MIN LAPS OF 225mm.
(E) LOAD BEARING PADS TO BE REINFORCED WITH HD12's @ 200mm CRS EACH WAY TOP & BOTTOM.
(F) ALL SAWCUTS TO BE AS PER NZS3604:2011 SECTION 7.

STEEL REINGFORCING COVER

FLOOR SLAB REINFORCING SHALL EXTEND TO A MINIMUM EXTERNAL COVER OF:

(A) AGAINST GROUND 75mm
(B) AGAINST FORMWORK 50mm
(C) TOP COVER TO MESH 30mm

STEEL REINFORCING MESH SHALL HAVE A COVER OF 30mm MINIMUM FROM THE TOP SURFACE OF THE GROUND SLAB AND SHALL BE PLACED IN SUCH A MANNER AS TO AVOID DAMAGE TO THE DPM ON PROPRIETARY CHAIRS. REINFORCING MESH SHALL COMPLY WITH NZS 3422.

KITCHEN DESIGN

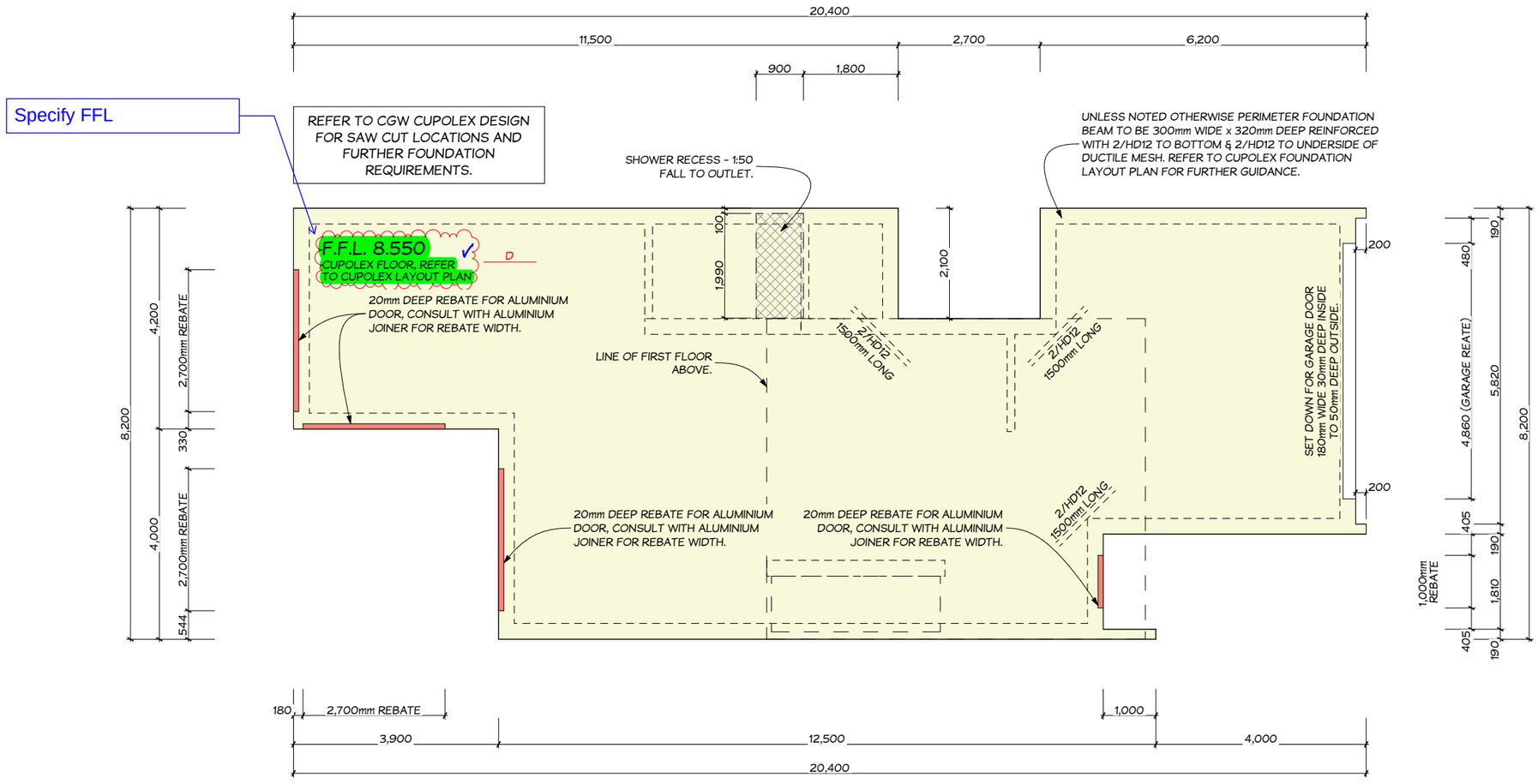
KITCHEN DESIGN SHALL BE IN ACCORDANCE WITH SEPARATE KITCHEN PLANS. CONFIRM POSITION OF WASTE PIPES PRIOR TO POURING THE FLOOR SLAB.

ALUMINIOUM DOOR REBATES

ALLOW FOR 20mm DEEP REBATE FOR EXTERNAL ALUMINIUM DOOR. DEPTHS OF REBATES TO BE AS FOLLOWS:

(A) SINGLE SLIDER – 45mm WIDE
(B) DOUBLE/STACKER SLIDER - 70mm WIDE

CONFIRM ONSITE WITH ALUMINIUM JOINER PRIOR TO POURING FLOOR SLAB.




| | |
|---|---|
| Slab Area: | 135.04m² |
| Slab Perimeter: | 63.80m |

# SLAB PLAN

Job No.

145596

DAVID & SUSAN FORD.

18 KAHIKATEA WAY, RICHMOND

SCALE :

1:100

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

G.J. Gardner. HOMES

PREMIER SERVICES
Architectural Design Plus

SHEET : original A3

A03

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# KAHIKATEA TOWNHOUSE

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE I.C. RATED.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICES.

PUMP CHAMBER CONTROL PANEL

POWER SUPPLY AND CONTROL PANEL FOR SEWER PRESSURIZED PUMP TO BE LOCATED ON EXTERIOR WALL ON DWELLING ADJACENT TO GARAGE.

HOUSE BRACING REQUIREMENTS

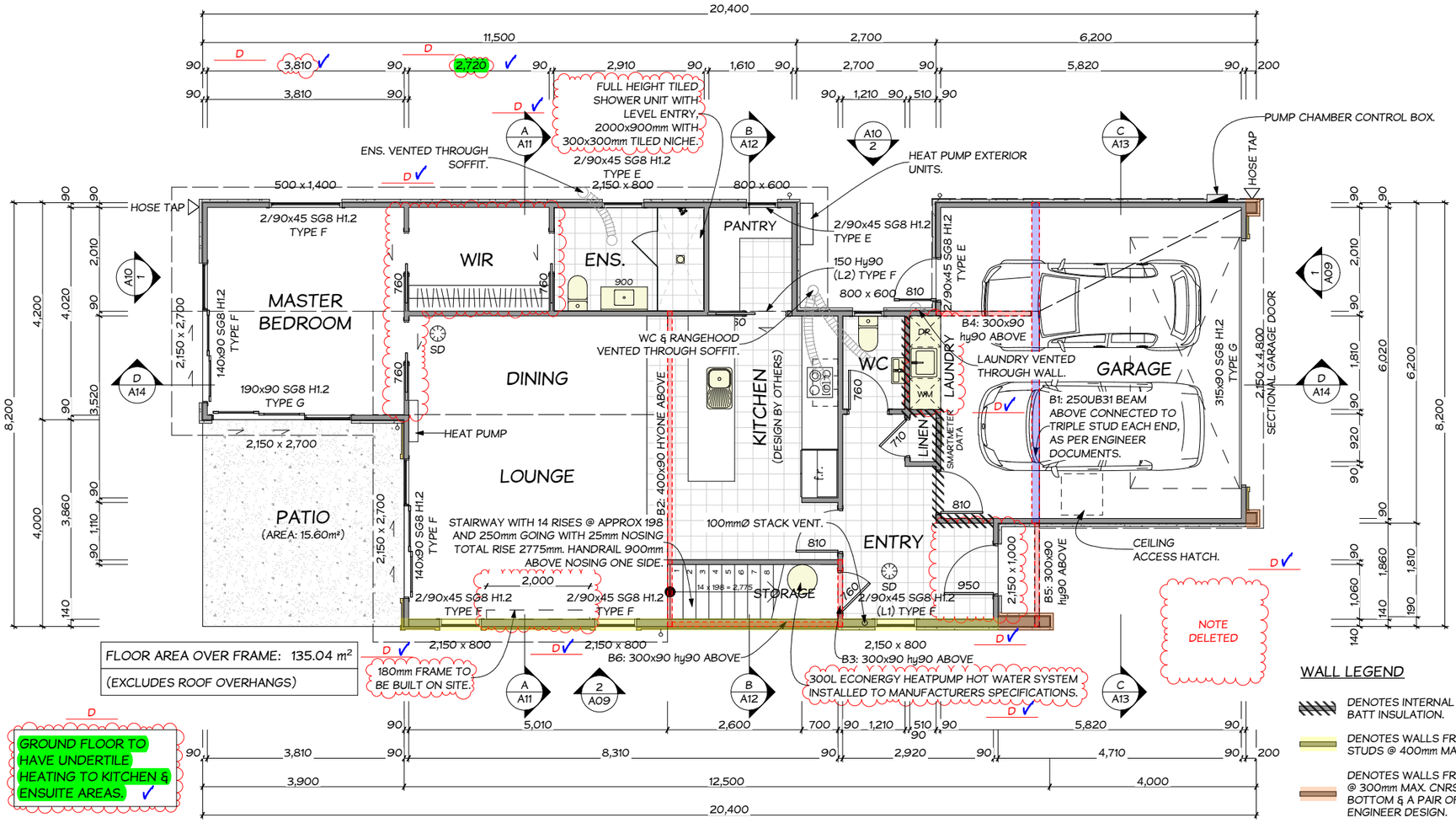
REFER TO WILTON JOUBERT CONSULTING ENGINEERS DOCUMENTS FOR FURTHER GUIDANCE ON WALL BRACING REQUIREMENTS.

## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE F = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2150x800 = OPENING SIZE (H x W)

TOWNHOUSE AS CONSENTED BY SH180022V2 APPROVED PLANS (APPENDIX A)




### WALL LEGEND

DENOTES INTERNAL WALLS TO BE INSULATED WITH R2.6 BATT INSULATION.

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment | 7/03/2022 |

# GROUND FLOOR PLAN

Job No. 145596

DAVID & SUSAN FORD.

18 KAHIKATEA WAY, RICHMOND

SCALE : 1:100

Tasman District Council BUILDING CONSENT AUTHORITY RECEIVED Date: 23/02/22

G.J. Gardner. HOMES

PREMIER SERVICES Architectural Design Plus

SHEET : original A3

A04

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# KAHIKATEA TOWNHOUSE

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

KOPINE FLOORING

20mm KOPINE FLOORING TO BE FIXED WITH 8G x 50mm STAINLESS STEEL COUNTERSUNK SCREWS. PROTECT FRAMING FROM EXCESSIVE MOISTURE AND GROUND CONTACT WITH MOISTURE LEVELS BETWEEN 12% TO 16% MAXIMUM. FIXINGS AT STANDARD FIXING PATTERN 150mm CRS AT SHEET EDGES AND WITHIN THE PANEL AT NO MORE THAN 300mm CRS.

BLOCKING TO JOISTS

PROVIDE PARTIAL BLOCKING TO JOISTS AS NECESSARY.

FIXTURE DRAINAGE

REFER TO GROUND FLOOR DRAINAGE PLAN & PLUMBING ISOMETRIC FOR FURTHER DETAILS.

STRUCTURAL ENGINEER

JOHNSON ZHANG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

INSPECTIONS

LAL CINZAH
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.

| Rev/D | Rev. Name | Change Name | Date |
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| A | Building Consent | | 19/11/2021 |
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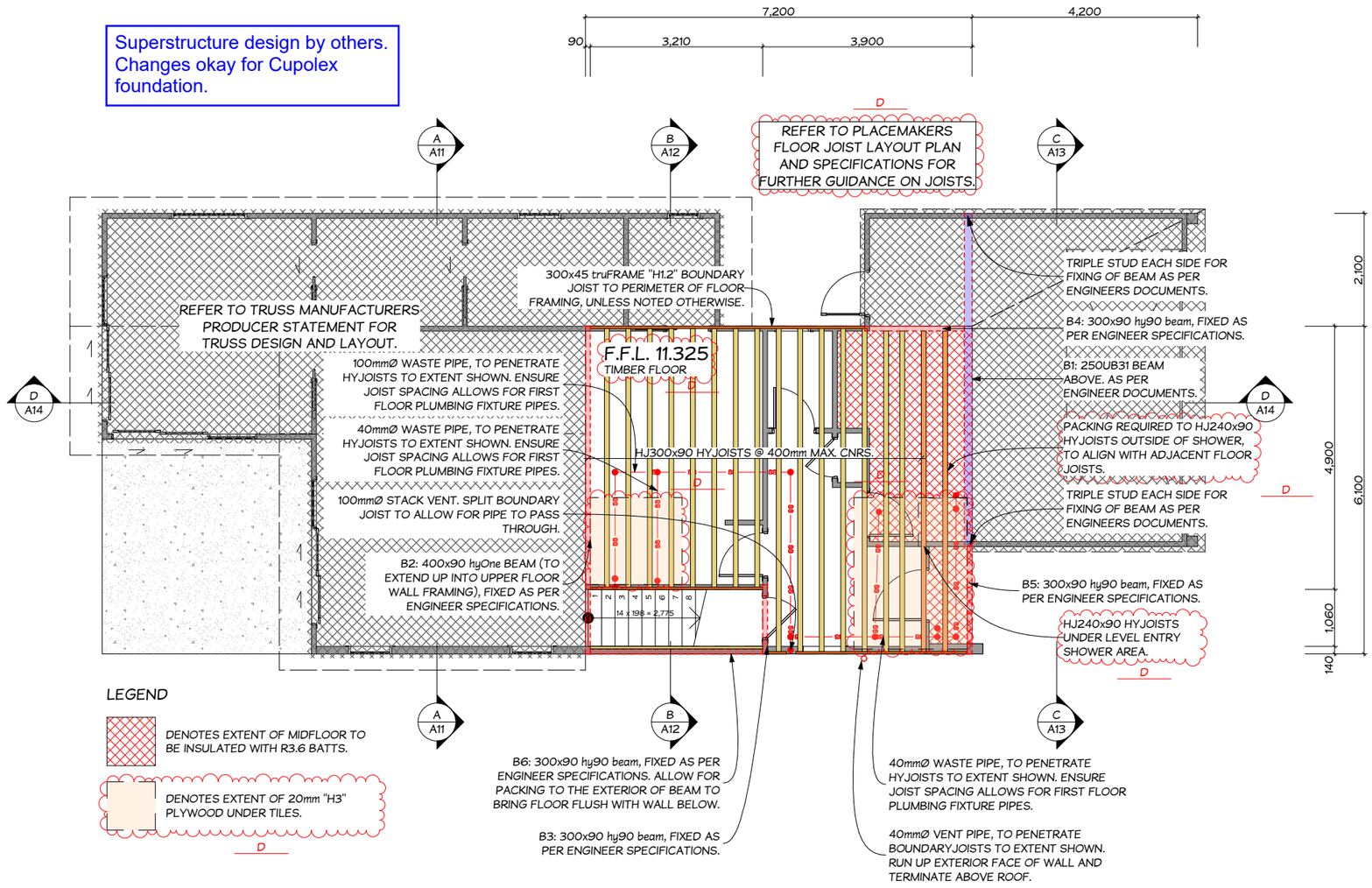
Superstructure design by others. Changes okay for Cupolex foundation.




# MID-FLOOR PLAN

| Job No. | | SCALE : | | SHEET : original A3 |
|---|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | Tasman District Council BUILDING CONSENT AUTHORITY RECEIVED Date: 23/02/22 | A05 |

G.J. Gardner. HOMES

PREMIER SERVICES
Architectural Design Plus

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# KAHIKATEA TOWNHOUSE

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TIMBER FRAMING

GROUND FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 400mm CRS. FIRST FLOOR LOAD-BEARING WALLS UP TO 2.4m IN HEIGHT TO BE FRAMED WITH 90x45mm SG8 STUDS @ 600mm CRS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED "H1.2" WITH "H1.2" BOTTOM PLATES. DWANGS @ 800mm MAX. CRS THROUGHOUT.

UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8.

LINTELS

ALL LINTELS & BEAMS TO BE SG8 OR GREATER. FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS.

WET AREAS WALL LININGS

WET AREAS WALLS TO BE LINED WITH 10mm GIB AQUALINE FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE I.C. RATED.

FAN VENTILATION

MANROSE SF150 89l/s INLINE FANS CONNECTED TO LIGHT SWITCH IN ALL BATHROOMS, ENSUITE AND WC'S. DUCTED TO SOFFIT INSTALLED AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. KITCHEN BY RANGEHOOD EXTRACTOR 50l/s.

ARTIFICIAL LIGHT

ALL AREAS WITHIN THE HOUSE WHICH,WHEN ACTIVATED IN THE ABSENCE OF SUFFICIENT NATURAL LIGHT, WILL BE PROVIDED WITH ARTIFICIAL LIGHT THAT HAS AN ILLUMINANCE AT FLOOR LEVEL OF NO LESS THAN 20 LUX TO ENABLE SAFE MOVEMENT & TO COMPLY WITH NZBC G8:ARTIFICIAL LIGHT.

VENTILATION

MECHANICAL VENTILATION TO BE INSTALLED IN ALL HABITABLE SPACES AS PER THE SPECIFICATIONS AND THE CONSENT NOTICES.

HOUSE BRACING REQUIREMENTS

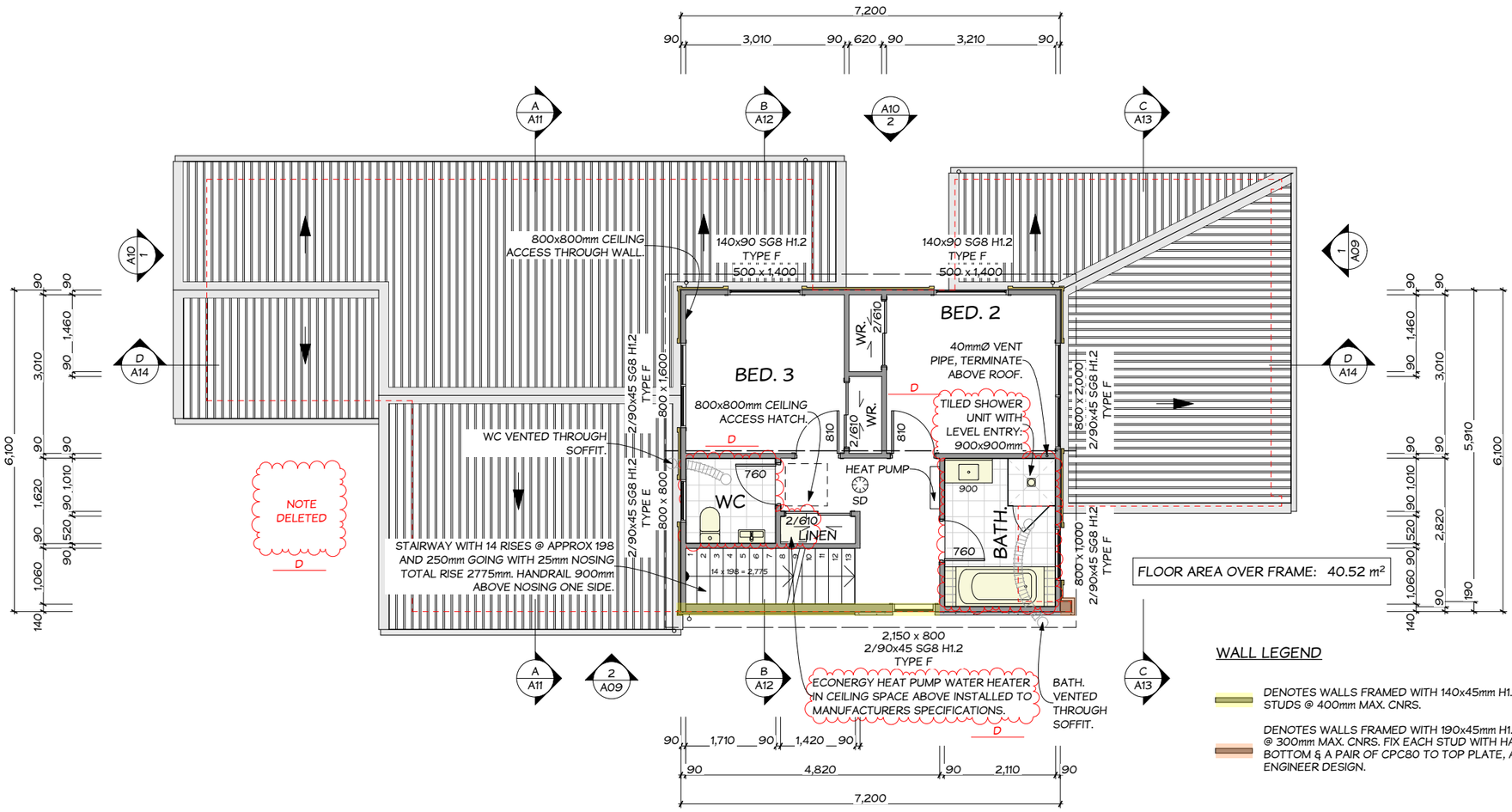
REFER TO WILTON JOUBERT CONSULTING ENGINEERS DOCUMENTS FOR FURTHER GUIDANCE ON WALL BRACING REQUIREMENTS.

## LEGEND

SD DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE F = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2150x800 = OPENING SIZE (H x W)

TOWNHOUSE AS CONSENTED BY SH180022V2 APPROVED PLANS (APPENDIX A)




FLOOR AREA OVER FRAME: 40.52 m²

WALL LEGEND

DENOTES WALLS FRAMED WITH 140x45mm H1.2 SG8 STUDS @ 400mm MAX. CNRS.

DENOTES WALLS FRAMED WITH 190x45mm H1.2 SG8 STUDS @ 300mm MAX. CNRS. FIX EACH STUD WITH HANDIBRAC BOTTOM & A PAIR OF CPC80 TO TOP PLATE, AS PER ENGINEER DESIGN.

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment | 7/03/2022 |

# FIRST FLOOR PLAN

Job No. 145596

DAVID & SUSAN FORD.

18 KAHIKATEA WAY, RICHMOND

SCALE : 1:100

Tasman District Council BUILDING CONSENT AUTHORITY RECEIVED Date: 23/02/22

G.J. Gardner. HOMES

PREMIER SERVICES Architectural Design Plus

SHEET : original A3

A06

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TASMAN DISTRICT COUNCIL APPROVED AMENDMENT



# KAHIKATEA TOWNHOUSE

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment: | 7/03/2022 |

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

BRACING NOTES

BRACED PANELS SHALL BE CONSTRUCTED TO COMPLY WITH RELEVANT "BRANZ" APPRAISAL CERTIFICATES. GIB EZYBRACE SYSTEMS 2016 HAVE BEEN APPRAISED BY THE BUILDING RESEARCH ASSOCIATION OF NEW ZEALAND (BRANZ), APPRAISAL NO. 928 (2016) GIB EZYBRACE®SYSTEMS, 2016. IT IS OF PRIME IMPORTANCE TO COMPLY WITH THE DETAILS OF DESIGN, CONSTRUCTION AND WORKMANSHIP IN THE EZYBRACE SYSTEMS SPECIFICATION AND INSTALLATION MANUAL.

STRUCTURAL ENGINEER

JOHNSON ZHANG
WILTON JOUBERT CONSULTING ENGINEERS
PH 09 579 0196

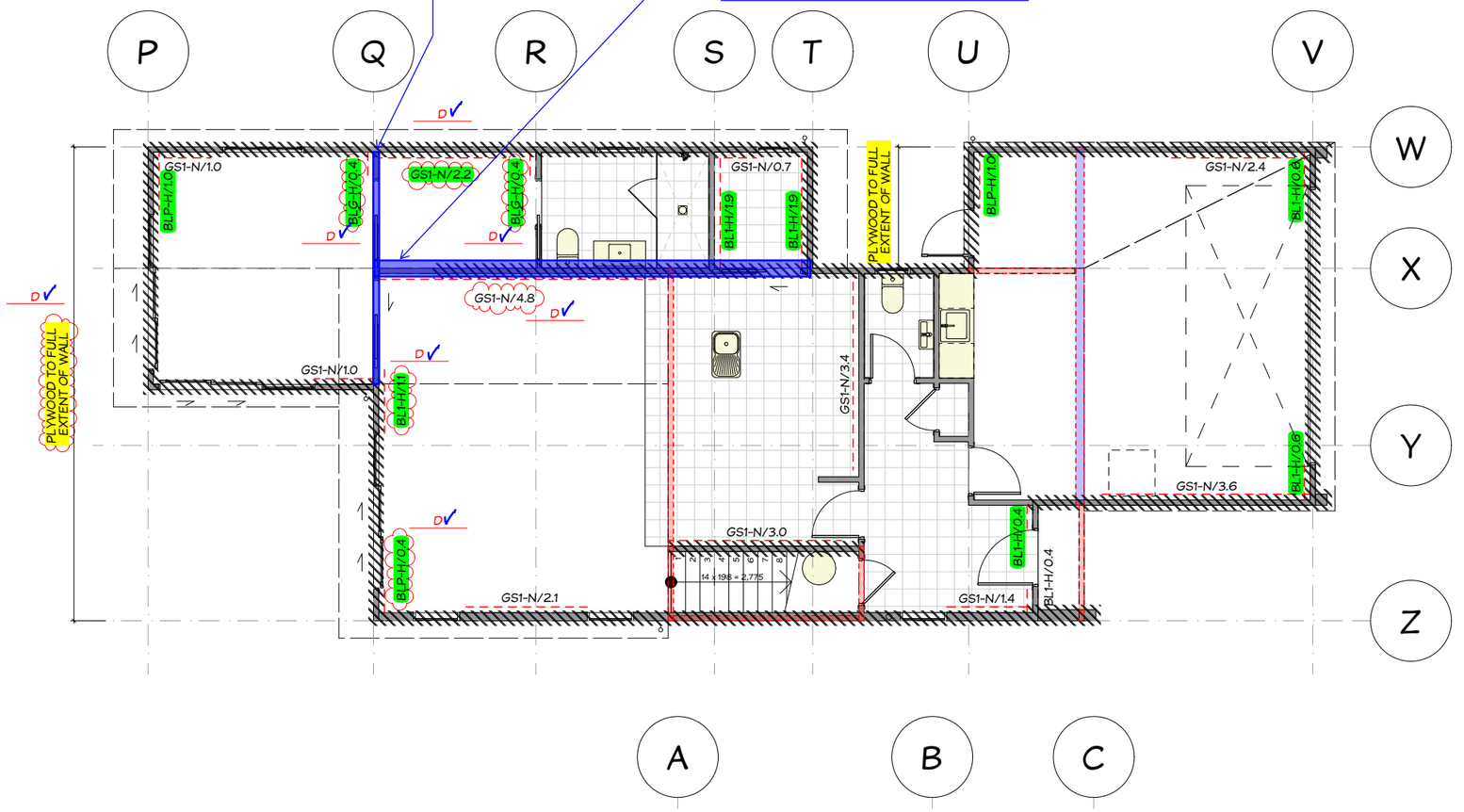
INSPECTIONS

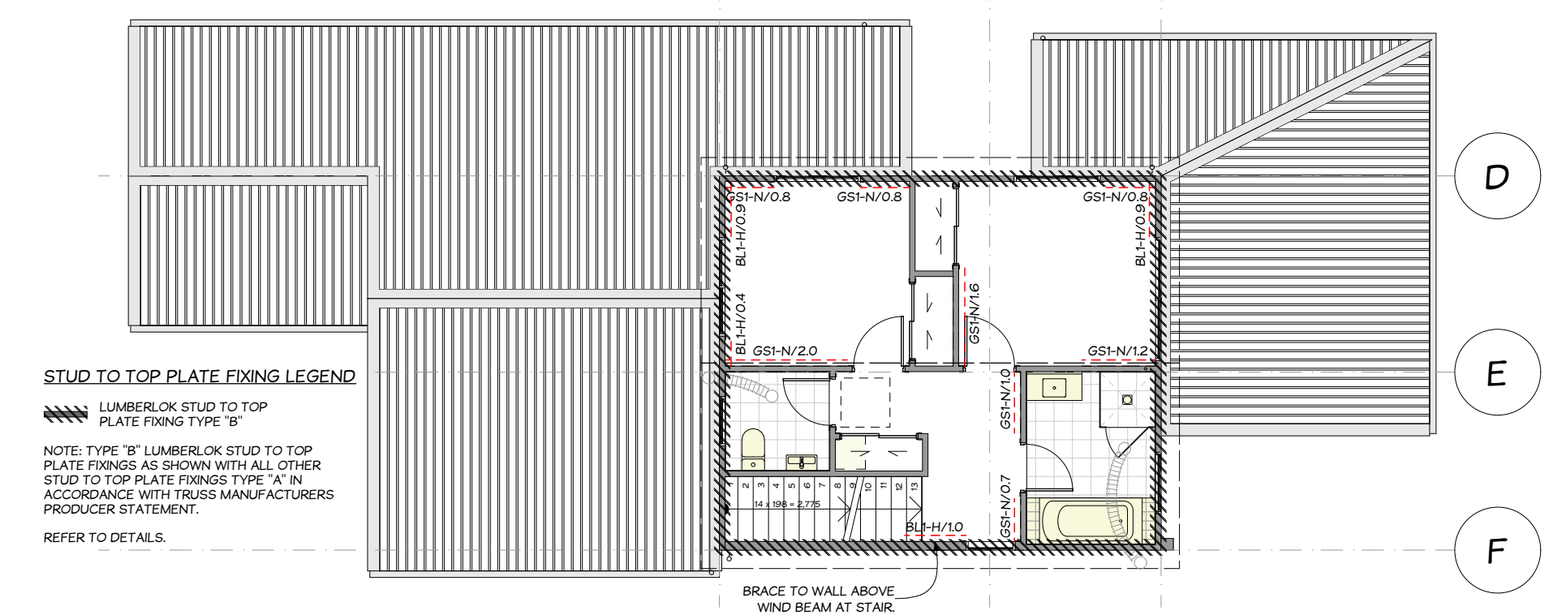
LAL CINZAH
TASMAN CONSULTING ENGINEERS LIMITED
PH 03-544 6404

PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION.

**ENGINEER DESIGN**

BRACING COVERED BY ENGINEER PS1, REFER TO ENGINEER DOCUMENTS FOR FURTHER GUIDANCE ON BRACING SPECIFICATIONS.




### STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS AS SHOWN WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

REFER TO DETAILS.

# BRACING PLANS

| Job No. | | SCALE : | SHEET : original A3 |
|---|---|---|---|
| 145596 | DAVID & SUSAN FORD.<br>18 KAHIKATEA WAY, RICHMOND | 1:100 | A07 |

Tasman District Council
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G.J. Gardner. HOMES

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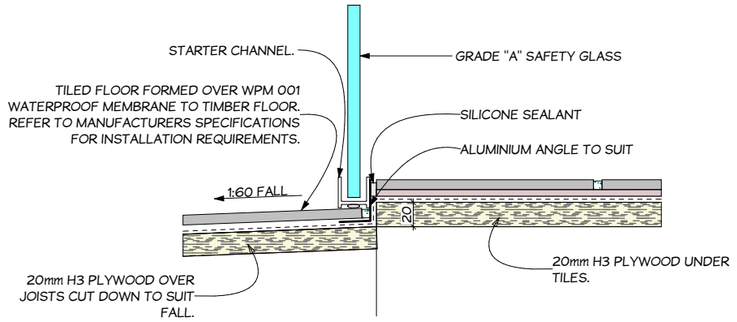
# KAHIKATEA TOWNHOUSE

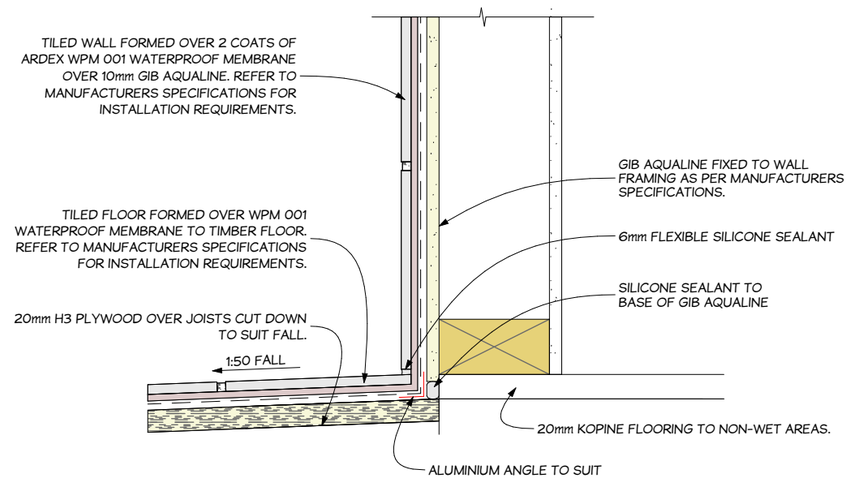
| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment | 7/03/2022 |




123 SHOWER FIRST FLOOR RECESS DETAIL
1:5

D ✓

PROPRIETARY SHOWER DETAILS REMOVED.




125 FIRST FLOOR SHOWER WALL BASE DETAIL
1:5

D ✓

# SHOWER DETAILS

Job No.

145596

DAVID & SUSAN FORD.

18 KAHIKATEA WAY, RICHMOND

SCALE :

1:5

Tasman District Council
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SHEET : original A3

A29

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BC220131

TASMAN DISTRICT COUNCIL APPROVED AMENDMENT

24/03/2022



# KAHIKATEA TOWNHOUSE

| Rev/D | Rev. Name | Change Name | Date |
|---|---|---|---|
| A | Building Consent | | 19/11/2021 |
| D | Amendment | Amendment | 7/03/2022 |

## NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

FOUL WATER/SANITARY PLUMBING

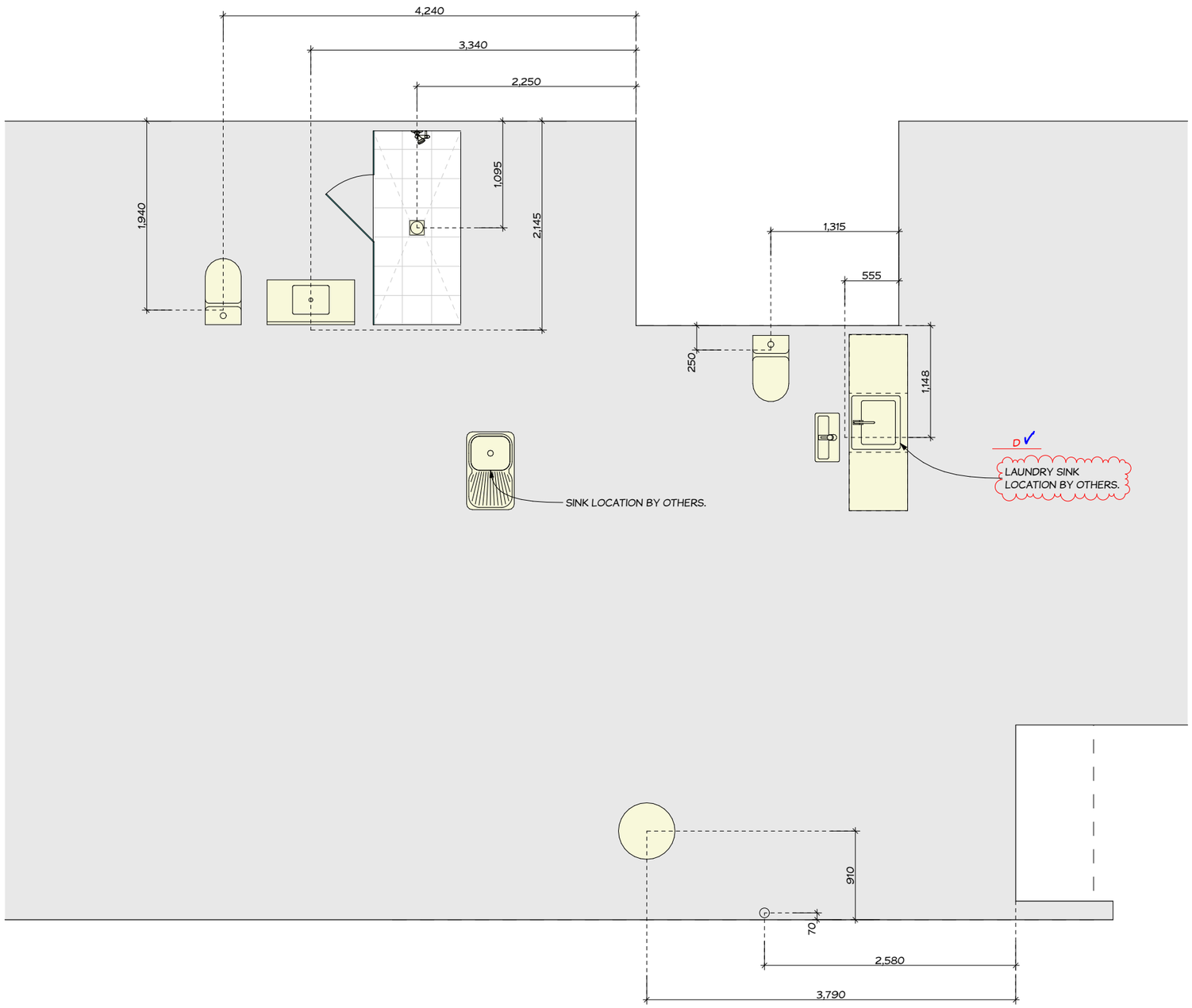
SANITARY DRAINAGE SYSTEM TO NEW ZEALAND BUILDING CODE CLAUSE G13/AS1 (FOUL WATER)

| FIXTURE DISCHARGE PIPE SIZES AND GRADIENT | | |
|---|---|---|
| SANITARY FIXTURE OR APPLIANCE | DISCHARGE PIPE (mm) | MINIMUM GRADIENT |
| Basin/Vanity | 40ø | 1:40 |
| Bathtub | 40ø | 1:40 |
| Shower | 40ø | 1:40 |
| Water Closet Pan | 100ø | 1:40 |
| Kitchen Sink | 50ø | 1:40 |
| Laundry Tub | 50ø | 1:40 |
| | | |

WATER SUPPLY

ALL COLD-WATER SUPPLY PIPEWORK SHALL BE MEDIUM/HIGH-DENSITY POLYETHYLENE (MDPE/HDPE), ARRANGED AND FIXED SO THAT ALL JOINTS ARE IN A FULLY 'RELAXED' CONDITION, WITHOUT ANY STRESS OR TENSION.

INSTALL CONVENIENTLY LOCATED ISOLATING VALVES TO TURN OFF EACH GROUP OF FITTINGS, AND INSTALL A SMALL ISOLATING VALVE ALONGSIDE EACH TOILET CISTERN NOT INTEGRALLY FITTED WITH ONE.




# FIXTURE LAYOUT PLAN

Job No.

145596

DAVID & SUSAN FORD.

18 KAHIKATEA WAY, RICHMOND

SCALE :

1:50

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 23/02/22

G.J. Gardner. HOMES

PREMIER SERVICES
Architectural Design Plus

SHEET : original A3

A31

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05 May 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 1
**Building Name:** Main Building

**Inspection Results:**
**SITING AND SITE SCRAPE INSPECTION** - 05 May 2022 @ 12:20 by Neill Molloy

**Inspection Outcome: PASS** - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**PREPOUR** - 05 May 2022 @ 12:20 by Neill Molloy

**Inspection Outcome: NOT APPLICABLE**

**WASTEPIPES** - 05 May 2022 @ 12:20 by Neill Molloy

**Inspection Outcome: NOT APPLICABLE**

**FLOOR SLAB** - 05 May 2022 @ 12:20 by Neill Molloy

**Inspection Outcome: FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
Engineers supporting documentation to be provided for SED slab construction and ground bearing.

**These may be viewed at time of next inspection.**

**Inspection Summary:** Construction is compliant and construction monitoring might have occurred. Inspection considerations included checking siting; that the slab is founded on solid bearing; checking hard fill, blinding, DPM and insulation is complying;  and details for service penetrations through the slab comply. Cupolex SED slab construction to be checked by Engineer and supporting documentation to be provided. 250 micron polythene DPM in place over crusher dust blinding on hardfill. There is Evidence that the site has been scrapped and top soil removed. All waste pipes laid to G13 prior. Wastes that come up through slab have appropriate protection/separation from concrete with a second PVC sleeve. Polythene taped around base where pipes penetrate DPM.
Siting checked while onsite to boxing line. Dimensions of 1250mm parallel to RH side boundary and 3952mm off back RH boundary peg as per consented plans. FFL was 450mm above S/W lid shown as datum. All as per plans.
Ok to pour on confirmation from Engineer.

Your next inspection will be: **All inspections have been placed on hold**
Reason and Required Action: **Engineers supporting documentation to be provided for SED slab construction and ground bearing.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate
- B1: Ground bearing certificate

**Prepour**

- B1: Foundations - Construction monitoring records

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

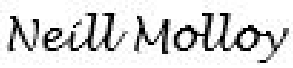
**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **FAIL** - 05 May 2022 |
| | **All inspections have been placed on hold** |
| Framing / Pre-wrap | - |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | - |
| Pre-plaster | - |
| Preline | - |
| Post Line | - |
| Internal Membrane | - |

| | |
|---|---|
| Drainage | - |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely



Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

11 May 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 2
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Floor Slab on 05 May 2022 by Neill Molloy
**Required Docs**: Engineers supporting documentation to be provided for SED slab construction and ground bearing.

**Inspection Results:**
**DRAINAGE** - 11 May 2022 @ 10:53 by Neill Molloy

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
Drain layers Rego Number and As built Drainage plans are to be provided

**These may be viewed at time of next inspection.**

**Inspection Summary:**
Sewer:

Pipe materials, sizes and drain grade is compliant, DN 100 UPVC drains installed in lazer  grade trenches, Laser graded trenches with 1:100 fall to onsite Sewer pump, as required for subdivision.
Drains pick up 2x Toilet connections, 1x Stack and 3x 4 way riser Gully Traps installed, all lower than 150mm below lowest fixture, this is to be reviewed once landscaping is completed and ORG are lowered. however complaint at this time. Inspection point locations comply. which are clearly indicated within the as built drainage plan  that is to be provided
1x TV's provided at head of main drain and branch drain to have vent off top of Stack.
Stormwater:
Pipe materials, pipe size, length and gradient is compliant.
100DN UPVC drains installed with a 1:100 fall to drains to site  laterals, 2x Type 1 sumps complete in driveway and site and 5x downpipe risers in locations shown on plans.

Your next inspection will be: **Framing / Pre-wrap**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate
- B1: Ground bearing certificate

**Prepour**

- B1: Foundations - Construction monitoring records

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring

- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **FAIL** - 05 May 2022<br>**View at next inspection** |
| Framing / Pre-wrap | - |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | - |
| Pre-plaster | - |
| Preline | - |
| Post Line | - |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**View at next inspection** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely

Neill Molloy

Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

03 June 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 3
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Floor Slab on 05 May 2022 by Neill Molloy
**Required Docs**: Engineers supporting documentation to be provided for SED slab construction and ground bearing.

**Inspection Results:**
**FRAMING / PRE-WRAP - GROUND FLOOR** - 03 Jun 2022 @ 15:41 by Craig Jaquiery

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**These may be viewed at time of next inspection.**

**Inspection Summary:** Ground floor inspection only where not inspected by Tasman consulting Engineers as per PS1. Wall framing, Truss, lintels installed as per the on site Mitek as built plan. 140x45 SG8 H1.2 and 90x45 SG8 H1.2 studs at 600mm centers fixed with M12 true bolts at 900mm centers on external bottom plates. And  M12 true bolts at 900mm centers on internal bottom plates with powered nails on internal bottom plates at 600mm centers. top plate connections to lintels, studs to top plate and lintel connections, stud lock screws installed. DPC installed under bottom plate. Mid floor 300mm HY Joists installed as per the stamped plan. Approved to roof and wrap under Engineers instructions. Failed item to remedy: Engineers site notes to be up loaded to Alpha One.

Your next inspection will be: **All inspections have been placed on hold**
Reason and Required Action: **Engineers site notes to be up loaded to Alpha One to remove inspection block**

**Outstanding Required Documents for this Building**

**Main Building**

**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate
- B1: Ground bearing certificate

**Prepour**

- B1: Foundations - Construction monitoring records

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **FAIL** - 05 May 2022<br>**All inspections have been placed on hold** |
| Framing / Pre-wrap | **IN-PROGRESS** - 03 Jun 2022<br>**All inspections have been placed on hold** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | - |
| Pre-plaster | - |
| Preline | - |
| Post Line | - |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**All inspections have been placed on hold** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely

Craig Jaquiery

Craig Jaquiery
Building Technical Officer (Inspections)
On behalf of **Tasman District Council**

23 June 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 4
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Inspection Results:**
**FLOOR SLAB** - 23 Jun 2022 @ 13:55 by Neill Molloy

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**FRAMING / PRE-WRAP - FIRST FLOOR** - 23 Jun 2022 @ 13:55 by Neill Molloy

**Inspection Outcome: PASS** - The BCA is satisfied, on reasonable grounds, that the aspects of building

work pertaining to this inspection demonstrate compliance with the building consent.

**Inspection Summary:** Inspection for 1st floor structure. Engineers supporting docs to be provided for all SED structural components, as previously noted.
Approved to roof and wrap.

Your next inspection will be: **Post Wrap / Cavity**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**
**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 03 Jun 2022<br>**View at next inspection** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | - |
| Pre-plaster | - |
| Preline | - |
| Post Line | - |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**Reinspection required** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely

Neill Molloy

Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

21 July 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 5
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Inspection Results:**
**POST WRAP / CAVITY** - 21 Jul 2022 @ 09:23 by Neill Molloy

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**E2: Wall Cladding Systems**:
Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.
Detail previously provided for Dwelling next door that is the same design.

**These may be viewed at time of next inspection.**

**Inspection Summary:** Tekton Building wrap fixed tight to framing. The majority of cladding is Rockcote. All associated cavity battens and flashings as part of the Rockcote system have been installed in accordance with the manufacturers specifications. All penetrations have been taped round and Aluminum head flashings installed above windows with plastic end caps. Danband installed over wrap to keep batts from pushing out. JH Linea Weatherboard clad areas have vertical H3.1 pine battens installed on stud ctrs. Aluminum Head flashings installed with turn ups at ends and PVC cavity closers installed at bottom of cavity as well as above head flashings. All head flashings taped back to wrap. DYNAflash foldable flashing used as back flashing to all change in cladding junctions. Inter-storey Z flashing constructed in accordance with previously accepted detail provided as a Minor variation for dwelling next door.
Approved to Clad.

Your next inspection will be: **Pre-plaster**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 03 Jun 2022<br>**View at next inspection** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | **FAIL** - 21 Jul 2022<br>**View at next inspection** |
| Pre-plaster | - |
| Preline | - |
| Post Line | - |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**View at next inspection** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely

Neill Molloy

Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

26 July 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 6
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Post Wrap / Cavity on 21 Jul 2022 by Neill Molloy
**E2: Wall Cladding Systems**: Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.
Detail previously provided for Dwelling next door that is the same design.

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Note:** No inspections have been recorded since last inspection report was generated.

**Inspection Summary:** Minor variation received via email-loaded into documents- fee applies

Your next inspection will be: **Preline**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**
**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 03 Jun 2022<br>**View at next inspection** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | **FAIL** - 21 Jul 2022<br>**View at next inspection** |
| Pre-plaster | - |
| Preline | - |
| Post Line | - |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**View at next inspection** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely

Simon Kneebone

Simon Kneebone
Building Technical Officer
On behalf of **Tasman District Council**

01 August 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 7
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Post Wrap / Cavity on 21 Jul 2022 by Neill Molloy
**E2: Wall Cladding Systems**: Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.
Detail previously provided for Dwelling next door that is the same design.

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Inspection Results:**

**PRELINE** - 01 Aug 2022 @ 10:04 by Neill Molloy

**Inspection Outcome: FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
Plumbers pressure test certificate to be provided including plumbers registration number

**B1: Walls, Wall bracing, Posts, Beams**:
Engineers supporting Documentation to be provided for Preline bracing.

**These may be viewed at time of next inspection.**

**Inspection Summary:** Service installation complete and there is no indication that these will clash with bracing requirements. The water supply installation complies. Inspected up to the Cylinder. Cylinder installation and valving to be inspected at Final inspection. The internal foul water system is correctly installed with good falls to pipes within walls , AAV are to be installed once the fixtures  are completed and can be reviewed during the final site inspection. Stud savers provided where over size penetrations have been cut in framing. Wall bracing covered by Engineer and supporting documentation requested. Moisture content of framing checked and is below 18% on moisture meter. Rondo ceiling battens at 600ctrs installed in accordance with Manufacturers installation specifications. The preline installation of the ventilation system complies. Ducting for ventilation systems installed within the roof space. Fans etc will be reviewed during the final site inspection. The installation of the glazing, wall and ceiling insulation is compliant. Pink Batts insulation neatly installed to framing members forming the thermal envelope with a min 25mm air gap between insulation and roofing underlay, Open truss roof spaces allow for good air flow. All plumbing pipework is inside thermal envelope with exception of the garage where the pipework has been appropriately lagged.
Approved to line. Plumbers pressure test to be provided.

Your next inspection will be: **Post Line**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

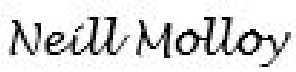
**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 03 Jun 2022<br>**View at next inspection** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | **FAIL** - 21 Jul 2022<br>**View at next inspection** |

| | |
|---|---|
| Pre-plaster | - |
| Preline | **FAIL** - 01 Aug 2022<br>**View at next inspection** |
| Post Line | - |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**View at next inspection** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely




Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

11 August 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 8
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Post Wrap / Cavity on 21 Jul 2022 by Neill Molloy
**E2: Wall Cladding Systems**: Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.
Detail previously provided for Dwelling next door that is the same design.

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Inspection:** Preline on 01 Aug 2022 by Neill Molloy

**Required Docs**: Plumbers pressure test certificate to be provided including plumbers registration number

**Inspection:** Preline on 01 Aug 2022 by Neill Molloy
**B1: Walls, Wall bracing, Posts, Beams**: Engineers supporting Documentation to be provided for Preline bracing.

**Inspection Results:**
**POST LINE** - 11 Aug 2022 @ 08:37 by Neill Molloy

**Inspection Outcome: PASS** - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**Inspection Summary:** Wall bracing: the fixing of the bracing elements is compliant. Inspection includes checking penetration sizes and locations, fixings and fixing patterns.
Gib bracing fixed in accordance with the manufacturers installation specifications, with 32mm Gib grabber screws. Brace unit length and type are as per the Consented brace plan. At the time of inspection there were no cut outs bigger than 90x90mm in brace walls or closer than 90mm to the edge of the sheets.
2x Tiled showers. 10mm Gib Aqualine fixed in accordance with Manufacturers installation specifications.

Your next inspection will be: **Internal Membrane**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**
**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

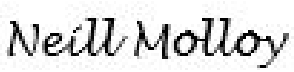
- G9: Energy works certificate

**History**

| Inspection Name | Summary |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 03 Jun 2022<br>**View at next inspection** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | **FAIL** - 21 Jul 2022<br>**View at next inspection** |
| Pre-plaster | - |
| Preline | **FAIL** - 01 Aug 2022<br>**Reinspection required** |
| Post Line | **PASS** - 11 Aug 2022 |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**View at next inspection** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely



Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

23 August 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 9
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Post Wrap / Cavity on 21 Jul 2022 by Neill Molloy
**E2: Wall Cladding Systems**: Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.
Detail previously provided for Dwelling next door that is the same design.

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Inspection:** Preline on 01 Aug 2022 by Neill Molloy

**B1: Walls, Wall bracing, Posts, Beams**: Engineers supporting Documentation to be provided for Preline bracing.

**Inspection Results:**
**PRE-PLASTER** - 23 Aug 2022 @ 10:50 by Neill Molloy

**Inspection Outcome: FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
Photo required to be provided of Blocking in place for Terminal vent on RH side of building. Blocking in place above the gully trap needs to be shifted over, or additional blocking provided, to where the Vent riser is located.

**These may be viewed at time of next inspection.**

**PRELINE** - 23 Aug 2022 @ 10:50 by Neill Molloy

**These may be viewed at time of next inspection.**

**Inspection Summary:** Approved to plaster once blocking in place for Terminal vent.

Your next inspection will be: **Preline**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

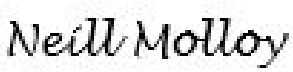
**History**

| Inspection Name | Summary |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 03 Jun 2022<br>**View at next inspection** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | **FAIL** - 21 Jul 2022<br>**View at next inspection** |
| Pre-plaster | **FAIL** - 23 Aug 2022<br>**View at next inspection** |
| Preline | **FAIL** - 01 Aug 2022 |

| | |
|---|---|
| | **View at next inspection** |
| Post Line | **PASS** - 11 Aug 2022 |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022 |
| | **View at next inspection** |
| Final | - |

Please allow a minimum of 2 working days notice when booking an inspection.

Yours sincerely



Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

30 September 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 10
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Inspection:** Pre-plaster on 23 Aug 2022 by Neill Molloy
**Required Docs**: Photo required to be provided of Blocking in place for Terminal vent on RH side of building. Blocking in place above the gully trap needs to be shifted over, or additional blocking provided, to where the Vent riser is located.

**Inspection:** Preline on 01 Aug 2022 by Neill Molloy
**B1: Walls, Wall bracing, Posts, Beams**: Engineers supporting Documentation to be provided for Preline bracing.

**Inspection Results:**
**FRAMING / PRE-WRAP - GROUND FLOOR** - 30 Sep 2022 @ 16:38 by Julian Malcolm

**Inspection Outcome: FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1 Engineers site notes to come

JM: 30/9/2022
This document is still outstanding.

**These may be viewed at time of next inspection.**

**POST WRAP / CAVITY** - 30 Sep 2022 @ 16:38 by Julian Malcolm

**Inspection Outcome: FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**E2: Wall Cladding Systems**:
Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.
Detail previously provided for Dwelling next door that is the same design.

Tekton Building wrap fixed tight to framing. The majority of cladding is Rockcote. All associated cavity battens and flashings as part of the Rockcote system have been installed in accordance with the manufacturers specifications. All penetrations have been taped round and Aluminum head flashings installed above windows with plastic end caps.
JH Linea Weatherboard clad areas have vertical H3.1 pine battens installed on stud ctrs. Aluminum Head flashings installed with turn ups at ends and PVC cavity closers installed at bottom of cavity as well as above head flashings. All head flashings taped back to wrap. DYNAflash foldable flashing used as back flashing to all change in cladding junctions. Inter-storey Z flashing constructed in accordance with previously accepted detail provided as a Minor variation for dwelling next door.
Approved to Clad.

JM: 30/9/2022

This document is still outstanding.

**These may be viewed at time of next inspection.**

**PRELINE** - 30 Sep 2022 @ 16:38 by Julian Malcolm

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**B1: Walls, Wall bracing, Posts, Beams**:
Engineers supporting Documentation to be provided for Preline bracing.

JM: 30/9/2022
This document is still outstanding.

**These may be viewed at time of next inspection.**

**INTERNAL MEMBRANE** - 30 Sep 2022 @ 16:38 by Julian Malcolm

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
1./ PS3 to be provided.
Mark Shuttelworth
0220444449

**These may be viewed at time of next inspection.**

**Formal Directive:** Given to tiler on site.  1./ Complete WPM on site. Lower bathroom requires WPM to water stop. 2./ Install water stop at door and seal.

**Inspection Summary:** Inspection was Wet Membrane for new Dwelling. . . 2 x wet area tiled showers, ARDEX WPM 155 Rapid has been installed, Consented plans show amendment to plans with now upstairs bathroom tiled shower also. This has been competed. Both shower full height up to coving, full floor and up skirt 60mm within bathrooms and also toilet has been WPM. Water stops allowed for. PS3 requested as I was not on site at time of installation I am relying on PS3 to show compliance.....APPROVED.....to continue.

Your next inspection will be: **All inspections have been placed on hold**

Reason and Required Action: **Provide PS4 to cover Structual inspection from a CPENG Engineer.**

**Outstanding Required Documents for this Building**

**Main Building**

**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal waterproofing membrane product & installer warranties

**Final**

- G9: Energy works certificate

**History**

| Inspection Name | Summary |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 30 Sep 2022 |
| | **All inspections have been placed on hold** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | **PASS** - 30 Sep 2022 |
| Pre-plaster | **FAIL** - 23 Aug 2022 |
| | **All inspections have been placed on hold** |
| Preline | **FAIL** - 30 Sep 2022 |
| | **All inspections have been placed on hold** |
| Post Line | **PASS** - 11 Aug 2022 |
| Internal Membrane | **FAIL** - 30 Sep 2022 |
| | **All inspections have been placed on hold** |
| Drainage | **FAIL** - 11 May 2022 |
| | **All inspections have been placed on hold** |
| Final | - |

Please allow a minimum of 2 working days notice when booking an inspection.

Yours sincerely

Julian Malcolm

Julian Malcolm
Building Technical Officer
On behalf of **Tasman District Council**

26 October 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 11
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Pre-plaster on 23 Aug 2022 by Neill Molloy
**Required Docs**: Photo required to be provided of Blocking in place for Terminal vent on RH side of building. Blocking in place above the gully trap needs to be shifted over, or additional blocking provided, to where the Vent riser is located.

**Inspection Results:**
**FRAMING / PRE-WRAP - GROUND FLOOR** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**CONCRETE / TILT PANEL / STEEL FRAME** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** NOT APPLICABLE

**POST WRAP / CAVITY** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**PRELINE** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**INTERNAL MEMBRANE** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**DRAINAGE** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**FINAL** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
ROW/PS3 for the plaster work required.

**E3: Internal Moisture**:
Please rectify the following - Shower doors to be installed. Seals to be fitted to the bottom of the doors

**G4: Ventilation**:
Please remedy the following - Range hood not working at the time of inspection

**These may be viewed at time of next inspection.**

**Formal Directive:** 1) Please install vermin proofing to pipe penetrations.
2) Trim building wrap.

**Inspection Summary:** See failed items listed. re inspection required, fees apply

Your next inspection will be: **Final**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Amendment 1**
**Internal Membrane**

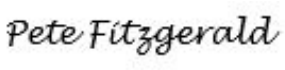
- E3: Internal waterproofing membrane product & installer warranties

**History**

| Inspection Name | Summary |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **PASS** - 26 Oct 2022 |
| Concrete / Tilt panel / Steel frame | **NOT APPLICABLE** - 26 Oct 2022 |
| Post Wrap / Cavity | **PASS** - 26 Oct 2022 |
| Pre-plaster | **FAIL** - 23 Aug 2022<br>**View at next inspection** |
| Preline | **PASS** - 26 Oct 2022 |
| Post Line | **PASS** - 11 Aug 2022 |
| Internal Membrane | **PASS** - 26 Oct 2022 |
| Drainage | **PASS** - 26 Oct 2022 |
| Final | **IN-PROGRESS** - 26 Oct 2022<br>**View at next inspection** |

Please allow a minimum of 2 working days notice when booking an inspection.

Yours sincerely



Pete Fitzgerald
Senior Building Technical Officer
On behalf of **Tasman District Council**

29 November 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 12
**Building Name:** Main Building

**Inspection Results:**
**PRE-PLASTER** - 29 Nov 2022 @ 13:02 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**FINAL** - 29 Nov 2022 @ 13:02 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**Inspection Summary:** Failed item have now been addressed. CCC can now be issued.

Your next inspection will be: **No further inspection required**
**Outstanding Required Documents for this Building**
**Main Building**
**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Amendment 1**

**Internal Membrane**

- E3: Internal waterproofing membrane product & installer warranties

**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **PASS** - 26 Oct 2022 |
| Concrete / Tilt panel / Steel frame | **NOT APPLICABLE** - 26 Oct 2022 |
| Post Wrap / Cavity | **PASS** - 26 Oct 2022 |
| Pre-plaster | **PASS** - 29 Nov 2022 |
| Preline | **PASS** - 26 Oct 2022 |
| Post Line | **PASS** - 11 Aug 2022 |
| Internal Membrane | **PASS** - 26 Oct 2022 |
| Drainage | **PASS** - 26 Oct 2022 |
| Final | **PASS** - 29 Nov 2022 |

Please allow a minimum of 2 working days notice when booking an inspection.

Yours sincerely

Pete Fitzgerald

Pete Fitzgerald
Senior Building Technical Officer
On behalf of **Tasman District Council**

Notes: WIN_20221129_11_38_48_Pro.jpg

Notes: WIN_20221129_11_38_21_Pro.jpg

Notes: WIN_20221129_11_38_04_Pro.jpg

Notes: WIN_20221129_11_38_59_Pro.jpg

| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Inspections - AUDIT | Pass | User | Date | Notes |
|---|---|---|---|---|
| **Siting and Site Scrape Inspection** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided? [These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | N/A | NMy | 05/05/2022 12:16 pm | N/A as requited with main floor slab |
| | N/A | NMy | 05/05/2022 12:17 pm | N/A as required within main floor slab prompt. |
| | N/A | NMy | 05/05/2022 12:17 pm | N/A as required within main floor slab prompt. |
| F5: Construction and Demolition Hazards: Is site safety properly managed? [Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | Pass | NMy | 05/05/2022 12:17 pm | F5: there are no obvious work site hazards observed during the course of this inspection. |
| Section 37: Resource Consent: Has resource consent been obtained and have all conditions associated with the certificate been satisfied? | N/A | NMy | 05/05/2022 12:17 pm | |
| Site Considerations: Have the following matters been checked:<br><br>Site Considerations - Prompt List: | **Pass** | **NMy** | **05/05/2022 12:18 pm** | |
| 1. Siting: Is the siting and building orientation compliant? [Request a Survey Certificate if siting cannot be adequately verified]. | PASS | NMy | 05/05/2022 12:17 pm | See notes in Main Floor Slab prompt. |
| 2. Wind, earthquake, corrosion zones: Do on-site conditions correlate to the wind, earthquake and corrosion zone classifications of this consent? | PASS | NMy | 05/05/2022 12:18 pm | On-site conditions correlate to the wind, earthquake and corrosion zone classifications of this consent |
| 4. Easement: Is the location of the work in relation to easements complying? | N/A | NMy | 05/05/2022 12:18 pm | There are no easements associated with this project. |
| 5. Services: Have the effects that building work will have on existing services been properly addressed? | N/A | NMy | 05/05/2022 12:18 pm | Building work has no effect on existing services. |
| 6. Slope suitability and overland flow paths: Are ground contours in reasonable accord with the building consent and is the building located clear of overland flow paths? | N/A | NMy | 05/05/2022 12:18 pm | The building work is occurring on a level site that is free from overland flow paths. |
| 7. Ground bearing: Is evidence provided confirming that ground bearing capacity is adequate to support the imposed loads? | N/A | NMy | 05/05/2022 12:18 pm | See notes in Main Floor Slab prompt. |
| 8. Organic matter: Is the site clear of top soil, rubbish and noxious or organic matter? | PASS | NMy | 05/05/2022 12:18 pm | The site is clear of top soil, rubbish and noxious or organic matter. |
| 9. Demolition, excavation, construction, sediment control: Have the effects that these activities may have on people or other properties been mitigated? | N/A | NMy | 05/05/2022 12:18 pm | No comment |
| 10. Finished floor levels: From general observation; will floor levels in relation to finished ground and horizontal separation distances in relation to adjacent ground comply? | PASS | NMy | 05/05/2022 12:18 pm | See notes in Main Floor Slab prompt. |
| 11. Misc.: | N/A | NMy | 05/05/2022 12:18 pm | There are no miscellaneous matters associated with this question. |
| B1: Floor Slab: Is the floor slab siting, site preparation and ground bearing for the slab in accordance with building consent? Check siting, ensure the building footprint is free of topsoil and organic material and obtain confirmation that ground bearing is adequate to support imposed loads. | N/A | NMy | 05/05/2022 12:18 pm | |
| | N/A | NMy | 05/05/2022 12:19 pm | See notes in main Floor slab prompt. |
| B1: Floor Slab: Is the floor slab siting, site preparation and ground bearing for the slab in accordance with building consent? Check siting, ensure the building footprint is free of topsoil and organic material and obtain confirmation that ground bearing is adequate to support imposed loads. | N/A | NMy | 05/05/2022 12:18 pm | |
| **Prepour** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided? [These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | N/A | NMy | 05/05/2022 12:19 pm | |
| F5: Construction and Demolition Hazards: Is site safety properly managed? [Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | N/A | NMy | 05/05/2022 12:19 pm | |

| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Inspections - AUDIT | Pass | User | Date | Notes |
|---|---|---|---|---|
| B1: Footings, Foundations (In-situ, masonry, SED): Is the siting and construction of footings and foundations complying? [Check: Footing trenches are clean with solid bearing; Size of footing and foundations; Reinforcing - check grade, size, lap, cover and support; Concrete strength; Blockwork units - check they are sound, correct size, laid in straight courses with running bond; Check blockwork reinforcement and placement of control joints; Subfloor ventilation and subfloor access complies; SED - check elements such as posts, columns, portal frames, tilt panels etc. ensure construction monitoring has occurred]. | N/A | NMy | 05/05/2022 12:19 pm | |
| B1: Walls, Wall bracing, Posts, Beams: Post footings: Are the post footing sizes / post connections in accordance with building consent? | N/A | NMy | 05/05/2022 12:19 pm | |
| B1: Walls, Wall bracing, Posts, Beams: Post footings: Are the post footing sizes / post connections in accordance with building consent? | N/A | NMy | 05/05/2022 12:19 pm | |
| B1: Wall Structures: Is wall construction compliant? [Check: Size and placement of reinforcing; Concrete strength; Provision for services.] | N/A | NMy | 05/05/2022 12:20 pm | |
| B1: Columns, Posts, Beams: Is construction compliant? [Check: Size and placement of reinforcing; Concrete strength; Provision for services.] | N/A | NMy | 05/05/2022 12:20 pm | |
| **Wastepipes** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided? [These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | N/A | NMy | 05/05/2022 12:15 pm | |
| F5: Construction and Demolition Hazards: Is site safety properly managed? [Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | N/A | NMy | 05/05/2022 12:15 pm | |
| G12: Water Supply: Is the hot water cylinder relief drain pipework compliant? [Check: Pipework - size, continuous fall, sleeved through concrete; Pressure test confirmed]. | N/A | NMy | 05/05/2022 12:15 pm | |
| G12: Water Supply: Is the hot water cylinder relief drain pipework compliant? [Check: Pipework - size, continuous fall, sleeved through concrete; Pressure test confirmed]. | N/A | NMy | 05/05/2022 12:15 pm | |
| G13: Foul Water: Is the installation of the foul water system complying? [Check: Fixture layout; Pipework - materials, size, length, gradient and support; Separation - pipes passing through concrete are sleeved; Bedding - material, pipework properly supported; Pipework tests; Plumber / drainlayer details are recorded]. | N/A | NMy | 05/05/2022 12:15 pm | Wastes laid to G13/AS1 as per plans. Wastes and toilet connections to be picked up by drains to outside and inspected at later date.<br><br>Underslab waste pipes to G13 not inspected as per TDC practice.<br><br>Copper sludge pipe laid for HWC relief drain. |
| **Floor Slab** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided? | Fail | NMy | 05/05/2022 12:14 pm | Engineers supporting documentation to be provided for SED slab construction and ground bearing. |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| [These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | Pass | JMm | 13/06/2022 09:52 am | Documents have been provided and accepted to cover Engineers scope of works. |
| F5: Construction and Demolition Hazards: Is site safety properly managed? [Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | Pass | NMy | 05/05/2022 12:14 pm | F5: there are no obvious work site hazards observed during the course of this inspection. |
| B1: Floor Slab: Is floor slab construction compliant (and if required) has construction monitoring occurred? [Check: Siting; Ground bearing; Shear pile details; Pod and trench construction; Foundation construction; Hard fill, blinding, DPM and insulation; Reinforcing - grade, size, lap, support, cover and location of supplementary bars ; Location and construction of thickenings; Concrete strength is suitable for the environment and service penetration details]. | Pass | NMy | 05/05/2022 12:12 pm | Construction is compliant and construction monitoring might have occurred. Inspection considerations included checking siting; that the slab is founded on solid bearing; shear pile installation, pod and trench construction; foundation construction; checking hard fill, blinding, DPM and insulation is complying; checking reinforcing grade, size, lap, support, cover and location of supplementary bars is complying: checking location and construction of thickenings is complying; checking that concrete strength is suitable for the environment and details for service penetrations through the slab comply. |
| | Pass | NMy | 05/05/2022 12:14 pm | Construction is compliant and construction monitoring might have occurred. Inspection considerations included checking siting; that the slab is founded on solid bearing; checking hard fill, blinding, DPM and insulation is complying; and details for service penetrations through the slab comply.<br><br>Cupolex SED slab construction to be checked by Engineer and supporting documentation to be provided.<br><br>250 micron polythene DPM in place over crusher dust blinding on hardfill. There is Evidence that the site has been scrapped and top soil removed. All waste pipes laid to G13 prior. Wastes that come up through slab have appropriate protection/separation from concrete with a second PVC sleeve. Polythene taped around base where pipes penetrate DPM.<br><br>Siting checked while onsite to boxing line. Dimensions of 1250mm parallel to RH side boundary and 3952mm off back RH boundary peg as per consented plans. FFL was 450mm above S/W lid shown as datum. All as per plans.<br><br>Ok to pour on confirmation from Engineer. |
| B1: Floor Slab: Is floor slab construction compliant (and if required) has construction monitoring occurred? [Check: Siting; Ground bearing; Shear pile details; Pod and trench construction; Foundation construction; Hard fill, blinding, DPM and insulation; Reinforcing - grade, size, lap, support, cover and location of supplementary bars ; Location and construction of thickenings; Concrete strength is suitable for the environment and service penetration details]. | N/A | NMy | 05/05/2022 12:14 pm | Amendment see main Floor slab prompt |
| **Framing / Pre-wrap - First floor** | | | | |

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| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided?<br>[These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | N/A | NMy | 23/06/2022 01:44 pm | N/A as no ground floor structure, Mid floor structure covered within Framing structure inspection |
| F5: Construction and Demolition Hazards: Is site safety properly managed?<br>[Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | Pass | NMy | 23/06/2022 01:44 pm | F5: there are no obvious work site hazards observed during the course of this inspection. |
| Site Considerations: Please confirm that a) foundations free of deformation; b) Slab shrinkage control measures are installed; c) Separation is provided between timber and concrete to prevent transference of moisture. | Pass | NMy | 23/06/2022 01:44 pm | I confirm that a) foundations are free of deformation, settlement or honeycombing; b) Slab shrinkage control measures are installed; and c) Separation is provided between timber and concrete to prevent transference of moisture. |
| | Pass | NMy | 23/06/2022 01:45 pm | First floor structure. Wall frames fixed atop timber mid floor. No DPC required. Ground floor inspected prior. |
| Site Considerations: Please confirm that a) foundations free of deformation; b) Slab shrinkage control measures are installed; c) Separation is provided between timber and concrete to prevent transference of moisture. | N/A | NMy | 23/06/2022 01:45 pm | |
| B1: Walls, Wall bracing, Posts, Beams: Is the wall frame construction compliant?<br>[Check: Framing - treatment, grade, size, support, setout, separation (DPC) between framing and concrete, fixing of plates, studs, trimmers, lintels and sills; Exterior wall bracing - location and size of elements, top plate sizes and hold down fixings; Durability of fixings; Post / Beam - grade, size, treatment, post / footing connections, beam sizes, post / beam connections.] | Pass | NMy | 23/06/2022 01:45 pm | Wall framing construction is complying. Inspection considerations include checking Framing - treatment, grade, size, support, setout, and fixing of plates, studs, trimmers, lintels and sills; Exterior wall bracing - location and size of elements, top plate sizes and hold down fixings; Durability of fixings; Post / Beam - grade, size, treatment, post / footing connections, beam sizes, post / beam connections. |
| | Pass | NMy | 23/06/2022 01:48 pm | Wall framing construction is complying. Inspection considerations include checking Framing - treatment, grade, size, support, setout, and fixing of plates, studs, trimmers, lintels and sills; Exterior wall bracing - location and size of elements, top plate sizes and hold down fixings; Durability of fixings; Beam - grade, size, treatment, connections,<br><br>Framing construction H1.2 90x45 framing at 600ctrs as per plans. Bottom plates fixed with 3x Gun nails at 600ctrs. Top plate connection provided with MiTek studLok screws to every stud through top plate. Lintel sizes and connection factory fitted and spray marked for onsite identification.<br><br>All Bracing covered by Engineer and Supporting docs requested within Ground Floor Framing inspection notes. |
| B1: Walls, Wall bracing, Posts, Beams: Is the wall frame construction compliant?<br>[Check: Framing - treatment, grade, size, support, setout, separation (DPC) between framing and concrete, fixing of plates, studs, trimmers, lintels and sills; Exterior wall bracing - location and size of elements, top plate sizes and hold down fixings; Durability of fixings; Post / Beam - grade, size, treatment, post / footing connections, beam sizes, post / beam connections.] | N/A | NMy | 23/06/2022 01:48 pm | Amendment |


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| B1: Mid-floor Structure and Flooring: Is mid-floor framing and flooring construction compliant? | N/A | NMy | 23/06/2022 01:52 pm | Mid-floor structure and flooring construction is as to the consented plans.<br><br>All SED items are to be reviewed by the engineer site notes have been requested within separate check point . |
| B1: Mid-floor Structure and Flooring: Is mid-floor framing and flooring construction compliant? | N/A | NMy | 23/06/2022 01:49 pm | Amendment |
| Roof Structure: Is roof structure construction compliant:<br><br>Roof Structure - Prompt List: | **Pass** | **NMy** | **23/06/2022 01:50 pm** | |
| 1. Roof truss: Is the truss layout, support and fixing compliant? | PASS | NMy | 23/06/2022 01:49 pm | Roof truss layout, support and fixing is compliant.<br>Roof trusses installed as per the MiTek Manufacturers As-built documentation provided onsite. All Connections as per As built plans. |
| 2. Roof frame elements: Are roof frame elements complying?<br>[Check grade, spacing, span, treatment and fixings of rafters, ridge boards, ridge beams, ceiling joists, ceiling runners, valley boards, underpurlins, underpurlin struts, strutting beams, veranda beams, collar ties and cleats, eaves, gable verges, purlins and tile battens, ceiling battens]. | PASS | NMy | 23/06/2022 01:50 pm | 90x45 Purlins fixed with 1x Blue MiTek screw and 2x gun nails. Fixings sufficient for WZ. |
| 3. Bracing: Is roof bracing complying? | PASS | NMy | 23/06/2022 01:50 pm | Bracing is complying. Diagonal straps provided as detailed on consented plans. Straps sufficiently connected at ends to suitable framing member. |
| 4. Insulation: Have roof space insulation requirements been considered?<br>[Consider: Depth of rafters and thickness of insulation; Clearance between insulation and roof frame at exterior wall junctions and clearance with roof underlay]. | PASS | NMy | 23/06/2022 01:50 pm | Roof space insulation requirements are complying. Inspection considerations included checking the depth of rafters and thickness of insulation, checking the impact on insulation at roof frame and exterior wall junctions and checking clearance of insulation with roof underlay. Insulation once installed will allow a min 25mm gap to the underside of roofing underlay. good air flow is provided. |
| 5. Miscellaneous: | N/A | NMy | 23/06/2022 01:50 pm | There are no miscellaneous matters that require consideration. |
| **Framing / Pre-wrap - Ground floor** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been | Fail | CJ | 03/06/2022 11:08 am | Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1 Engineers site notes to come |
| | Fail | JMm | 30/09/2022 04:30 pm | Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1 Engineers site notes to come<br><br>JM: 30/9/2022<br><br>This document is still outstanding. |

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| provided?<br>[These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | Pass | PFd | 26/10/2022 01:06 pm | Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1 Engineers site notes to come<br><br>JM: 30/9/2022<br><br>This document is still outstanding.<br><br>Now added to the required docs |
| F5: Construction and Demolition Hazards: Is site safety properly managed?<br>[Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | Pass | CJ | 03/06/2022 11:08 am | F5: there are no obvious work site hazards observed during the course of this inspection. |
| Site Considerations: Please confirm that a) foundations free of deformation; b) Slab shrinkage control measures are installed; c) Separation is provided between timber and concrete to prevent transference of moisture. | Pass | CJ | 03/06/2022 11:08 am | I confirm that a) foundations are free of deformation, settlement or honeycombing; b) Slab shrinkage control measures are installed; and c) Separation is provided between timber and concrete to prevent transference of moisture. |
| Site Considerations: Please confirm that a) foundations free of deformation; b) Slab shrinkage control measures are installed; c) Separation is provided between timber and concrete to prevent transference of moisture. | N/A | CJ | 03/06/2022 11:08 am | NA |
| B1: Walls, Wall bracing, Posts, Beams: Is the wall frame construction compliant?<br>[Check: Framing - treatment, grade, size, support, setout, separation (DPC) between framing and concrete, fixing of plates, studs, trimmers, lintels and sills; Exterior wall bracing - location and size of elements, top plate sizes and hold down fixings; Durability of fixings; Post / Beam - grade, size, treatment, post / footing connections, beam sizes, post / beam connections.] | N/A | CJ | 03/06/2022 11:35 am | NA |
| B1: Walls, Wall bracing, Posts, Beams: Is the wall frame construction compliant?<br>[Check: Framing - treatment, grade, size, support, setout, separation (DPC) between framing and concrete, fixing of plates, studs, trimmers, lintels and sills; Exterior wall bracing - location and size of elements, top plate sizes and hold down fixings; Durability of fixings; Post / Beam - grade, size, treatment, post / footing connections, beam sizes, post / beam connections.] | Pass | CJ | 03/06/2022 11:10 am | Wall framing construction is complying. Inspection considerations include checking Framing - treatment, grade, size, support, setout, and fixing of plates, studs, trimmers, lintels and sills; Exterior wall bracing - location and size of elements, top plate sizes and hold down fixings; Durability of fixings; Post / Beam - grade, size, treatment, post / footing connections, beam sizes, post / beam connections. |
| | Pass | CJ | 03/06/2022 11:12 am | 140x45 SG8 H1.2 and 90x45 SG8 H1.2 studs at 600mm centers fixed with M12 true bolts at 900mm centers on external bottom plates. And M12 true bolts at 900mm centers on internal bottom plates with powered nails on internal bottom plates at 600mm centers. top plate connections to lintels, studs to top plate and lintel connections, stud lock screws installed. DPC installed under bottom plate. |
| B1: Mid-floor Structure and Flooring: Is mid-floor framing and flooring construction compliant? | Pass | CJ | 03/06/2022 11:08 am | Mid-floor structure and flooring construction is compliant. |
| | Pass | CJ | 03/06/2022 11:09 am | 300HY Joists at 400mm centers installed as per the stamped plans |
| | Pass | CJ | 03/06/2022 11:10 am | Mid floor 300 HY Joists at 400mm centers installed as per the stamped plans |


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| B1: Mid-floor Structure and Flooring: Is mid-floor framing and flooring construction compliant? | N/A | CJ | 03/06/2022 11:10 am | NA |
| Roof Structure: Is roof structure construction compliant:<br><br>Roof Structure - Prompt List: | **Pass** | **CJ** | **03/06/2022 11:17 am** | |
| 1. Roof truss: Is the truss layout, support and fixing compliant? | PASS | CJ | 03/06/2022 11:16 am | Roof truss layout, support and fixing is compliant |
| 2. Roof frame elements: Are roof frame elements complying? [Check grade, spacing, span, treatment and fixings of rafters, ridge boards, ridge beams, ceiling joists, ceiling runners, valley boards, underpurlins, underpurlin struts, strutting beams, veranda beams, collar ties and cleats, eaves, gable verges, purlins and tile battens, ceiling battens]. | N/A | CJ | 03/06/2022 11:16 am | Roof frame elements: this questions is not applicable to this project. |
| 3. Bracing: Is roof bracing complying? | PASS | CJ | 03/06/2022 11:17 am | Bracing is complying. Hips and apposing strap bracing |
| 4. Insulation: Have roof space insulation requirements been considered? [Consider: Depth of rafters and thickness of insulation; Clearance between insulation and roof frame at exterior wall junctions and clearance with roof underlay]. | PASS | CJ | 03/06/2022 11:17 am | Roof space insulation requirements are complying. Inspection considerations included checking the depth of rafters and thickness of insulation, checking the impact on insulation at roof frame and exterior wall junctions and checking clearance of insulation with roof underlay. |
| 5. Miscellaneous: | PASS | CJ | 03/06/2022 11:17 am | 70x45 H1.2 purlins at 600mmto and bottom of roof, then 900mm centers fixed with 1 gun nail and 1 blue screw |
| **Concrete / Tilt panel / Steel frame** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided? [These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | N/A | PFd | 26/10/2022 01:09 pm | This inspection is not needed. |
| F5: Construction and Demolition Hazards: Is site safety properly managed? [Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | N/A | PFd | 26/10/2022 01:09 pm | This inspection is not needed. |
| B1: Columns, Posts, Beams: Is construction of these elements complying? [Check: Materials - size, grade, treatment; Location; Footings - size, reinforcing; Fixings and connections; Support; Fire protection]. | N/A | PFd | 26/10/2022 01:09 pm | See PS1 |
| B1: Mid-floor Structure and Flooring: Is the specific design mid-floor construction in accordance with building consent and have construction monitoring records and required documents been provided? | N/A | PFd | 26/10/2022 01:09 pm | PS4 supplied |
| B1: Mid-floor Structure and Flooring: Is the specific design mid-floor construction in accordance with building consent and have construction monitoring records and required documents been provided? | N/A | PFd | 26/10/2022 01:09 pm | See PS4 |
| **Post Wrap / Cavity** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided? [These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | N/A | NMy | 21/07/2022 09:12 am | N/A at this time as ROW is required to be submitted with final documentation. |
| F5: Construction and Demolition Hazards: Is site safety properly managed? [Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | Pass | NMy | 21/07/2022 09:12 am | F5: there are no obvious work site hazards observed during the course of this inspection. |

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| | Pass | NMy | 21/07/2022 09:12 am | Wall cladding construction complies with the building consent. Inspection considerations include checking of materials, framing setout, blocking, wall wrap installation and support, cavity construction - batten size, treatment, spacing and fixing, cavity closure, vermin strip installation and drainage; Support bar installation, air barrier installation, flashing installation and movement control installation. |
| | Pass | NMy | 21/07/2022 09:20 am | Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.<br><br>Detail previously provided for Dwelling next door that is the same design.<br><br>Tekton Building wrap fixed tight to framing. The majority of cladding is Rockcote. All associated cavity battens and flashings as part of the Rockcote system have been installed in accordance with the manufacturers specifications. All penetrations have been taped round and Aluminum head flashings installed above windows with plastic end caps.<br><br>JH Linea Weatherboard clad areas have vertical H3.1 pine battens installed on stud ctrs. Aluminum Head flashings installed with turn ups at ends and PVC cavity closers installed at bottom of cavity as well as above head flashings. All head flashings taped back to wrap. DYNAflash foldable flashing used as back flashing to all change in cladding junctions. Inter-storey Z flashing constructed in accordance with previously accepted detail provided as a Minor variation for dwelling next door.<br><br>Approved to Clad. |
| | Fail | NMy | 21/07/2022 09:20 am | Please rectify the following and advise when work is ready for re-inspection. |

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| | Fail | NMy | 21/07/2022 09:20 am | Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.<br><br>Detail previously provided for Dwelling next door that is the same design.<br><br>Tekton Building wrap fixed tight to framing. The majority of cladding is Rockcote. All associated cavity battens and flashings as part of the Rockcote system have been installed in accordance with the manufacturers specifications. All penetrations have been taped round and Aluminum head flashings installed above windows with plastic end caps.<br><br>JH Linea Weatherboard clad areas have vertical H3.1 pine battens installed on stud ctrs. Aluminum Head flashings installed with turn ups at ends and PVC cavity closers installed at bottom of cavity as well as above head flashings. All head flashings taped back to wrap. DYNAflash foldable flashing used as back flashing to all change in cladding junctions. Inter-storey Z flashing constructed in accordance with previously accepted detail provided as a Minor variation for dwelling next door.<br><br>Approved to Clad. |

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| E2: Wall Cladding Systems: Is wall cladding construction in accordance with building consent?<br>[Check: Materials and framing setout and blocking; Wrap installation support; Cavity construction - batten size, treatment, spacing and fixing, cavity closure, vermin strip installation and drainage; Support bar installation; Air barrier installation; Flashing installation; Movement control installation ]. | Pass | JMm | 30/09/2022 04:29 pm | Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.<br><br>Detail previously provided for Dwelling next door that is the same design.<br><br>Tekton Building wrap fixed tight to framing. The majority of cladding is Rockcote. All associated cavity battens and flashings as part of the Rockcote system have been installed in accordance with the manufacturers specifications. All penetrations have been taped round and Aluminum head flashings installed above windows with plastic end caps.<br><br>JH Linea Weatherboard clad areas have vertical H3.1 pine battens installed on stud ctrs. Aluminum Head flashings installed with turn ups at ends and PVC cavity closers installed at bottom of cavity as well as above head flashings. All head flashings taped back to wrap. DYNAflash foldable flashing used as back flashing to all change in cladding junctions. Inter-storey Z flashing constructed in accordance with previously accepted detail provided as a Minor variation for dwelling next door.<br><br>Approved to Clad.<br><br>JM: 30/9/2022<br><br>This document is still outstanding. |
| E2: Roof Cladding: Is the roof cladding installation complying? | Pass | NMy | 21/07/2022 09:20 am | The roof cladding installation is complying. Inspection considerations include checking Roof pitch; Materials - grade, colour, profile; Substrate system and support; Underlay - support, undamaged, complying lap with anti-ponding boards where required; Installation - laps, seals, cover, expansion, fixing, compatibility with surrounding elements, use of sealants; Sealing of junctions and transitions; Flashing - sealing of penetrations and compatibility; Water management - overflow, falls, size and location of outlets. |

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| [Check: Roof pitch; Materials - grade, colour, profile; Substrate system and support; Underlay - support, undamaged, complying lap with anti-ponding boards where required, installation - laps, seals, cover, expansion, fixing, compatibility with surrounding elements, use of sealants; Sealing of junctions and transitions; Flashing - cover, fixing, sealing of penetrations and compatibility; Water management - overflow, falls, size and location of outlets; LBP details recorded]. | Pass | NMy | 21/07/2022 09:22 am | The roof cladding installation is complying. Inspection considerations include checking Roof pitch; Materials - grade, colour, profile; Substrate system and support; Underlay - support, undamaged, complying lap. Installation - laps, seals, cover, expansion, fixing, compatibility with surrounding elements, use of sealants; Sealing of junctions and transitions; Flashing - sealing of penetrations and compatibility; Water management, falls, size and location of outlets.<br><br>Colorsteel corrugated Longrun iron installed over roofing underlay to top roof and Trapezoidal Longrun iron installed over roofing underlay and netting to lower roofs. Metal fascia gutter system installed and all associated Hip, Apron and Barge flashings as per Metalcraft code of practice manual. |
| **Pre-plaster** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided?<br>[These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | Fail | NMy | 23/08/2022 10:48 am | Photo required to be provided of Blocking in place for Terminal vent on RH side of building. Blocking in place above the gully trap needs to be shifted over, or additional blocking provided, to where the Vent riser is located. |
| | Pass | PFd | 29/11/2022 12:06 pm | Photo required to be provided of Blocking in place for Terminal vent on RH side of building. Blocking in place above the gully trap needs to be shifted over, or additional blocking provided, to where the Vent riser is located.<br><br>Kent has confirmed that the blocking was installed. He checked it himself. |
| F5: Construction and Demolition Hazards: Is site safety properly managed?<br>[Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | Pass | NMy | 23/08/2022 10:48 am | F5: there are no obvious work site hazards observed during the course of this inspection. |
| | Pass | NMy | 23/08/2022 10:48 am | The proprietary plaster system is constructed in accordance with building consent. Inspection consideration include checking substrate support and installation; flashing installation; systems reinforcement; and movement joint control installation. |

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| E2: Wall Cladding Systems: Is the proprietary plaster system constructed in accordance with building consent?<br>[Check: Substrate support and installation; Flashing installation; Systems reinforcement; Movement joint control installation]. | Pass | NMy | 23/08/2022 10:49 am | The proprietary plaster system is constructed in accordance with the building consent and Rockcote manufacturers installation specifications.<br><br>50mm EPS sheets fixed for correct Wind zone with plastic washered nails. Corner mouldings and PVC base closer shoe in place. Antifracture tape applied over top of all timber support blocking, with exception of blocking for Terminal vent noted in required Docs. Mesh onsite ready to be installed in first layer of plaster. Control joints where required to be formed and installed in second layer.<br><br>Rockcote proprietary stick on window flashings in place and inspected prior. |
| **Preline** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided?<br>[These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | Fail | NMy | 01/08/2022 09:56 am | Plumbers pressure test certificate to be provided including plumbers registration number |
| | Pass | SKe | 19/08/2022 03:15 pm | Plumber PTC received in required docs |
| F5: Construction and Demolition Hazards: Is site safety properly managed?<br>[Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | Pass | NMy | 01/08/2022 09:56 am | F5: there are no obvious work site hazards observed during the course of this inspection. |
| G12: Water Supply: Is the installation of the water supply service compliant?<br><br>[Check: LBP details are recorded; Hot and cold water supply is compliant - materials, jointing, pipe sizes, pipe run & support, insulation, valving, sealing of penetrations, back-flow protection; Pipework test; Wetback / water booster - check pipework size, pipe slope (min. upward slope of 1:20), open vented]. | Pass | NMy | 01/08/2022 09:56 am | The water supply installation complies and LBP details are recorded. Inspection considerations include checking materials, jointing, pipe sizes, pipe run & support, insulation, valving, sealing of penetrations, back-flow protection on the hot and cold water supply is compliant; and checking that pipework does not leak and holds pressure. The wetback system was also inspected and involved checking pipework size, slope (min. upward slope of 1:20), venting (system is open vented. |
| | Pass | NMy | 01/08/2022 09:57 am | The water supply installation complies. Inspection considerations include checking materials, jointing, pipe sizes, pipe run & support, insulation, sealing of penetrations.<br><br>Inspected up to the Cylinder. Cylinder installation and valving to be inspected at Final inspection and is the normal procedure. Plumbers pressure test cert to be provided as recorded in the required Docs. |
| G12: Water Supply: Is the installation of the water supply service compliant?<br><br>[Check: LBP details are recorded; Hot and cold water supply is compliant - materials, jointing, pipe sizes, pipe run & support, insulation, valving, sealing of penetrations, back-flow protection; Pipework test; Wetback / water booster - check pipework size, pipe slope (min. upward slope of 1:20), open vented]. | N/A | NMy | 01/08/2022 09:57 am | Amendment. See main prompt |
| | Fail | NMy | 01/08/2022 09:57 am | Wall bracing: |
| | Fail | NMy | 01/08/2022 09:58 am | Engineers supporting Documentation to be provided for Preline bracing. |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Inspections - AUDIT | Pass | User | Date | Notes |
|---|---|---|---|---|
| B1: Walls, Wall bracing, Posts, Beams: Is wall bracing compliant?<br>[Check: Location and size of bracing elements; Top plate sizes, Hold down fixings; Location and size of penetrations in brace elements; Fixing of elements]. | Fail | JMm | 30/09/2022 04:28 pm | Engineers supporting Documentation to be provided for Preline bracing.<br><br>JM: 30/9/2022<br><br>This document is still outstanding. |
| | Pass | PFd | 26/10/2022 01:07 pm | Engineers supporting Documentation to be provided for Preline bracing.<br><br>JM: 30/9/2022<br><br>This document is still outstanding.<br><br>Now added to the required docs |
| B1: Walls, Wall bracing, Posts, Beams: Is wall bracing compliant?<br>[Check: Location and size of bracing elements; Top plate sizes, Hold down fixings; Location and size of penetrations in brace elements; Fixing of elements]. | N/A | NMy | 01/08/2022 09:58 am | Amendment: See notes in main prompt |
| G13: Foul Water: Is installation of the internal foul water system pipework and internal venting compliant?<br>[Check: Drains, wastes, vents checking materials, pipework jointing, gradient, size, length and support; record LBP details]. | Pass | NMy | 01/08/2022 09:58 am | The internal foul water system is compliant. Inspection considerations included checking - drains, wastes, vents - materials, pipework jointing, gradient, size, length and support, LBP details. |
| | Pass | NMy | 01/08/2022 09:58 am | The internal foul water system is correctly installed with good falls to pipes within walls , AAV are to be installed once the fixtures are completed and can be reviewed during the final site inspection, approved to continue |
| B1: Wall & Ceiling Linings: Is pre-line construction compliant?<br><br>B1: Wall & Ceiling Linings - Prompt List: | **Pass** | **NMy** | **01/08/2022 10:00 am** | |
| 1. Weathertightness: Is the structure adequately protected against the effects of weather? | PASS | NMy | 01/08/2022 09:58 am | The structure is adequately protected against the effects of weather. building clad and temporary ply sheets provided as cover to garage door. |
| 2. Layout: Are room layouts and accessibility setups compliant?<br>[Check - room sizes and accessibility set-ups]. | PASS | NMy | 01/08/2022 09:58 am | The room set-outs comply. |
| 3. Services: Is the installation of services in relation to position of fixtures compliant [water, gas, electricity]? | PASS | NMy | 01/08/2022 09:59 am | The installation of services in relation to fixtures complies. |
| 4. Blocking: Is blocking and support for fixtures, handrails, flashings, appliances, linings and finishes etc. installed? | PASS | NMy | 01/08/2022 09:59 am | Framing and blocking is installed. Blocking provided for handrail in stairwell. |
| 5. Protective angles:Have protective angles been installed to corners of wet areas? | PASS | NMy | 01/08/2022 09:59 am | Protective angles are compliant. Gib support angles have been installed in the corners of 2x showers. |
| 6. Air seals: Is the installation of air-seals to openings in the external envelope compliant? | PASS | NMy | 01/08/2022 10:00 am | Air seals are compliant. Foam visible around all windows and builder onsite confirmed that PEF backing rod is in place. SORGed that installation is compliant. |
| 7. Insulation: Is the installation of insulation compliant?<br>[Check- it is as specified, correctly installed, complying R-value, no gaps to perimeter]. | PASS | NMy | 01/08/2022 10:00 am | Insulation is compliant. R2.6 Pink batts installed to all walls forming the thermal envelope, including garage partition wall. R3.6 Pink Batts installed in ceilings. Truss roof, so no consideration required for skillion batts. |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Inspections - AUDIT | Pass | User | Date | Notes |
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| 8. Noise control / fire ratings: Is the construction of noise control / fire ratings compliant?<br>[Check - framing configuration, materials are as specified and in correct location]. | N/A | NMy | 01/08/2022 10:00 am | Noise control / fire rating: this question does not apply to this Project. |
| 9. Ceiling battens: Is batten layout, size, grade, fixing, treatment, moisture content compliant and is ceiling space access size and location compliant? | PASS | NMy | 01/08/2022 10:00 am | Rondo ceiling battens at 600ctrs installed in accordance with Manufacturers installation specifications. |
| 10. Moisture content: Is moisture content within the acceptable safe range to allow lining to proceed? | PASS | NMy | 01/08/2022 10:00 am | Moisture content readings of 16% indicate that framing is within safe range to allow enclosing of framing to proceed |
| 11. Miscellaneous: | N/A | NMy | 01/08/2022 10:00 am | There are no miscellaneous matters. |
| G4: Ventilation: Does the preline installation of the windows and mechanical ventilation system(s) comply?<br>[Windows: check air seals, compliance labelling, location and size of sashes and safety glass, discharge from condensation channels; Mechanical Ventilation - check unit and duct work installation, check unit and duct size, insulation, check discharge doesn't cause nuisance and sealing of penetrations, check installation of fire dampers] | Pass | NMy | 01/08/2022 10:00 am | The preline installation of the ventilation system complies. Inspection considerations include checking windows - air seals, compliance labelling, location and size of sashes and safety glass, discharge from condensation channels. Checking the mechanical ventilation systems include checking duct work insulation, size and installation, unit size(s) and installation, sealing of penetrations and provision of fire dampers. |
| | Pass | NMy | 01/08/2022 10:01 am | The preline installation of the ventilation system complies. Ducting for ventilation systems installed within the roof space. Fans etc will be reviewed during the final site inspection |
| H1: Energy Efficiency: Is the installation of the wall and ceiling insulation compliant?<br>Check: Glazing; Insulation R-value and installation; Thermal bridging]. | Pass | NMy | 01/08/2022 10:01 am | The installation of the glazing, wall and ceiling insulation is compliant. |
| | Pass | NMy | 01/08/2022 10:01 am | The installation of the glazing, wall and ceiling insulation is compliant. Pink Batts insulation neatly installed to framing members forming the thermal envelope with a min 25mm air gap between insulation and roofing underlay, Open truss roof spaces allow for good air flow. All plumbing pipework is inside thermal envelope with exception of the garage where the pipework has been appropriately lagged. |
| **Post Line** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided?<br>[These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | N/A | NMy | 11/08/2022 08:29 am | N/A at this time as ROW is required to be submitted with final documentation. |
| F5: Construction and Demolition Hazards: Is site safety properly managed?<br>[Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | Pass | NMy | 11/08/2022 08:29 am | F5: there are no obvious work site hazards observed during the course of this inspection. |
| | Pass | NMy | 11/08/2022 08:30 am | B1: Wall bracing: the fixing of the bracing elements is compliant. Inspection includes checking penetration sizes and locations, fixings and fixing patterns. |

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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Inspections - AUDIT | Pass | User | Date | Notes |
|---|---|---|---|---|
| B1: Walls, Wall bracing, Posts, Beams: Is the fixing of the bracing elements compliant?<br>[Check: Penetration sizes; Brace locations; Fixings and fixing patterns comply]. | Pass | NMy | 11/08/2022 08:31 am | Wall bracing: the fixing of the bracing elements is compliant. Inspection includes checking penetration sizes and locations, fixings and fixing patterns.<br><br>Gib bracing fixed in accordance with the manufacturers installation specifications, with 32mm Gib grabber screws. Brace unit length and type are as per the Consented brace plan. At the time of inspection there were no cut outs bigger than 90x90mm in brace walls or closer than 90mm to the edge of the sheets.<br><br>1x Tiled shower 10mm Gib Aqualine fixed at 150ctrs to all framing in shower area fixed in accordance with Manufacturers installation Manual. |
| | Pass | NMy | 11/08/2022 08:33 am | Wall bracing: the fixing of the bracing elements is compliant. Inspection includes checking penetration sizes and locations, fixings and fixing patterns.<br><br>Gib bracing fixed in accordance with the manufacturers installation specifications, with 32mm Gib grabber screws. Brace unit length and type are as per the Consented brace plan. At the time of inspection there were no cut outs bigger than 90x90mm in brace walls or closer than 90mm to the edge of the sheets.<br><br>1x Tiled shower 10mm Gib Aqualine fixed in accordance with Manufacturers installation specifications. |
| | Pass | NMy | 11/08/2022 08:34 am | Wall bracing: the fixing of the bracing elements is compliant. Inspection includes checking penetration sizes and locations, fixings and fixing patterns.<br><br>Gib bracing fixed in accordance with the manufacturers installation specifications, with 32mm Gib grabber screws. Brace unit length and type are as per the Consented brace plan. At the time of inspection there were no cut outs bigger than 90x90mm in brace walls or closer than 90mm to the edge of the sheets.<br><br>1x Tiled shower 10mm Gib Aqualine fixed in accordance with Manufacturers installation specifications. |
| | Pass | NMy | 11/08/2022 08:36 am | Wall bracing: the fixing of the bracing elements is compliant. Inspection includes checking penetration sizes and locations, fixings and fixing patterns.<br><br>Gib bracing fixed in accordance with the manufacturers installation specifications, with 32mm Gib grabber screws. Brace unit length and type are as per the Consented brace plan. At the time of inspection there were no cut outs bigger than 90x90mm in brace walls or closer than 90mm to the edge of the sheets.<br><br>2x Tiled showers. 10mm Gib Aqualine fixed in accordance with Manufacturers installation specifications. |

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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Inspections - AUDIT | Pass | User | Date | Notes |
|---|---|---|---|---|
| B1: Walls, Wall bracing, Posts, Beams: Is the fixing of the bracing elements compliant?<br>[Check: Penetration sizes; Brace locations; Fixings and fixing patterns comply]. | N/A | NMy | 11/08/2022 08:33 am | |
| | N/A | NMy | 11/08/2022 08:33 am | N/A Amendment. See notes in main prompt. |
| **Internal Membrane** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided?<br>[These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | | JMm | 30/09/2022 02:44 pm | |
| | Fail | JMm | 30/09/2022 02:46 pm | 1./ PS3 to be provided.<br><br>Mark Shuttelworth<br><br>0220444449 |
| | Pass | PFd | 26/10/2022 01:08 pm | 1./ PS3 to be provided.<br><br>Mark Shuttelworth<br><br>0220444449<br><br>PS3 now added to the required docs |
| F5: Construction and Demolition Hazards: Is site safety properly managed?<br>[Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | Pass | JMm | 30/09/2022 04:31 pm | F5: there are no obvious work site hazards observed during the course of this inspection. |
| E3: Internal Moisture: Waterproofing membrane: Is the membrane installation compliant?<br>[Check: Materials are as specified; Installation follows specifications; Penetrations in linings or through the building envelope are sealed; Warranties and installer declarations are provided]. | N/A | JMm | 30/09/2022 04:32 pm | NA |
| E3: Internal Moisture: Waterproofing membrane: Is the membrane installation compliant?<br>[Check: Materials are as specified; Installation follows specifications; Penetrations in linings or through the building envelope are sealed; Warranties and installer declarations are provided]. | N/A | JMm | 30/09/2022 04:31 pm | NA |
| | Pass | JMm | 30/09/2022 04:32 pm | The membrane is installed as specified. |
| | Pass | JMm | 30/09/2022 04:34 pm | The membrane is installed as specified.<br><br>ARDEX WPM 155 Rapid has been installed, Consented plans show amendment to plans with now upstairs bathroom tiled shower also. This has been competed. Both shower full ceiling height up to coving, floor and up skirt 60mm. Water stops allowed for. PS3 requested. |
| **Drainage** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided?<br>[These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | Fail | NMy | 11/05/2022 10:48 am | Drain layers Rego Number and As built Drainage plans are to be provided |
| | Pass | PFd | 26/10/2022 01:08 pm | Drain layers Rego Number and As built Drainage plans are to be provided.<br><br>Now added to the required docs |
| F5: Construction and Demolition Hazards: Is site safety properly managed?<br>[Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | Pass | NMy | 11/05/2022 10:48 am | F5: there are no obvious work site hazards observed during the course of this inspection. |

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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Inspections - AUDIT | Pass | User | Date | Notes |
|---|---|---|---|---|
| E1: Surface Water: Does the location and construction of sumps and drains comply with building consent?<br>[Check: Materials are as specified; Drain - size, alignment, gradient and jointing; Separation between drains and foundations; Inlet heights and sump construction; Access for maintenance (inspection points); Confirm drain test passed; Check trench size and grade and bedding and backfill; Record LBP details]. | Pass | NMy | 11/05/2022 10:48 am | The location and construction of sumps and drains complies with building consent. Inspection considerations include checking materials, drain alignment, gradient and size; separation between drains and foundations; jointing; inlet and sump construction; access for maintenance (inspection points) drain test; trench size and grade; bedding and back fill; and LBP details. |
| | Pass | NMy | 11/05/2022 10:49 am | Pipe materials, pipe size, length and gradient is compliant.<br><br>100DN UPVC drains installed with a 1:100 fall to drains to site laterals, 2x Type 1 sumps complete in driveway and site and 3x downpipe risers in locations shown on plans. |
| | Pass | NMy | 11/05/2022 10:49 am | Pipe materials, pipe size, length and gradient is compliant.<br><br>100DN UPVC drains installed with a 1:100 fall to drains to site laterals, 2x Type 1 sumps complete in driveway and site and 5x downpipe risers in locations shown on plans. |
| | Pass | NMy | 11/05/2022 10:51 am | Pipe materials, pipe size, length and gradient is compliant.<br><br>100DN UPVC drains installed with a 1:100 fall to drains to site laterals, 2x Type 1 sumps complete in driveway and site and 5x downpipe risers in locations shown on plans. |
| G13: Foul Water: Is construction of the foul water drainage system in accordance with the building consent?<br>[Check: Drain separation from foundations; Impact on existing drains / termination of redundant services; Pipework, vents and inspection points - considering materials, pipe sizes, length, gradient, jointing, vent location and size, inspection point locations; Drain test; Bedding and pipework support and cover; LBP details recorded; Gully Trap / ORG installation; On-site disposal - system certification.] | Pass | NMy | 11/05/2022 10:49 am | Construction of the foul water drainage system is compliant. Inspection considerations included checking drain separation; Pipework, vents, inspection points, drain test (materials, pipe sizes, length, gradient, jointing, vent location and size, inspection point locations; Bedding and pipework support; cover; LBP details recorded, Gully Trap / ORG installation; On-site disposal - system verification. |
| | Pass | NMy | 11/05/2022 10:51 am | Sewer:<br><br>Pipe materials, sizes and drain grade is compliant, DN 100 UPVC drains installed in lazer grade trenches, Laser graded trenches with 1:100 fall to onsite Sewer pump, as required for subdivision.<br><br>Drains pick up 2x Toilet connections, 1x Stack and 3x 4 way riser Gully Traps installed, all lower than 150mm below lowest fixture, this is to be reviewed once landscaping is completed and ORG are lowered. however complaint at this time. Inspection point locations comply. which are clearly indicated within the as built drainage plan that is to be provided<br><br>1x TV's provided at head of main drain and branch drain to have vent off top of Stack. |
| **Final** | | | | |
| Required Docs: Have all construction monitoring records and required documents that are required as at this point of the construction process been provided?<br>[These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warranties; Installer declarations; Commissioning certification; Energy Works Certificates]. | Fail | PFd | 26/10/2022 01:17 pm | ROW/PS3 for the plaster work required. |
| | Pass | PFd | 29/11/2022 01:00 pm | ROW/PS3 for the plaster work required.<br><br>Now added to the required docs |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Inspections - AUDIT | Pass | User | Date | Notes |
|---|---|---|---|---|
| F5: Construction and Demolition Hazards: Is site safety properly managed? [Check: Work site hazards are identified and mitigated; Suitable barriers, fences / hoardings are provided to protect public and restrict unauthorised site access by children]. | Pass | PFd | 26/10/2022 01:14 pm | F5: there are no obvious work site hazards observed during the course of this inspection. |
| Producer Statement Acceptance: Where producer statements are provided, do they provide sufficient information and evidence to demonstrate reasonable grounds for acceptance? See reference notes. Select N/A if there are no producer statements. | Pass | PFd | 29/11/2022 12:07 pm | The Producer statement provides sufficient information and evidence to demonstrate reasonable grounds for acceptance. |
| Section 45: Consent Documents: Are building consent conditions satisfied, and have all required documents been provided and reviewed to confirm documentation reflects the completed as-built construction? [Check all LBP records of work are provided]. | Pass | PFd | 26/10/2022 01:14 pm | All conditions have been satisfied, required documentation has been provided and checked that it reflects finished as-built construction. |
| Section 45: Consent Documents: Are building consent conditions satisfied, and have all required documents been provided and reviewed to confirm documentation reflects the completed as-built construction? [Check all LBP records of work are provided]. | Pass | PFd | 26/10/2022 01:14 pm | All conditions have been satisfied, required documentation has been provided and checked that it reflects finished as-built construction. |
| Site Considerations: Is the finished ground level graded to ensure surface water is managed within the site and does not cause nuisance to other properties or to the finished structure? | Pass | PFd | 26/10/2022 01:14 pm | Finished ground level is graded to ensure surface water is managed within the site and does not cause nuisance to other properties or to the finished structure. |
| Site Considerations: Is the finished ground level graded to ensure surface water is managed within the site and does not cause nuisance to other properties or to the finished structure? | Pass | PFd | 26/10/2022 01:13 pm | Finished ground level is graded to ensure surface water is managed within the site and does not cause nuisance to other properties or to the finished structure. |
| E1: Surface Water: Is finished construction of the rain and stormwater system and cesspits compliant? [Check: Materials are compatible; Check gutter size, fall, support and provision for expansion and overflow; Check downpipe size, location, support and falls to drains and cesspits]. | Pass | PFd | 26/10/2022 01:13 pm | Finished construction of the rain and stormwater system and cesspits is compliant. Inspection considerations include checking materials are compatible; Gutters - size, fall, support, expansion; Outlets - provision for overflow; Downpipes - size, location, support; Falls to drains and cesspits. |
| B1: Wall Structures: Is finished construction of the structural walls complying and has all third party documentation been provided? | Pass | PFd | 26/10/2022 01:13 pm | Finished construction of the structural walls is complying and all third party documentation has been provided. |
| G12: Water Supply: Is the finished hot water and cold water system installation complying? [Check: Header tanks have lids; Seismic restraint; Provision for overflow; Identification of any non-potable supply; Earthing; Valve train configuration; Temperature control (45, 55, 65 degrees); Relief drain; Insulation; Wet back installation; Sealing of envelope penetrations; Accessibility - check taps have lever handles; Obtain potable certification if supply is not from NUO]. | Pass | PFd | 26/10/2022 01:12 pm | The finished hot water and cold water system installation is complying. Inspection included checking protection - lids on header tanks; seismic restraint; overflow; identification of non-potable supply; earthing; valve train configuration; temperature control (45, 55, 65 degrees); relief drain; insulation; wet back; sealing of envelope penetrations; potable certification. |
| | Pass | PFd | 26/10/2022 01:12 pm | The system is seismically restrained and correctly supported.<br><br>Three straps and blocks fitted.<br><br>Temp tested at the bathroom sink and it was at 52 degs |
| | Pass | PFd | 26/10/2022 01:11 pm | The finished hot water and cold water system installation is complying. Inspection included checking protection - lids on header tanks; seismic restraint; overflow; identification of non-potable supply; earthing; valve train configuration; temperature control (45, 55, 65 degrees); relief drain; insulation; wet back; sealing of envelope penetrations; potable certification. |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Inspections - AUDIT | Pass | User | Date | Notes |
|---|---|---|---|---|
| G12: Water Supply: Is the finished hot water and cold water system installation complying?<br>[Check: Header tanks have lids; Seismic restraint; Provision for overflow; Identification of any non-potable supply; Earthing; Valve train configuration; Temperature control (45, 55, 65 degrees); Relief drain; Insulation; Wet back installation; Sealing of envelope penetrations; Accessibility - check taps have lever handles; Obtain potable certification if supply is not from NUO]. | Pass | PFd | 26/10/2022 01:12 pm | The system is seismically restrained and correctly supported.<br><br>Three straps and blocks fitted.<br><br>Temp tested at the bathroom sink and it was at 52 degs |
| | Pass | PFd | 26/10/2022 01:12 pm | The system is seismically restrained and correctly supported.<br><br>Three straps and blocks fitted.<br><br>Temp tested at the bathroom sink and it was at 52 degs |
| B1: Columns, Posts, Beams: Does the finished construction of these elements comply? | Pass | PFd | 26/10/2022 01:11 pm | Finished construction is compliant. |
| G13: Foul Water: Is the foul water system installed in accordance with building consent?<br>Check: Vents; Seals on traps and wastes; Penetrations through fire separations and claddings; Gully trap / ORG installation; Documentation.] | Pass | PFd | 26/10/2022 01:11 pm | The foul water system installed in accordance with building consent |
| B2: DURABILITY: Has compliance with B2 provisions been satisfied?<br>[Check - that there are no obvious incompatibility issues and ensure there is access for maintenance purposes available to concealed or enclosed spaces (if required) and check finishes comply]. Guidance | Pass | PFd | 26/10/2022 01:11 pm | B2: Durability: compliance with B2 provisions have been satisfied. |
| B2: DURABILITY: Has compliance with B2 provisions been satisfied?<br>[Check - that there are no obvious incompatibility issues and ensure there is access for maintenance purposes available to concealed or enclosed spaces (if required) and check finishes comply]. Guidance | Pass | PFd | 26/10/2022 01:11 pm | B2: Durability: compliance with B2 provisions have been satisfied. |
| C/AS1: Part 2: Fire Safety System [Para 2.2]: Is the smoke alarm and location of detectors complying? | Pass | PFd | 26/10/2022 01:11 pm | SH - Fire Safety System: a complying Type 1 smoke alarm has been installed and detectors are located in accordance with consent documentation. |
| | Pass | PFd | 26/10/2022 01:11 pm | SH - Fire Safety System: a complying Type 1 smoke alarm has been installed and detectors are located in accordance with consent documentation.<br><br>All working at the time of inspection |
| C/AS1: Part 3: Means of Escape: Does the means of escape from this building comply with the building consent? | Pass | PFd | 26/10/2022 01:11 pm | Means of escape from this building complies with the building consent. |
| C/AS1: Part 7: Down Lights [Para 7.4]: Does down light installation comply with building consent?<br>[Check - fitting types and clearances]. | Pass | PFd | 26/10/2022 01:11 pm | Down light installation is compliant - fitting type and insulation clearance complies. |
| D1: Access Routes - Residential: Do the finished access routes comply?<br>[Check - Slip resistance; Stairs: complying width, tread sizes; Handrails: complying slope and height; Ramps: complying slopes, width, landing width, hand rail heights; Adequate lighting]. | Pass | PFd | 26/10/2022 01:11 pm | The access routes are complying; safe access is available to the building entrance. Inspection considerations included checking slope and cross falls; surfaces are slip resistant; treads and risers comply; hand rails, ramps and landings comply; and that the access route is free of obstructions with adequate lighting. |

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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Inspections - AUDIT | Pass | User | Date | Notes |
|---|---|---|---|---|
| E2: Wall Cladding Systems: Has the completed wall cladding system been installation in accordance with the building consent?<br>[Check: Separation between finished ground levels, decks etc. and base of cladding; External drainage from enclosed decks complies; Wall coat finishes comply; Flashing and parapet capping complies; Compatibility of materials]. | Pass | PFd | 26/10/2022 01:11 pm | The completed wall cladding system installation is in accordance with the building consent. |
| E2: Roof Cladding: Is the finished roof cladding installation in accordance with building consent? | Pass | PFd | 26/10/2022 01:11 pm | The finished roof cladding installation is in accordance with building consent. |
| E3: Internal Moisture: Does finished construction of interior service areas demonstrate compliance with the building consent?<br>[Check: Containment - floor coverings and finishes are impervious, properly joined and sealed and will mitigate effects of accidental overflow; Overflow - check that overflow provisions are satisfied; Thermal break is in place; Condensation - check condensation channels are working; Ventilation - check size and location of window sashes; Splash protection; Surfaces are sealed and impervious; Fittings - installation of fittings and fixtures are compliant; obtain warranties]. | Pass | PFd | 26/10/2022 01:11 pm | Finished construction of interior service areas is compliant. Inspection considerations include checking surface finishes are installed as specified (impervious, properly joined and sealed); checking ventilation and window condensation channels and drainage outlets comply; checking fittings and fixture installation is compliant. |
| | Fail | PFd | 26/10/2022 01:17 pm | Please rectify the following |
| | Fail | PFd | 26/10/2022 01:18 pm | Please rectify the following - Shower doors to be installed. Seals to be fitted to the bottom of the doors |
| | Pass | PFd | 29/11/2022 12:07 pm | Please rectify the following - Shower doors to be installed. Seals to be fitted to the bottom of the doors.<br><br>Now installed. |
| E3: Internal Moisture: Does finished construction of interior service areas demonstrate compliance with the building consent?<br>[Check: Containment - floor coverings and finishes are impervious, properly joined and sealed and will mitigate effects of accidental overflow; Overflow - check that overflow provisions are satisfied; Thermal break is in place; Condensation - check condensation channels are working; Ventilation - check size and location of window sashes; Splash protection; Surfaces are sealed and impervious; Fittings - installation of fittings and fixtures are compliant; obtain warranties]. | Pass | PFd | 26/10/2022 01:11 pm | Finished construction of interior service areas is compliant. Inspection considerations include checking surface finishes are installed as specified (impervious, properly joined and sealed); checking ventilation and window condensation channels and drainage outlets comply; checking fittings and fixture installation is compliant. |
| F2: Hazardous Building Materials: Are building materials that are potentially hazardous installed in accordance with building consent?<br>[Check - Glazing labelling is compliant; Safety glass is installed and located with complying manifestation; Hazardous materials installation is compliant]. | Pass | PFd | 26/10/2022 01:11 pm | Materials that are potentially hazardous are installed in accordance with building consent. Inspection considerations include checking Glazing labelling is compliant; Safety glass is installed and located with complying manifestation; Hazardous materials installation is compliant. |
| F4: Safety from Falling: Is barrier construction complying?<br>[Check - Barrier location; Materials - treatment, fixings; Rigidity; Climbable - height; Restrictors] | Pass | PFd | 26/10/2022 01:10 pm | Barrier construction is complying. Inspection considerations include checking Location; Materials, treatment, fixings; Rigidity; Climb-ability, height; Restrictors. |
| G1, G2, G3: Personal Hygiene, Laundering, Food Preparation: Is completed construction of the personal hygiene, laundering and food preparation areas compliant?<br><br>G1, G2, G3: Personal Hygiene, Laundering, Food Preparation - Prompt List: | **Pass** | **PFd** | **26/10/2022 01:10 pm** | |
| 1. Joinery, surfaces, appliances, fixtures: Is installation compliant?<br>[Check - Location and installation complies; check surfaces are splash resistant and sealed at junctions; check there is complying separation between appliances and vulnerable surfaces; check fixtures are correctly located, secure and operational]. | PASS | PFd | 26/10/2022 01:10 pm | Installation of joinery, surfaces, appliances and fixtures is compliant - inspection considerations include checking surfaces are splash resistant and sealed at junctions, checking there is complying separation between appliances and vulnerable surfaces and checking fixtures are correctly located, secure and operational. |
| 2. Privacy (Commercial only): Are line of sight & privacy provisions for personal hygiene facilities compliant? | N/A | PFd | 26/10/2022 01:10 pm | This question does not require consideration. |


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| MAIN BUILDING - R3 COMPLEXITY: DETACHED OR MULTI UNIT DWELLING - Inspections - AUDIT | Pass | User | Date | Notes |
|---|---|---|---|---|
| 3. Accessibility: Are accessibility provisions satisfied?<br>[Check - location and size of facilities comply, impervious and slip resistant floor coverings, lever taps, check shower, basin, urinal and pan setup, 1500 mm turning circle, check bench setup, check water temperature, signage, door sizes and hardware, light switch and plug locations]. | N/A | PFd | 26/10/2022 01:10 pm | Limit on applications apply. |
| 4. Miscellaneous: | N/A | PFd | 26/10/2022 01:10 pm | There are no miscellaneous matters that require consideration. |
| G1, G2, G3: Personal Hygiene, Laundering, Food Preparation: Is completed construction of the personal hygiene, laundering and food preparation areas compliant?<br><br>G1, G2, G3: Personal Hygiene, Laundering, Food Preparation - Prompt List: | **Pass** | **PFd** | **26/10/2022 01:10 pm** | |
| 1. Joinery, surfaces, appliances, fixtures: Is installation compliant?<br>[Check - Location and installation complies; check surfaces are splash resistant and sealed at junctions; check there is complying separation between appliances and vulnerable surfaces; check fixtures are correctly located, secure and operational]. | PASS | PFd | 26/10/2022 01:10 pm | Installation of joinery, surfaces, appliances and fixtures is compliant - inspection considerations include checking surfaces are splash resistant and sealed at junctions, checking there is complying separation between appliances and vulnerable surfaces and checking fixtures are correctly located, secure and operational. |
| 2. Privacy (Commercial only): Are line of sight & privacy provisions for personal hygiene facilities compliant? | N/A | PFd | 26/10/2022 01:10 pm | This question does not require consideration. |
| 3. Accessibility: Are accessibility provisions satisfied?<br>[Check - location and size of facilities comply, impervious and slip resistant floor coverings, lever taps, check shower, basin, urinal and pan setup, 1500 mm turning circle, check bench setup, check water temperature, signage, door sizes and hardware, light switch and plug locations]. | N/A | PFd | 26/10/2022 01:10 pm | Limit on applications apply. |
| 4. Miscellaneous: | N/A | PFd | 26/10/2022 01:10 pm | There are no miscellaneous matters that require consideration. |
| G4: Ventilation: Is the finished installation of the ventilation system(s) compliant?<br>[Windows: check flashing, weathertightness, safety glass, restrictors, manifestation and compliance labelling; Mechanical: check discharge, weathertightness and commissioning documentation]. | Fail | PFd | 26/10/2022 01:18 pm | Please remedy the following |
| | Fail | PFd | 26/10/2022 01:19 pm | Please remedy the following - Range hood not working at the time of inspection |
| | Pass | PFd | 29/11/2022 12:08 pm | Please remedy the following - Range hood not working at the time of inspection.<br><br>Now installed and working. |
| G7, G8, G9: Light and Electricity: Is compliance satisfied?<br>[G7: Natural Light - Check the size and location of windows and openings comply;<br>G8: Artificial Light - Check the type and placement of light switches and fittings comply;<br>G9: Electricity - Check that the energy works certificate identifies all electrical work (including specified systems); Accessibility - check light switches and plugs are accessible (does not apply to Housing, Outbuildings or Industrial buildings with less than 10 employees)]. | Pass | PFd | 26/10/2022 01:10 pm | Compliance with G7, G8 and G9 provisions is satisfied. Windows and openings are in accordance with plans. The type and location of light switches and fittings comply. An energy work certificate is provided that identifies all electrical work. |
| H1: Energy Efficiency: Is the finished installation of insulation and glazing compliant?<br>Check: Installation of Luminaires; Roof space insulation and flue protection and clearance; Protection of sub-floor insulation; Pipework insulation; Glazing]. | Pass | PFd | 26/10/2022 01:10 pm | Insulation around luminaires is correctly installed with appropriate clearances and roof space insulation is correctly installed. |

Decision To Issue CCC: Pete Fitzgerald at 29/11/2022 01:08 pm

CCC FINAL


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05 May 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 1
**Building Name:** Main Building

**Inspection Results:**
**SITING AND SITE SCRAPE INSPECTION** - 05 May 2022 @ 12:20 by Neill Molloy

**Inspection Outcome: PASS** - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**PREPOUR** - 05 May 2022 @ 12:20 by Neill Molloy

**Inspection Outcome: NOT APPLICABLE**

**WASTEPIPES** - 05 May 2022 @ 12:20 by Neill Molloy

**Inspection Outcome: NOT APPLICABLE**

**FLOOR SLAB** - 05 May 2022 @ 12:20 by Neill Molloy



CCC FINAL

**Inspection Outcome: FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
Engineers supporting documentation to be provided for SED slab construction and ground bearing.

**These may be viewed at time of next inspection.**

**Inspection Summary:** Construction is compliant and construction monitoring might have occurred. Inspection considerations included checking siting; that the slab is founded on solid bearing; checking hard fill, blinding, DPM and insulation is complying;  and details for service penetrations through the slab comply.
Cupolex SED slab construction to be checked by Engineer and supporting documentation to be provided.
250 micron polythene DPM in place over crusher dust blinding on hardfill. There is Evidence that the site has been scrapped and top soil removed. All waste pipes laid to G13 prior. Wastes that come up through slab have appropriate protection/separation from concrete with a second PVC sleeve. Polythene taped around base where pipes penetrate DPM.
Siting checked while onsite to boxing line. Dimensions of 1250mm parallel to RH side boundary and 3952mm off back RH boundary peg as per consented plans. FFL was 450mm above S/W lid shown as datum. All as per plans.
Ok to pour on confirmation from Engineer.

Your next inspection will be: **All inspections have been placed on hold**
Reason and Required Action: **Engineers supporting documentation to be provided for SED slab construction and ground bearing.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate
- B1: Ground bearing certificate

**Prepour**

- B1: Foundations - Construction monitoring records

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **FAIL** - 05 May 2022 |
| | **All inspections have been placed on hold** |
| Framing / Pre-wrap | - |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | - |
| Pre-plaster | - |
| Preline | - |
| Post Line | - |
| Internal Membrane | - |

| | |
|---|---|
| Drainage | - |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely

Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

11 May 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 2
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Floor Slab on 05 May 2022 by Neill Molloy
**Required Docs**: Engineers supporting documentation to be provided for SED slab construction and ground bearing.

**Inspection Results:**
**DRAINAGE** - 11 May 2022 @ 10:53 by Neill Molloy

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
Drain layers Rego Number and As built Drainage plans are to be provided

**These may be viewed at time of next inspection.**

**Inspection Summary:**
Sewer:

Pipe materials, sizes and drain grade is compliant, DN 100 UPVC drains installed in lazer  grade trenches, Laser graded trenches with 1:100 fall to onsite Sewer pump, as required for subdivision.
Drains pick up 2x Toilet connections, 1x Stack and 3x 4 way riser Gully Traps installed, all lower than 150mm below lowest fixture, this is to be reviewed once landscaping is completed and ORG are lowered. however complaint at this time. Inspection point locations comply. which are clearly indicated within the as built drainage plan  that is to be provided
1x TV's provided at head of main drain and branch drain to have vent off top of Stack.
Stormwater:
Pipe materials, pipe size, length and gradient is compliant.
100DN UPVC drains installed with a 1:100 fall to drains to site  laterals, 2x Type 1 sumps complete in driveway and site and 5x downpipe risers in locations shown on plans.

Your next inspection will be: **Framing / Pre-wrap**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate
- B1: Ground bearing certificate

**Prepour**

- B1: Foundations - Construction monitoring records

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring

- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **FAIL** - 05 May 2022<br>**View at next inspection** |
| Framing / Pre-wrap | - |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | - |
| Pre-plaster | - |
| Preline | - |
| Post Line | - |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**View at next inspection** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely

Neill Molloy

Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

03 June 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 3
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Floor Slab on 05 May 2022 by Neill Molloy
**Required Docs**: Engineers supporting documentation to be provided for SED slab construction and ground bearing.

**Inspection Results:**
**FRAMING / PRE-WRAP - GROUND FLOOR** - 03 Jun 2022 @ 15:41 by Craig Jaquiery

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**These may be viewed at time of next inspection.**

**Inspection Summary:** Ground floor inspection only where not inspected by Tasman consulting Engineers as per PS1. Wall framing, Truss, lintels installed as per the on site Mitek as built plan. 140x45 SG8 H1.2 and 90x45 SG8 H1.2 studs at 600mm centers fixed with M12 true bolts at 900mm centers on external bottom plates. And  M12 true bolts at 900mm centers on internal bottom plates with powered nails on internal bottom plates at 600mm centers. top plate connections to lintels, studs to top plate and lintel connections, stud lock screws installed. DPC installed under bottom plate. Mid floor 300mm HY Joists installed as per the stamped plan. Approved to roof and wrap under Engineers instructions. Failed item to remedy: Engineers site notes to be up loaded to Alpha One.

Your next inspection will be: **All inspections have been placed on hold**
Reason and Required Action: **Engineers site notes to be up loaded to Alpha One to remove inspection block**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate
- B1: Ground bearing certificate

**Prepour**

- B1: Foundations - Construction monitoring records

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

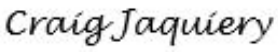
- G9: Energy works certificate

**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **FAIL** - 05 May 2022<br>**All inspections have been placed on hold** |
| Framing / Pre-wrap | **IN-PROGRESS** - 03 Jun 2022<br>**All inspections have been placed on hold** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | - |
| Pre-plaster | - |
| Preline | - |
| Post Line | - |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**All inspections have been placed on hold** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely



Craig Jaquiery
Building Technical Officer (Inspections)
On behalf of **Tasman District Council**

23 June 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 4
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Inspection Results:**
**FLOOR SLAB** - 23 Jun 2022 @ 13:55 by Neill Molloy

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**FRAMING / PRE-WRAP - FIRST FLOOR** - 23 Jun 2022 @ 13:55 by Neill Molloy

**Inspection Outcome: PASS** - The BCA is satisfied, on reasonable grounds, that the aspects of building

work pertaining to this inspection demonstrate compliance with the building consent.

**Inspection Summary:** Inspection for 1st floor structure. Engineers supporting docs to be provided for all SED structural components, as previously noted.
Approved to roof and wrap.

Your next inspection will be: **Post Wrap / Cavity**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**
**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

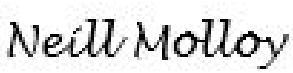
- G9: Energy works certificate

**History**

| Inspection Name | Summary |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 03 Jun 2022<br>**View at next inspection** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | - |
| Pre-plaster | - |
| Preline | - |
| Post Line | - |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**Reinspection required** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely



Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

21 July 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 5
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Inspection Results:**
**POST WRAP / CAVITY** - 21 Jul 2022 @ 09:23 by Neill Molloy

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**E2: Wall Cladding Systems**:
Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.
Detail previously provided for Dwelling next door that is the same design.

**These may be viewed at time of next inspection.**

**Inspection Summary:** Tekton Building wrap fixed tight to framing. The majority of cladding is Rockcote. All associated cavity battens and flashings as part of the Rockcote system have been installed in accordance with the manufacturers specifications. All penetrations have been taped round and Aluminum head flashings installed above windows with plastic end caps. Danband installed over wrap to keep batts from pushing out. JH Linea Weatherboard clad areas have vertical H3.1 pine battens installed on stud ctrs. Aluminum Head flashings installed with turn ups at ends and PVC cavity closers installed at bottom of cavity as well as above head flashings. All head flashings taped back to wrap. DYNAflash foldable flashing used as back flashing to all change in cladding junctions. Inter-storey Z flashing constructed in accordance with previously accepted detail provided as a Minor variation for dwelling next door.
Approved to Clad.

Your next inspection will be: **Pre-plaster**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 03 Jun 2022<br>**View at next inspection** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | **FAIL** - 21 Jul 2022<br>**View at next inspection** |
| Pre-plaster | - |
| Preline | - |
| Post Line | - |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**View at next inspection** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely

Neill Molloy

Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

26 July 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 6
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Post Wrap / Cavity on 21 Jul 2022 by Neill Molloy
**E2: Wall Cladding Systems**: Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.
Detail previously provided for Dwelling next door that is the same design.

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Note:** No inspections have been recorded since last inspection report was generated.

**Inspection Summary:** Minor variation received via email-loaded into documents- fee applies

Your next inspection will be: **Preline**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**
**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

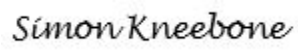
- G9: Energy works certificate

**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 03 Jun 2022<br>**View at next inspection** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | **FAIL** - 21 Jul 2022<br>**View at next inspection** |
| Pre-plaster | - |
| Preline | - |
| Post Line | - |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**View at next inspection** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely



Simon Kneebone
Building Technical Officer
On behalf of **Tasman District Council**

01 August 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 7
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Post Wrap / Cavity on 21 Jul 2022 by Neill Molloy
**E2: Wall Cladding Systems**: Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.
Detail previously provided for Dwelling next door that is the same design.

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Inspection Results:**

**PRELINE** - 01 Aug 2022 @ 10:04 by Neill Molloy

**Inspection Outcome: FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
Plumbers pressure test certificate to be provided including plumbers registration number

**B1: Walls, Wall bracing, Posts, Beams**:
Engineers supporting Documentation to be provided for Preline bracing.

**These may be viewed at time of next inspection.**

**Inspection Summary:** Service installation complete and there is no indication that these will clash with bracing requirements. The water supply installation complies. Inspected up to the Cylinder. Cylinder installation and valving to be inspected at Final inspection. The internal foul water system is correctly installed with good falls to pipes within walls , AAV are to be installed once the fixtures  are completed and can be reviewed during the final site inspection. Stud savers provided where over size penetrations have been cut in framing. Wall bracing covered by Engineer and supporting documentation requested. Moisture content of framing checked and is below 18% on moisture meter. Rondo ceiling battens at 600ctrs installed in accordance with Manufacturers installation specifications. The preline installation of the ventilation system complies. Ducting for ventilation systems installed within the roof space. Fans etc will be reviewed during the final site inspection. The installation of the glazing, wall and ceiling insulation is compliant. Pink Batts insulation neatly installed to framing members forming the thermal envelope with a min 25mm air gap between insulation and roofing underlay, Open truss roof spaces allow for good air flow. All plumbing pipework is inside thermal envelope with exception of the garage where the pipework has been appropriately lagged.
Approved to line. Plumbers pressure test to be provided.

Your next inspection will be: **Post Line**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

**History**

| Inspection Name | Summary |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 03 Jun 2022<br>**View at next inspection** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | **FAIL** - 21 Jul 2022<br>**View at next inspection** |

| | |
|---|---|
| Pre-plaster | - |
| Preline | **FAIL** - 01 Aug 2022<br>**View at next inspection** |
| Post Line | - |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**View at next inspection** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely

Neill Molloy

Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

11 August 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 8
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Post Wrap / Cavity on 21 Jul 2022 by Neill Molloy
**E2: Wall Cladding Systems**: Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.
Detail previously provided for Dwelling next door that is the same design.

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Inspection:** Preline on 01 Aug 2022 by Neill Molloy

**Required Docs**: Plumbers pressure test certificate to be provided including plumbers registration number

**Inspection:** Preline on 01 Aug 2022 by Neill Molloy
**B1: Walls, Wall bracing, Posts, Beams**: Engineers supporting Documentation to be provided for Preline bracing.

**Inspection Results:**
**POST LINE** - 11 Aug 2022 @ 08:37 by Neill Molloy

**Inspection Outcome: PASS** - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**Inspection Summary:** Wall bracing: the fixing of the bracing elements is compliant. Inspection includes checking penetration sizes and locations, fixings and fixing patterns.
Gib bracing fixed in accordance with the manufacturers installation specifications, with 32mm Gib grabber screws. Brace unit length and type are as per the Consented brace plan. At the time of inspection there were no cut outs bigger than 90x90mm in brace walls or closer than 90mm to the edge of the sheets.
2x Tiled showers. 10mm Gib Aqualine fixed in accordance with Manufacturers installation specifications.

Your next inspection will be: **Internal Membrane**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**
**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

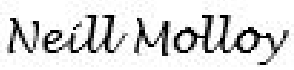
- G9: Energy works certificate

**History**

| Inspection Name | Summary |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 03 Jun 2022<br>**View at next inspection** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | **FAIL** - 21 Jul 2022<br>**View at next inspection** |
| Pre-plaster | - |
| Preline | **FAIL** - 01 Aug 2022<br>**Reinspection required** |
| Post Line | **PASS** - 11 Aug 2022 |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022<br>**View at next inspection** |
| Final | - |

Please plan your project ahead of time and allow a minimum of 2 working days' notice when booking all inspections.

Yours sincerely



Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

23 August 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 9
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Post Wrap / Cavity on 21 Jul 2022 by Neill Molloy
**E2: Wall Cladding Systems**: Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.
Detail previously provided for Dwelling next door that is the same design.

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Inspection:** Preline on 01 Aug 2022 by Neill Molloy

**B1: Walls, Wall bracing, Posts, Beams**: Engineers supporting Documentation to be provided for Preline bracing.

**Inspection Results:**
**PRE-PLASTER** - 23 Aug 2022 @ 10:50 by Neill Molloy

**Inspection Outcome: FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
Photo required to be provided of Blocking in place for Terminal vent on RH side of building. Blocking in place above the gully trap needs to be shifted over, or additional blocking provided, to where the Vent riser is located.

**These may be viewed at time of next inspection.**

**PRELINE** - 23 Aug 2022 @ 10:50 by Neill Molloy

**These may be viewed at time of next inspection.**

**Inspection Summary:** Approved to plaster once blocking in place for Terminal vent.

Your next inspection will be: **Preline**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal Waterproofing Membrane Installer PS3 certificate

**Final**

- G9: Energy works certificate

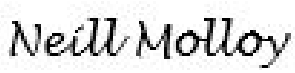
**History**

| Inspection Name | Summary |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 03 Jun 2022<br>**View at next inspection** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | **FAIL** - 21 Jul 2022<br>**View at next inspection** |
| Pre-plaster | **FAIL** - 23 Aug 2022<br>**View at next inspection** |
| Preline | **FAIL** - 01 Aug 2022 |

| | |
|---|---|
| | **View at next inspection** |
| Post Line | **PASS** - 11 Aug 2022 |
| Internal Membrane | - |
| Drainage | **FAIL** - 11 May 2022 |
| | **View at next inspection** |
| Final | - |

Please allow a minimum of 2 working days notice when booking an inspection.

Yours sincerely



Neill Molloy
Building Technical Officer - Contractor
On behalf of **Tasman District Council**

30 September 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 10
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Drainage on 11 May 2022 by Neill Molloy
**Required Docs**: Drain layers Rego Number and As built Drainage plans are to be provided

**Inspection:** Framing / Pre-wrap on 03 Jun 2022 by Craig Jaquiery
**Required Docs - Ground floor**: Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1. Engineers site notes to be up loaded to Alpha One

**Inspection:** Pre-plaster on 23 Aug 2022 by Neill Molloy
**Required Docs**: Photo required to be provided of Blocking in place for Terminal vent on RH side of building. Blocking in place above the gully trap needs to be shifted over, or additional blocking provided, to where the Vent riser is located.

**Inspection:** Preline on 01 Aug 2022 by Neill Molloy
**B1: Walls, Wall bracing, Posts, Beams**: Engineers supporting Documentation to be provided for Preline bracing.

**Inspection Results:**
**FRAMING / PRE-WRAP - GROUND FLOOR** - 30 Sep 2022 @ 16:38 by Julian Malcolm

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
Tasman consulting engineers inspecting beams, load bearing walls and bracing as per the PS1 Engineers site notes to come

JM: 30/9/2022
This document is still outstanding.

**These may be viewed at time of next inspection.**

**POST WRAP / CAVITY** - 30 Sep 2022 @ 16:38 by Julian Malcolm

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**E2: Wall Cladding Systems**:
Minor Variation required to be provided with additional detailing of inter-storey Z flashing in alcove behind garage.
Detail previously provided for Dwelling next door that is the same design.

Tekton Building wrap fixed tight to framing. The majority of cladding is Rockcote. All associated cavity battens and flashings as part of the Rockcote system have been installed in accordance with the manufacturers specifications. All penetrations have been taped round and Aluminum head flashings installed above windows with plastic end caps.
JH Linea Weatherboard clad areas have vertical H3.1 pine battens installed on stud ctrs. Aluminum Head flashings installed with turn ups at ends and PVC cavity closers installed at bottom of cavity as well as above head flashings. All head flashings taped back to wrap. DYNAflash foldable flashing used as back flashing to all change in cladding junctions. Inter-storey Z flashing constructed in accordance with previously accepted detail provided as a Minor variation for dwelling next door.
Approved to Clad.

JM: 30/9/2022

This document is still outstanding.

**These may be viewed at time of next inspection.**

**PRELINE** - 30 Sep 2022 @ 16:38 by Julian Malcolm

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**B1: Walls, Wall bracing, Posts, Beams**:
Engineers supporting Documentation to be provided for Preline bracing.

JM: 30/9/2022
This document is still outstanding.

**These may be viewed at time of next inspection.**

**INTERNAL MEMBRANE** - 30 Sep 2022 @ 16:38 by Julian Malcolm

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
1./ PS3 to be provided.
Mark Shuttelworth
0220444449

**These may be viewed at time of next inspection.**

**Formal Directive:** Given to tiler on site.  1./ Complete WPM on site. Lower bathroom requires WPM to water stop. 2./ Install water stop at door and seal.

**Inspection Summary:** Inspection was Wet Membrane for new Dwelling. . . 2 x wet area tiled showers, ARDEX WPM 155 Rapid has been installed, Consented plans show amendment to plans with now upstairs bathroom tiled shower also. This has been competed. Both shower full height up to coving, full floor and up skirt 60mm within bathrooms and also toilet has been WPM. Water stops allowed for. PS3 requested as I was not on site at time of installation I am relying on PS3 to show compliance.....APPROVED.....to continue.

Your next inspection will be: **All inspections have been placed on hold**

Reason and Required Action: **Provide PS4 to cover Structual inspection from a CPENG Engineer.**

**Outstanding Required Documents for this Building**

**Main Building**

**Siting and Site Scrape Inspection**

- Survey certificate / Building location certificate

**Wastepipes**

- G12: Pipework pressure test documentation
- G13: Underslab plumbing as-built & plumbers details

**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Drainage**

- E1: Stormwater drain leakage test and as-built plans
- G13: As-builts, drainlayer details, pipework test

**Final**

- G4: Mechanical vent - Commissioning & construction monitoring
- G9: Energy works certificate

**Amendment 1**

**Wastepipes**

- G12: Pipework pressure test documentation

**Floor Slab**

- B1: Slab - Construction monitoring records

**Internal Membrane**

- E3: Internal waterproofing membrane product & installer warranties

**Final**

- G9: Energy works certificate

**History**

| Inspection Name | Summary |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **FAIL** - 30 Sep 2022<br>**All inspections have been placed on hold** |
| Concrete / Tilt panel / Steel frame | - |
| Post Wrap / Cavity | **PASS** - 30 Sep 2022 |
| Pre-plaster | **FAIL** - 23 Aug 2022<br>**All inspections have been placed on hold** |
| Preline | **FAIL** - 30 Sep 2022<br>**All inspections have been placed on hold** |
| Post Line | **PASS** - 11 Aug 2022 |
| Internal Membrane | **FAIL** - 30 Sep 2022<br>**All inspections have been placed on hold** |
| Drainage | **FAIL** - 11 May 2022<br>**All inspections have been placed on hold** |
| Final | - |

Please allow a minimum of 2 working days notice when booking an inspection.

Yours sincerely

Julian Malcolm

Julian Malcolm
Building Technical Officer
On behalf of **Tasman District Council**

26 October 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 11
**Building Name:** Main Building
**Unresolved Matters:**
The following issues are noted as still to be resolved:

**Inspection:** Pre-plaster on 23 Aug 2022 by Neill Molloy
**Required Docs**: Photo required to be provided of Blocking in place for Terminal vent on RH side of building. Blocking in place above the gully trap needs to be shifted over, or additional blocking provided, to where the Vent riser is located.

**Inspection Results:**
**FRAMING / PRE-WRAP - GROUND FLOOR** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**CONCRETE / TILT PANEL / STEEL FRAME** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** NOT APPLICABLE

**POST WRAP / CAVITY** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**PRELINE** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**INTERNAL MEMBRANE** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**DRAINAGE** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**FINAL** - 26 Oct 2022 @ 13:21 by Pete Fitzgerald

**Inspection Outcome:** **FAIL**The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

**Required Docs**:
ROW/PS3 for the plaster work required.

**E3: Internal Moisture**:
Please rectify the following - Shower doors to be installed. Seals to be fitted to the bottom of the doors

**G4: Ventilation**:
Please remedy the following - Range hood not working at the time of inspection

**These may be viewed at time of next inspection.**

**Formal Directive:** 1) Please install vermin proofing to pipe penetrations.
2) Trim building wrap.

**Inspection Summary:** See failed items listed. re inspection required, fees apply

Your next inspection will be: **Final**
**Please allow 2 working days notice when booking all Building Inspections.**
**Outstanding Required Documents for this Building**
**Main Building**
**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Amendment 1**
**Internal Membrane**

- E3: Internal waterproofing membrane product & installer warranties

**History**

| Inspection Name | Summary |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **PASS** - 26 Oct 2022 |
| Concrete / Tilt panel / Steel frame | **NOT APPLICABLE** - 26 Oct 2022 |
| Post Wrap / Cavity | **PASS** - 26 Oct 2022 |
| Pre-plaster | **FAIL** - 23 Aug 2022<br>**View at next inspection** |
| Preline | **PASS** - 26 Oct 2022 |
| Post Line | **PASS** - 11 Aug 2022 |
| Internal Membrane | **PASS** - 26 Oct 2022 |
| Drainage | **PASS** - 26 Oct 2022 |
| Final | **IN-PROGRESS** - 26 Oct 2022<br>**View at next inspection** |

Please allow a minimum of 2 working days notice when booking an inspection.

Yours sincerely

Pete Fitzgerald

Pete Fitzgerald
Senior Building Technical Officer
On behalf of **Tasman District Council**

29 November 2022

David and Susan Ford
17 Petra Way
Upper Moutere 7173

Dear David and Susan Ford

**Site Inspection Report**

**Reference:** BC220131
**Location:** 18 Kahikatea Way, Richmond, LOT 366 DP 561194
**Project:** Construct new dwelling with internal access garaging

Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised

**IR Number:** 12
**Building Name:** Main Building

**Inspection Results:**
**PRE-PLASTER** - 29 Nov 2022 @ 13:02 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**FINAL** - 29 Nov 2022 @ 13:02 by Pete Fitzgerald

**Inspection Outcome:** PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

**Inspection Summary:** Failed item have now been addressed. CCC can now be issued.

Your next inspection will be: **No further inspection required**
**Outstanding Required Documents for this Building**
**Main Building**
**Floor Slab**

- B1: Slab - Construction monitoring records

**Concrete / Tilt panel / Steel frame**

- B1: Mid-floor slab - Construction monitoring records

**Amendment 1**

**Internal Membrane**

- E3: Internal waterproofing membrane product & installer warranties

**History**

| **Inspection Name** | **Summary** |
|---|---|
| Siting and Site Scrape Inspection | **PASS** - 05 May 2022 |
| Prepour | **NOT APPLICABLE** - 05 May 2022 |
| Wastepipes | **NOT APPLICABLE** - 05 May 2022 |
| Floor Slab | **PASS** - 23 Jun 2022 |
| Framing / Pre-wrap | **PASS** - 26 Oct 2022 |
| Concrete / Tilt panel / Steel frame | **NOT APPLICABLE** - 26 Oct 2022 |
| Post Wrap / Cavity | **PASS** - 26 Oct 2022 |
| Pre-plaster | **PASS** - 29 Nov 2022 |
| Preline | **PASS** - 26 Oct 2022 |
| Post Line | **PASS** - 11 Aug 2022 |
| Internal Membrane | **PASS** - 26 Oct 2022 |
| Drainage | **PASS** - 26 Oct 2022 |
| Final | **PASS** - 29 Nov 2022 |

Please allow a minimum of 2 working days notice when booking an inspection.

Yours sincerely

Pete Fitzgerald

Pete Fitzgerald
Senior Building Technical Officer
On behalf of **Tasman District Council**

Notes: WIN_20221129_11_38_48_Pro.jpg

Notes: WIN_20221129_11_38_21_Pro.jpg

Notes: WIN_20221129_11_38_04_Pro.jpg

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# Inspection Photos Record on Project 220131

**Building:** Main Building
**Inspection:** Internal Membrane
**Question:** Have all construction monitoring records and required documents that are required as at this point of the construction process been provided? [These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warrantie...
**Inspector:** Julian Malcolm
**Timestamp:** 2022-09-30 16:38:43
**Comment:** Internal Membrane - Default #1 30/09/22

**Building:** Main Building
**Inspection:** Internal Membrane
**Question:** Have all construction monitoring records and required documents that are required as at this point of the construction process been provided? [These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warrantie...
**Inspector:** Julian Malcolm
**Timestamp:** 2022-09-30 16:38:43
**Comment:** Internal Membrane - Default #2 30/09/22

**Building:** Main Building
**Inspection:** Internal Membrane
**Question:** Have all construction monitoring records and required documents that are required as at this point of the construction process been provided? [These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warrantie...
**Inspector:** Julian Malcolm
**Timestamp:** 2022-09-30 16:38:43
**Comment:** Internal Membrane - Default #3 30/09/22

# Inspection Photos Record on Project 220131

**Building:** Main Building
**Inspection:** Internal Membrane
**Question:** Have all construction monitoring records and required documents that are required as at this point of the construction process been provided? [These may include: Location certificate; Ground bearing verification; Pipework pressure tests; As-built drawings; Warrantie...
**Inspector:** Julian Malcolm
**Timestamp:** 2022-09-30 16:38:43
**Comment:** Internal Membrane - Default #4 30/09/22

CONSULTING ENGINEERS

# PS4 Documentation

## 18 Kahikatea Way, Richmond

## G J Gardner Homes

Document Number: 220237-PS4-001-A

Date: 31 May 2022

| Prepared by | Reviewed by | Approved by |
|---|---|---|
| Amelia Law | | |
| Amelia Law | Audrey Farreyre | Rebecca Curd |
| Project Administrator | Senior Structural Engineer<br>MSc, CMEngNZ, CPEng | General Manager of Operations |

**Consulting Civil, Structural, Environmental & Geotechnical Engineers**
**Directors:** V.J. Anderson BE C&M • R.A. Puklowski NZCE (Civil) REA MEngNZ • C.F. Short BBS PG Dip Man • A.R. Wilton BE CMEngNZ CPEng IntPE DipMS

**Cameron Gibson & Wells Limited**
**Nelson Office** Level 4, 241 Hardy Street, PO Box 711, Nelson • Tel: +64 3 548 8259
**Christchurch Office** Level 2, 124 Peterborough Street, PO Box 21441, Edgeware, Christchurch • Tel: +64 3 348 1000
**Wanaka Office** 4 Helwick St, PO Box 169, Wanaka • Tel: +64 3 548 8259
**office@cgwl.co.nz • www.cgwl.co.nz**

## Contents

1. Producer Statement – PS4 – Construction Review ..... 3
2. Inspection Schedule ..... 4
3. Supporting Documents ..... 5

# 1. Producer Statement – PS4 – Construction Review

**BUILDING CODE CLAUSE(S):** B1 **JOB NUMBER:** 220237

**ISSUED BY:** CGW Consulting Engineers
(Construction Monitoring Firm)

**TO:** G J Gardner Homes
(Owner/ Developer)

**TO BE SUPPLIED TO:** Tasman District Council
(Building Consent Authority)

**IN RESPECT OF:** Cupolex Foundation
(Description of Building Work)

**AT:** 18 Kahikatea Way, Richmond, New Zealand
(Address, Town/City)

**LEGAL DESCRIPTION:** Lot 366 DP 561194 **N/A:** ☐

We have been engaged by the owner/developer referred to above to provide **CM 2 level of construction monitoring relating to** the Clause(s) named above of the Building Code for the building work which is covered by PS1(s) issued by CGW Consulting Engineers ( engineering design firm) and which is described in the documents relating to the Building consents No. 220131 and those relating to Building Consents Amendments(s) No 220131.A1 issued during the course of works, .

We have sighted these Building Consents and the conditions of attached to them.
*If any fields above are too small, please write "refer the schedule"*

Authorised instructions/variations(s) detailed/ listed in the Schedule have been issued during the course of the works.

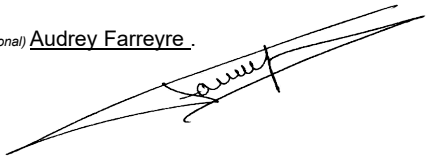
On the basis of these review(s) and information supplied by the contractor during the course of the works and **on behalf of the engineering firm** undertaking this Construction Monitoring, **I believe on reasonable grounds** that building works covered by the above-mentioned PS1(s) have been completed in accordance with the relevant requirements of the Building Consent and Building Consent Amendments identified above, or in the schedule below with respect to Clause(s) B1 of the Building Code. I also believe on reasonable grounds that the persons who have undertaken this construction review have the necessary competency to do so.

I, *(Name of Construction Review Professional)* Audrey Farreyre am:

- CPEng 1009889
- I hold the following qualifications: MSc, CMEngNZ, CPEng

The Construction Review Firm holds a current policy of Professional Indemnity Insurance no less than $200,000.
The Construction Review Firm is a member of ACE New Zealand.

**SIGNED BY** *(Name of Construction Monitoring Professional)* Audrey Farreyre .
(Signature Below):



**ON BEHALF OF** CGW Consulting Engineers Date: 31 May 2022

*Note: This statement has been prepared solely for the Building Consent Authority named above and shall not be relied on by any other person's or entity. Any liability in relation to this statement accrues to the Construction Monitoring Firm only. As a condition of relance on this statement, the Building Consent Authority accepts that the total maximum amount of liability of any kind arising from this statements provided to the Building Consent Authority in relation to this building work, whether in tort or otherwise, is limited to the sum of $200,000.00.*

This form is to accompany **Forms 6 or 8 of the Building (Form) Regulations 2004** for the issue of a Code Compliance Certificate.

**THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACE NEW ZEALAND AND ENGINEERING NEW ZEALAND**

PRODUCER STATEMENT PS4 November 2021 (PDF)

## 2. Inspection Schedule

**Job Number:** **220237**

**Date:** **31/05/22**

**Job Description:** **Cupolex Foundation**

**Job Location:** **18 Kahikatea Way, Richmond, New Zealand**

**Client:** **G J Gardner Homes**

---

- CGW Consulting Engineers have been engaged by the client to carry out the site inspections listed in the attached schedule of inspections.
- The below inspections were carried out by CGW over the course of the construction works.
- Relevant information from other professionals has also been reviewed and listed below.

| Inspections | | | |
|---|---|---|---|
| **No** | **Description** | **Date Inspected** | **Carried Out By** |
| 1 | Subgrade inspection once all topsoil and organic material has been removed from the excavation. | 08/04/22 | Taran P |
| 2 | Inspection of fill, or NDT/Clegg testing if fill is required. | 11/04/22 | Taran P |
| 3 | Pre-pour inspection. | 05/05/22 | Taran P |

## 3. Supporting Documents

See the below Site inspection records

CGW CONSULTING ENGINEERS

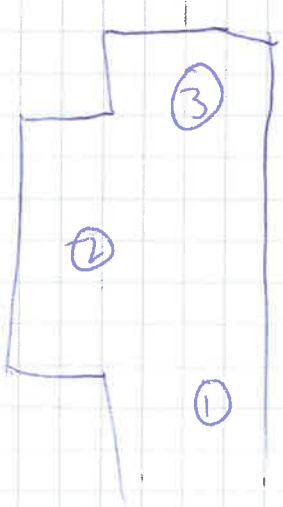
# Site Notes

| | | |
|---|---|---|
| Location: 18 Rahikaka | | Job No: 220237 |
| Date: 8/4/22 | Time on site: 11.00 | Time off site: |
| CGW Attendees: TP | | Weather Conditions: Fine |
| Purpose of attendance: Subgrade | | BC Number: |
| Site Controller/Contact: | | Site Attendance H&S Form completed ☑ |

Site Notes / Tests Carried Out

## Subgrade

200 - 300 mm top soil removed from site.
Site is very gravelly.
3 scalas done on site
plan below
Scala sheet attached
no soft or wet spots
no bdem required.
Small pile of topsoil to be removed.




| | |
|---|---|
| Instructions Issued: | To Whom: |
| Instructions Received: | By Whom: |

Are there additional site notes on the next page? Yes ☐ / No ☑

Signed: TP

SUMITOMO
SH80
base

SUMITOMO

CGW
Consulting Engineers

Nelson ph. 548-8259
Christchurch ph. 348-1000
Email office@cgwl.co.nz

Site:
Location: 18 Kahikatea

Date: 8/4/22
Job No: 220237
Operated By:
Logged By: TP
Checked By:

| Test no: | No. of blows | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| mm driven | 1 | 2 | 3 | | | | | |
| 100 | 20+ | 20+ | 20+ | | | | | |
| 200 | | | | | | | | |
| 300 | | | | | | | | |
| 400 | | | | | | | | |
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| 3700 | | | | | | | | |
| 3800 | | | | | | | | |
| 3900 | | | | | | | | |
| 4000 | | | | | | | | |

Test Method Used: NZS 4402:1988 Test 6.5.2 Dynamic Cone Penetrometer

CGW CONSULTING ENGINEERS

# Site Notes

| | | |
|---|---|---|
| Location: LS Hahitenua | | Job No: |
| Date: | Time on site: | Time off site: |
| CGW Attendees: | | Weather Conditions: |
| Purpose of attendance: | | BC Number: |
| Site Controller/Contact: | | Site Attendance H&S Form completed ☐ |

Site Notes / Tests Carried Out

Hardfill

: 200mm AP>5 placed down
: rolled 4-6 times with small roller
: no soft or wet spots
: tested 11 spots on pad
: clegg sheet attached.

Pass

| | |
|---|---|
| Instructions Issued: | To Whom: |
| All ok | |
| Instructions Received: | By Whom: |
| | |

Are there additional site notes on the next page? Yes ☐ / No ☑

Signed: TAP

| | |
|---|---|
| **JOB NO. :** | 22023 |
| **SITE:** | 18 Rahi Rata |
| **DATE:** | 11/4/22 |
| **WEATHER:** | fine |
| **ENGINEER:** | TP |

# CLEGG IMPACT TEST

**Health & Safety:** **Take 5.**

1. Check you have the required PPE
2. Have you signed in at the site office.
3. Check the hazard ID board.
4. Look for moving machinery
5. Identify any hazards before proceeding onto the site.

CGW Consulting Engineers

Civil Structural
Environmental Geotechnical

Nelson PH: 548 - 8259
Christchurch PH: 348 - 1000

**CLEGG TEST RESULTS**

| Clegg Test No. | Drop 1. | Drop 2. | Drop 3. | Drop 4. | CIV Value |
|---|---|---|---|---|---|
| 1 | 20 | 19 | 21 | 21 | |
| 2 | 11 | 20 | 19 | 20 | |
| 3 | 8 | 18 | 20 | 21 | |
| 4 | 17 | 25 | 26 | 28 | |
| 5 | 10 | 17 | 19 | 21 | |
| 6 | 6 | 14 | 17 | 21 | |
| 7 | 8 | 14 | 18 | 20 | |
| 8 | 7 | 18 | 20 | 20 | |
| 9 | 10 | 10 | 13 | 21 | |
| 10 | 10 | 18 | 19 | 21 | |
| 11 | 8 | 12 | 17 | 21 | |
| 12 | 12 | 21 | 22 | 25 | |
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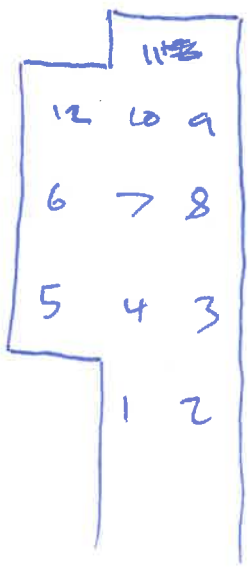
| | | | | | |

**Site Notes:**

**Site Plan:**



CGW CONSULTING ENGINEERS

# Site Notes

| | | | |
|---|---|---|---|
| Location: 18 Koh. Katea | | | Job No: 22037 |
| Date: 5/5/22 | Time on site: 1:00 | | Time off site: 1:30 |
| CGW Attendees: TP | | | Weather Conditions: fine |
| Purpose of attendance: Pre pour Inspection | | | BC Number: 220131 |
| Site Controller/Contact: Concrete Company | | | Site Attendance H&S Form completed ☑ |

Site Notes / Tests Carried Out

Attended site to check pre pour
: checked as per plan.
: All is oh.
: found x2 rebar hitting edge of timber.
They trimmed while I was on site

| | |
|---|---|
| Instructions Issued: | To Whom: |
| All ok<br>Instructions Received: | By Whom: |

Are there additional site notes on the next page? Yes ☐ / No ☑

Signed: TP

# Onsite application for minor variations to approved plans

tasman district council | Te Kaunihera o te tai o Aorere

Minor variation requests should be made to the inspector on site. It is the owners (or their authorised agents) responsibility to notify Council of any proposed changes to the approved plans; this variation must be agreed, **and** be approved by the Building Inspector on site. All changes must be approved before the work proceeds.

An inspector may approve a minor variation using this form when further documentation is required. The remaining documentation (if any) must be signed and dated by the inspector prior to the applicant uploading into the system.

It is the Applicants responsibility to include all stamped/approved required documents, with this form and upload to the Required Documents area of the AlphaOne portal. Until all the information has been received, the inspection will record a 'fail'. This ensures the Minor Variation has been properly captured.

**Note**: *Minor variations that do not require additional information, can simply be approved with a change made on the approved/stamped plan, then signed and dated by the inspector onsite.*

*However, this form must be used for variations that are more detailed and require further documentation e.g. a COW; ROW; engineer or architects' detail, owners authorisation etc. Building Inspector will advise what further documents are required (if any).*

***NOTE:*** *It is the applicant's responsibility to ensure all necessary approvals are obtained under any other Act, if required, prior to work commencing.*

| | |
|---|---|
| Building consent N°. | BC220131, |
| Site Address | 18 Kahikatea Way |
| Owner/Agent | GJ Gardner |
| Email address | Chris.hill@gjgardner.co.nz |
| Applicants role in project | Construction Manager |
| Contact number | 0272981144 |
| | |

Tasman District Council
BUILDING CONSENT AUTHORITY

Minor Variation

Date: 26-7-2022

ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

**Record of variation**: *(please identify location and provide a detailed description of the variation)*

*If work has been completed, no consent can be issued, as this is a breach of section 40 of the Building Act. In this case, infringement & C.O.A requirements may apply (or potential prosecution for serious breach).*

**Description of change:**

**Flashing detail for change of cladding junctions.**

| | | | |
|---|---|---|---|
| Owner signature: | | | |
| Agents signature: | C Hill | Date: | 10/07/22 |

Other than simple changes that can be noted on site plans, please use this table for describing changes to bracing elements, window sizes, etc. It is **the Applicants responsibility** to provide calculations that demonstrate at a minimum equal bracing unit for a different or altered brace. Ensure the appropriate license class is held by those undertaking design change or site work.

**Product changes** may also be detailed here if more documentation is required i.e. owners authorisation; technical specs etc.

Note: *Not all Product changes are 'minor' and may require formal amendment – refer to MBIE guidance*

| *Was* | *Reason for changes: altered, removed, replaced, deleted* | *Now* |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

☐ Reduced scope of work (if ticked, please describe items that will not be constructed)

**Council use only:**

The variation is minor and the inspector is able to approve on site ☑ Yes ☐ No

Work may proceed ☑ Yes ☐ No

Variation ☑ Approved ☐ Declined

Inspector's signature: Simon Kneebone Date: 26-7-2022

Inspector's name: _____

**Inspector on site must:**

**1)** Clearly identify any further documentation required to be attached to the MV Form –use tick box below

**2)** Stamp or sign/ date each document. Only do this when all documents are attached to the form.

**3)** Advise applicant to upload all together as one file into Alpha Req. Doc's - **only when all complete and stamped/signed.**

A copy of the MV and attachments are to be kept on site.

☐ A copy of plan/detail must accompany application

☐ A certificate of design work is required (Restricted Building Work)

☐ Approval of product Variation is required by the owner in writing (insulation, plasterboard changes etc.)

☐ Producer Statement Design PS1 (typical for any new Special Engineering Design- must be from CPENG)

☐ Producer Statement Construction PS4 (please do not default to this unless complexity requires)

☐ Engineers report (for minor variations where design has not altered i.e. ground bearing doubts)

☐ Product Technical Specifications or appraisal (we don't want a manual)

☐ Bracing calculations/ plan demonstrating equal or better bracing units

**Note**:

- Owners may need to be made aware of some product variations and the BCA may require written evidence of this. (unless contract between developer and client allows for product change of at least same quality)
- A significant change is not a minor variation but a formal amendment i.e. changes to footprint of building
- No work may proceed for formal amendments until processed; stamped approved plans are on site.

**Note:** If the scope of work has been reduced, please check whether an update is required to the description of work on the Consent. It is important that the CCC accurately reflects what has been constructed or removed.

There is a discretionary charge for minor variations and an invoice will follow

Summary Procedure, including method of recording:

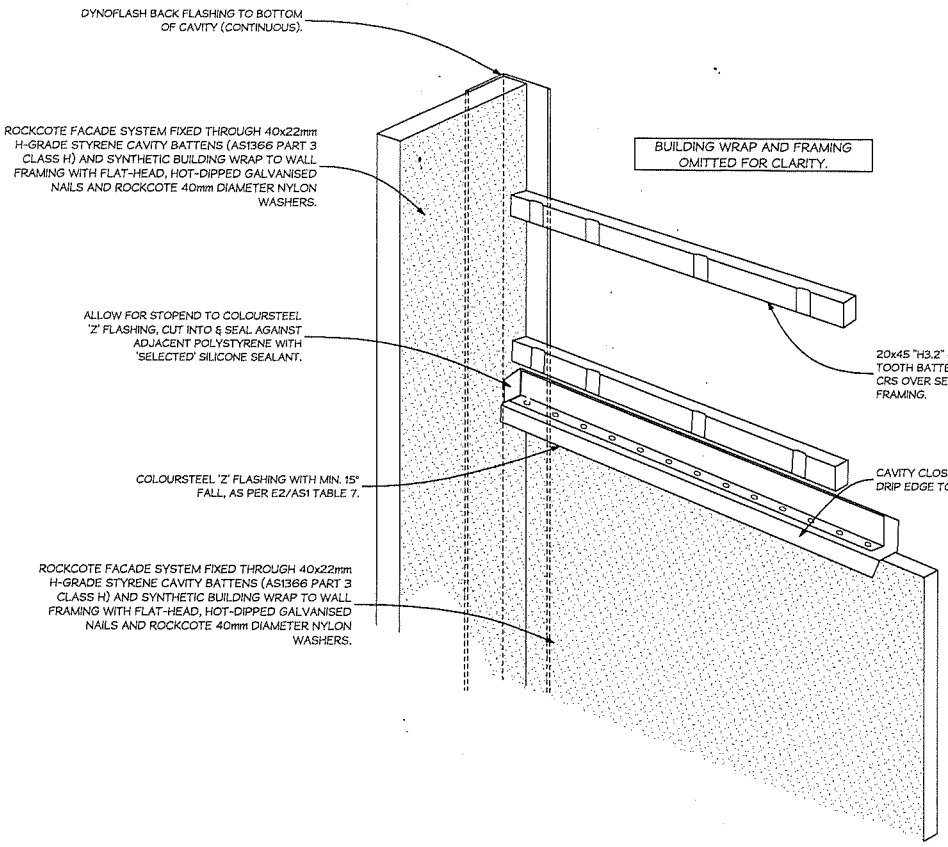
- Inspector may approve MV on site using this form (unless simple change made on plans with signature/ date)
- Inspector records 'approval' of minor variation **on form**, inspection report and file note
- Inspector must record a 'fail' in system until procedure below is completed (document management)
- Approved form **stays on site** until all required documents are attached
- Inspector stamps, signs off and dates all documents on site (initials and date each page)
- Applicant uploads completed MV with all documents into the system as one file (minor variation in Required Docs)
- Minor Variation is checked in for completeness in office
- Once confirmed as completed, inspection is changed from 'fail' to pass'
- Building support sends invoice to be paid prior to CCC (charged at 1 hour min. – see Fees & Charges)

Please review MBIE guidance on Minor Variations and learn the differences. They are not always black and white.

https://www.building.govt.nz/projects-and-consents/build-to-the-consent/making-changes-to-your-plans/guidance-to-building-consent-amendments/minor-variations/

**Note**: If the inspector decides a formal amendment is required, we endeavor to process these as a priority.

All levels/dimensions are to be confirmed onsite before commencing any work, this applies to all trades. Do not scale off drawings.




125 LINEA OBLIQUE/ROCKCOTE CLADDING JUNCTION
1:5

Tasman District Council
BUILDING CONSENT AUTHORITY
Minor Variation
Date: 26-7-2022
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

| | |
|---|---|
| A34 | SHEET : original A3 |
| BUILDING CONSENT | REVISION : |
| 13/07/2022 | DATE : |
| 1:5 | SCALE : |
| JM, CW | DRAWN : |

Job No. 145597

PREMIER SERVICES LIMITED Address | 6 Champion Road, Richmond 7020 Phone | 03 544 1829 Email | info@premierservices.co.nz Website | www.premierservices.co.nz

| | |
|---|---|
| ELIZABETH & TIMOTHY ADKIN. | CLIENT : |
| KAHIKATEA TOWNHOUSE | PROJECT : |
| 14 KAHIKATEA WAY, RICHMOND | LOCATION : |
| DETAILS | DRAWING : |

PREMIER SERVICES
Architectural Design Plus

All work is to be carried out in full accordance with the NZBC and Territorial Authority requirements as they apply. Any queries and discrepancies must be confirmed with the Designer before beginning any work

Slab

# Memorandum from licensed building practitioner: Record of building work

## Section 88, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

| THE BUILDING | |
|---|---|
| Street address: 18 Kahikatea Way | |
| Suburb: | |
| Town/City: Richmond | Postcode: 7020 |

| THE PROJECT |
|---|
| Building consent number: 220131 |

| THE OWNER(S) | |
|---|---|
| Name(s): Susan and David Ford | |
| Mailing address: | |
| Suburb: | PO Box/Private Bag: |
| Town/City: | Postcode: |
| Phone number: | Email address: |

## RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

### PRIMARY STRUCTURE

| Work that is restricted building work | Description of restricted building work | Carried out or supervised |
|---|---|---|
| Tick ✓ | If necessary, describe the restricted building work. | Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work. |
| Foundations and subfloor framing ☑ | Built Cupolex concrete slab as per engineers details and drawings. | ○ Carried out<br>⊘ Supervised |
| Walls ☐ | NA | ○ Carried out<br>○ Supervised |
| Roof ☐ | NA | ○ Carried out<br>○ Supervised |
| Columns and beams ☐ | NA | ○ Carried out<br>○ Supervised |
| Bracing ☐ | NA | ○ Carried out<br>○ Supervised |
| Other ☐ | NA | ○ Carried out<br>○ Supervised |

| EXTERNAL MOISTURE MANAGEMENT SYSTEMS | | |
|---|---|---|
| **Work that is restricted building work** | **Description of restricted building work** | **Carried out or supervised** |
| Tick ✓ | If necessary, describe the restricted building work. | Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work. |
| Damp proofing ☑ | Installed DPM beneath concrete slab. | ○ Carried out<br>✓ Supervised |
| Roof cladding or roof cladding system ☐ | NA | ○ Carried out<br>○ Supervised |
| Ventilation system (for example, subfloor or cavity) ☐ | NA | ○ Carried out<br>○ Supervised |
| Wall cladding or wall cladding system ☐ | NA | ○ Carried out<br>○ Supervised |
| Waterproofing ☐ | NA | ○ Carried out<br>○ Supervised |
| Other ☐ | NA | ○ Carried out<br>○ Supervised |

## ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work.

| | |
|---|---|
| Name: Jamie Bennett | LBP number: 138205 |
| Class(es) licensed in: | |
| Foundations | |
| Plumbers, Gasfitters and Drainlayers registration number (if applicable): | |
| Mailing address (if different from below): | |
| Street address/Registered office: 58 Swamp Road | |
| Suburb: Appleby | Town/City: Nelson |
| PO Box/Private Bag | Postcode: 7081 |
| Phone number: 03 928 0978 | Mobile: |
| After hours: | Fax: |
| Email address: info@theconcretecompany.co.nz | Website: |

## DECLARATION

I Jamie Bennett carried out or supervised the restricted building work recorded on this form.

Signature: Jamie Paul Bennett

Date: 05/06/2022

# Pressure Test Certificate

tasman district council

## Piped Services at Pre-line

### Issued by

| | |
|---|---|
| Name (please print) | Glyne Mclean |
| Registration Number | 15639 |

To: Tasman District Council - In respect to the following:

Piped services installed in accordance with G12/AS1 or NZS/AUS3500 1 and 3 *(delete one)* as shown on the approved plans or as per the attached amendment plan

| | |
|---|---|
| Installed at *(property address)* | 18 Kahikatea Way, Richmond |
| Building Consent No | 220131 |
| Pipe brand used | Dux Secura |
| Type of test | 15 Bar Water Test |
| Duration | 30 Minutes |

As a craftsman plumber, currently holding an annual practicing license, I certify that I, or personnel under my control, have carried out the installation of the above system and I believe on reasonable grounds that the installation complies with the New Zealand Building Code.

D.A. Cam

**Signature of Client/Builder**

**Signature of Plumber**

| FOR COUNCIL USE ONLY | |
|---|---|
| Register checked Tick ☐ | Date |
| Inspector name | Signature |

FORM NUMBER: BC44 DATE REVISED: 28 June 2017

**Tasman District Council**
**Email** info@tasman.govt.nz
**Website** www.tasman.govt.nz
24 hour assistance

**RICHMOND**
189 Queen Street
Private Bag 4
Richmond 7050
New Zealand
**Phone:** 03 543 8400
**Fax:** 03 543 9524

**MURCHISON**
92 Fairfax Street
Murchison 7007
New Zealand
**Phone:** 03 523 1013
**Fax:** 03 523 1012

**MOTUEKA**
7 Hickmott Place
PO Box 123
Motueka 7143
New Zealand
**Phone:** 03 528 2022
**Fax:** 03 528 9751

**TAKAKA**
78 Commercial Street
PO Box 74
Takaka 7142
New Zealand
**Phone:** 03 525 0020
**Fax:** 03 525 9972

# PLUMBING SERVICES

**PLUMBING - DRAINAGE - GAS - SOLAR - FIRE SPRINKLERS**

## FORM OF PRODUCER STATEMENT PS3 – CONSTRUCTION

At project completion, this form shall be completed by the building contractor and supplied to the Engineer.

**ISSUED BY:** *Plumbing Services Nelson Ltd* **Glyne Mclean** Licence Number 15639
(Building Contractor)

**TO: David & Susan Ford**
(Owner/Principal)

**IN RESPECT OF:** Underfloor Waste Pipes to NZ Building Code (G13)
(Description of Contract Works)

**AT: 18 Kahikatea Way, Richmond**
(Address)

**T/A Tasman District Council** **BUILDING CONSENT No: 220131**
(Territorial Authority / Building Consent Authority)

The above Building Contractor has contracted to the above Owner/Principal to carry out and complete certain building works in accordance with the contract, titled Plumbing
(Title of building contract)

I ***Glyne Mclean*** a duly authorised representative of the above building contractor, believe on reasonable grounds that the above building contractor has carried out and completed

✓All _Part only as specified in the attached particulars

of the building works in accordance with the contract.

(Signature of Authorised Agent on behalf of the Building Contractor)

***(Date)*** *18/05/2022*

***(Address)*** *22 Poutama Street*
*Richmond*

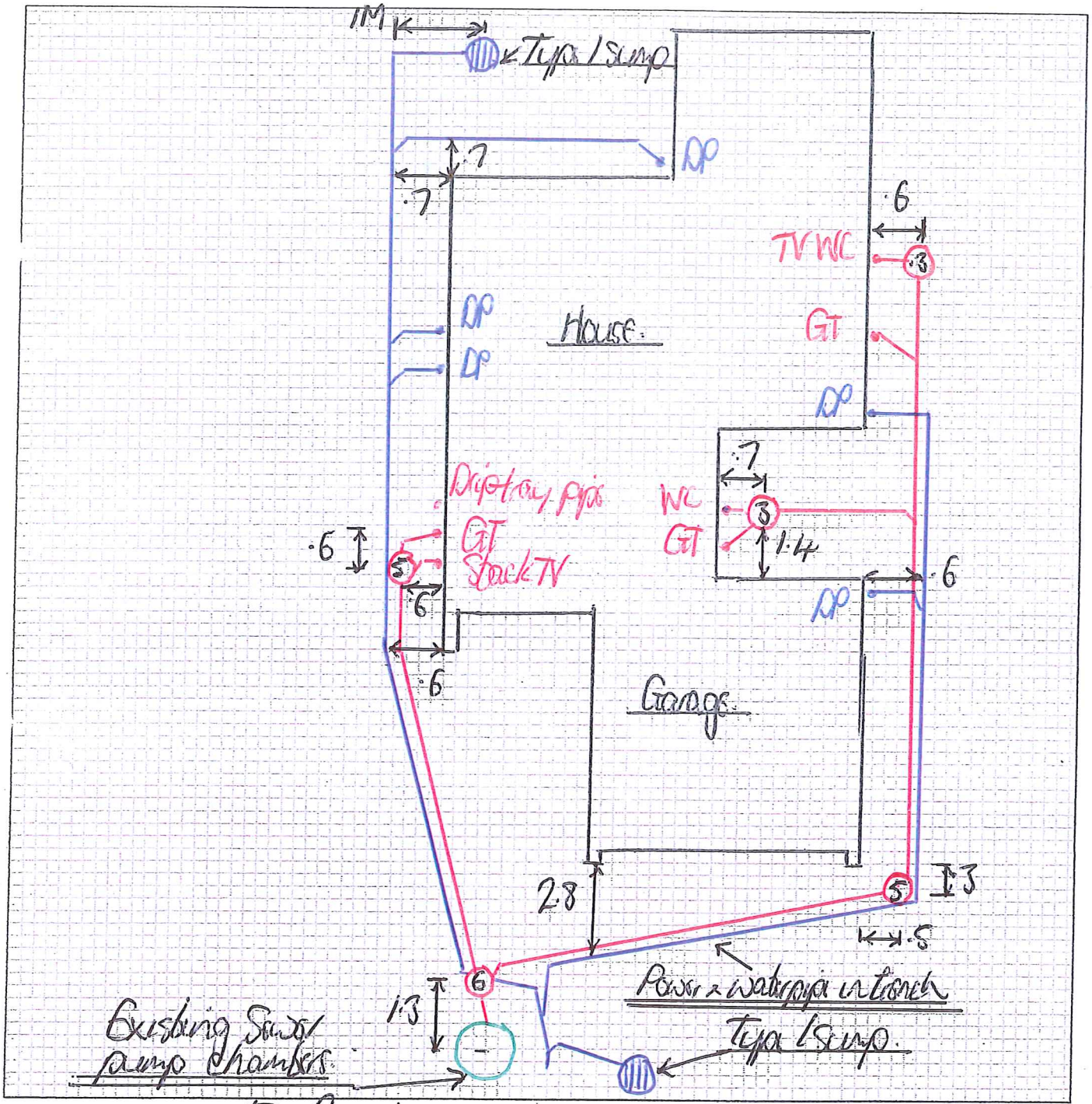
*This producer statement is confirmation by the builder(s) that they have carried out the building work in accordance with the drawings, specifications (and site amendments) that are part of the contract / building consent documents.*
*Work covered by this statement should have been supervised and checked by suitably qualified tradespersons.*
*The Engineer requires this producer statement and a copy of the T/A's building consent conditions, to confirm that items of the contract that he has not personally examined, have in fact been built according to the documents, so that the Engineer may issue appropriate documents to the T/A for it to release the Code Compliance Certificate.* 20393-1

1453396

# DRAINAGE PLAN

tasman district council | Te Kaunihera o te tai o Aorere

| Building Consent No. | Property Address |
|---|---|
| 220131 | 18 KAHIKATEA WAY, RICHMOND. |
| **Certified drainlayers name** | **Registration number** |
| TOM GEARDLEY | 14755 |
| **Drainlaying company** | **Contact details** |
| T&D GEARDLEY 2007 LTD | 027 623 3028 |




Signed by Certified Drainlayer: Tom Geardley

Date: 10/5/22.

**Tasman District Council**
Email info@tasman.govt.nz
Website www.tasman.govt.nz
24 hour assistance

**Richmond**
189 Queen Street
Private Bag 4
Richmond 7050
New Zealand
Phone 03 543 8400
Fax 03 543 9524

**Murchison**
92 Fairfax Street
Murchison 7007
New Zealand
Phone 03 523 1013
Fax 03 523 1012

**Motueka**
7 Hickmott Place
PO Box 123
Motueka 7143
New Zealand
Phone 03 528 2022
Fax 03 528 9751

**Takaka**
78 Commercial Street
PO Box 74
Takaka 7142
New Zealand
Phone 03 525 0020
Fax 03 525 9972

MiTek New Zealand Limited

Correspondence from : **AUCKLAND**
40 Neales Road, East Tamaki 2013
PO Box 58-014, Botany 2163
**Phone: 09 274 7109**
**Fax: 09 274 7100**

**CHRISTCHURCH**
14 Pilkington Way, Wigram 8042
PO Box 8387, Riccarton 8440
**Phone: 03 348 8691**
**Fax: 03 348 0314**

www.miteknz.co.nz

MiTek 20/20 Engineering 4.7.346.0

Printed: 09:54:13 21 Apr 2022

# PRODUCER STATEMENT for MiTek 20/20® TRUSS DESIGN - Version 4.7

ISSUED BY: **MiTek New Zealand Limited**

TO: **PlaceMakers - Frame & Truss**

IN RESPECT OF: **MiTek® Truss Designs**

This producer statement covers the MiTek 20/20® truss design and the structural performance of the GANG-NAIL® connector plate for the job reference **9743** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MiTek 20/20® truss design program has been developed by MiTek New Zealand Limited for the design of MiTek® timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20 ® are prepared using sound and widely accepted engineering principles, and in accordance with compliance documents of the New Zealand Building Code and Verification Method B1/VM1; and internationally accepted standard ANSI/TPI 1 - 2002 as an alternative solution, to satisfy the requirements of Clause B1 of the New Zealand Building Code.

**On behalf of MiTek New Zealand Limited,** and subject to:

i) All proprietary products meeting their performance specification requirements
ii) The provision of adequate roof bracing and overall building stability
iii) Correct selection and placement of GANG-NAIL connector plates
iv) Correct input of Truss Design Data as shown in the Fabricator Design Statement for this job
v) The design being undertaken by the accredited fabricator under the terms of the software licence
vi) Timber is graded to the requirements of NZS 3603:1993
vii) Minimum timber treatment for these MiTek® trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003

**I believe on reasonable grounds** that the trusses, if constructed in accordance with the MiTek 20/20® truss design and shop drawings, will comply with the relevant provisions of the New Zealand Building Code.

MiTek New Zealand Limited holds a current policy of Professional Indemnity Insurance no less than $500,000.

**On behalf of MiTek New Zealand Limited,** **Date: Thursday, 21 April 2022**

In Ling Ng, BE (Hons), CPEng, IntPE, MIPENZ (ID: 146585)
**TECHNICAL SERVICES MANAGER, MiTek New Zealand Limited**

# MITEK FABRICATOR DESIGN STATEMENT

This statement is issued by MiTek accredited fabricator **PlaceMakers - Frame & Truss**, being licensed to use the MiTek 20/20® software, to the client listed above and may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

## MiTek 20/20® TRUSS DESIGN DATA

The MiTek 20/20® computer design for this job is based on the following design parameters entered into the program. The Fabricator shall ensure that these job details are current and relevant to the project for the design of the MiTek ® trusses.

**Job Details**

**Roof Truss**

| | | | | | |
|---|---|---|---|---|---|
| Timber Group: | TFT NZO H1.2 | Importance Level : | 2 | Design Working Life : | 50 years |
| **Roof** | | Pitch: | 35.000 deg | Nominal Overhang: | 600 mm |
| Material: | Galv Iron .5mm | **Ceiling** | | **Wind** | |
| Dead Load: | 0.210 kPa | Material: | Gib Board 13mm | Area: | High (44.0 m/s ) |
| Restraints: | 900 mm centres | Dead Load: | 0.200 kPa | Pressure Coeff: | Cpe = varies; Cpi = -0.30, 0.20 |
| Live Load: | Qur = 0.250 kPa | Restraints: | 600 mm centres | **Snow** | |
| | Qc = 1.100 kN | Live Load: | Qc = 1.400 kN | Location: | Nelson (N3) at 220 m |
| | | | | Open Ground Load: | 0.300 kPa |
| | | | | Basic Roof Load: | 0.400 kPa |

The minimum timber treatment for these MiTek® trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003. The timber for these MiTek® trusses shall be graded to the requirements of NZS 3603:1993. Proprietary fixings and timber connectors shall be selected in accordance with NZS3604:2011 Section 4 - Durability.

## MiTek® Truss List

Legend: * = detail only, ? = input only, ~~Txx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral bracing required
GB = gable brace required

| Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) | Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) | Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T02 | 6 | 8200 | 14.000 | 900 | *R01 | 1 | 4800 | 14.000 | 900 | T07 | 1 | 901 | 14.000 | 900 |
| HTG01 | 1 | 6200 | 14.000 | 900 | *R09 | 1 | 4339 | 7.140 | 900 | T08 | 1 | 449 | 14.000 | 900 |
| T04 | 1 | 4403 | 6.387 | 900 | T11 | 1 | 1521 | 7.140 | 900 | *R04 | 3 | 1360 | 0.000 | 900 |
| *R10 | 2 | 6700 | 35.000 | 900 | T03 | 2 | 2100 | 14.000 | 900 | *R05 | 6 | 1360 | 0.000 | 780 |
| T01 | 5 | 4200 | 14.000 | 900 | T03A | 2 | 2100 | 14.000 | 900 | *R07 | 4 | 1355 | 0.000 | 685 |
| T09 | 4 | 3955 | 7.140 | 900 | T05 | 1 | 1805 | 14.000 | 900 | *R11 | 20 | 1155 | 0.000 | 713 |
| *R03 | 1 | 6400 | 14.000 | 900 | T06 | 1 | 1353 | 14.000 | 900 | *R02 | 8 | 1133 | 0.000 | 633 |
| T12 | 7 | 6100 | 35.000 | 900 | *R06 | 1 | 2400 | 14.000 | 900 | | | | | |
| T10 | 1 | 3312 | 7.140 | 900 | *R08 | 1 | 2180 | 14.000 | 900 | | | | | |

**Total quantity : 82**

**The computer design input has been carried out by:**

Signed: .....

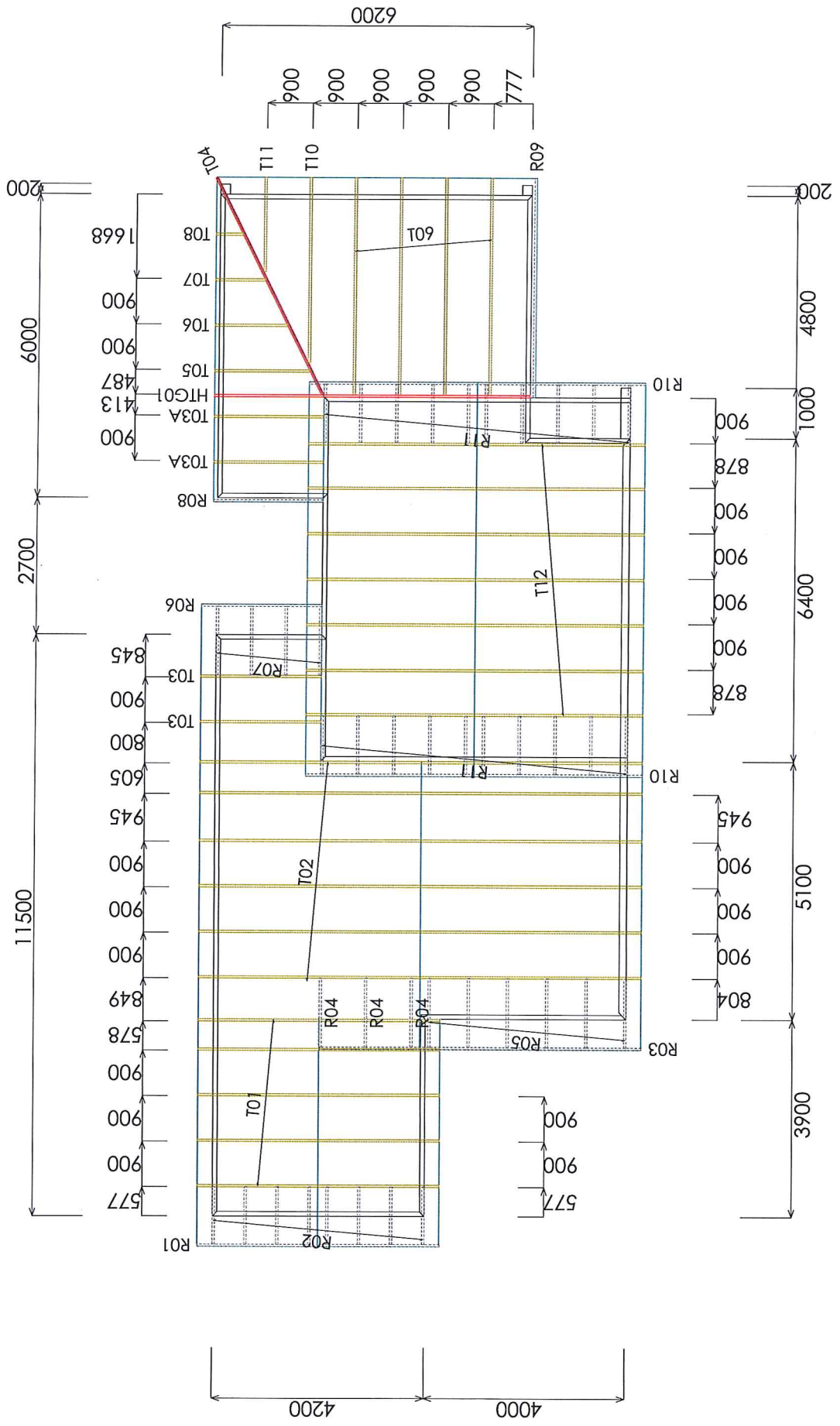
Date: ...Thursday, 21 April 2022....

Name of Detailer: Kye Fothergill

Qualifications and Title: Detailer

On behalf of: **PlaceMakers - Frame & Truss**

PlaceMakers® Know how. Can do. FRAME & TRUSS




Consent Number : BC220131

Truss Dimension Layout

Drawn : Kye Fothergill | CFT Reff : 9743

Date : 21 Apr,2022 | Branch Reff : 9743

Ground Floor

G.J.Gardner, 145596
Lot 366, 18 Kahikatea Way
Richmond

PM Frame & Truss
1 Koru Place
Harewood
Christchurch
Ph : 03-547-0131
Cell : 0275824642
tasmandetailingservices@gmail.com

PlaceMakers Know how. Can do.

FRAME & TRUSS

carpentry

# Memorandum from licensed building practitioner: Record of building work

## Section 88, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

| THE BUILDING | |
|---|---|
| Street address: 18 Kahikatea Way | |
| Suburb: | |
| Town/City: Richmond | Postcode: 7020 |

| THE PROJECT |
|---|
| Building consent number: 220131 |

| THE OWNER(S) | |
|---|---|
| Name(s): Susan and David Ford | |
| Mailing address: | |
| Suburb: | PO Box/Private Bag: |
| Town/City: | Postcode: |
| Phone number: | Email address: |

## RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

### PRIMARY STRUCTURE

| Work that is restricted building work | Description of restricted building work | Carried out or supervised |
|---|---|---|
| Tick ✓ | If necessary, describe the restricted building work. | Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work. |
| Foundations and subfloor framing ☐ | | ○ Carried out<br>○ Supervised |
| Walls ☑ | Install timber framing and all structural connections for this new dwelling | ✓ Carried out<br>✓ Supervised |
| Roof ☑ | Install timber trusses and all structural connections for this new dwelling | ✓ Carried out<br>✓ Supervised |
| Columns and beams ☑ | Install Midfloor framing and supervise Steel portals install | ✓ Carried out<br>✓ Supervised |
| Bracing ☑ | Install bracing elements as per the approved brace schedule for this new dwelling | ✓ Carried out<br>✓ Supervised |
| Other ☐ | | ○ Carried out<br>○ Supervised |

| EXTERNAL MOISTURE MANAGEMENT SYSTEMS | | |
|---|---|---|
| **Work that is restricted building work** | **Description of restricted building work** | **Carried out or supervised** |
| Tick ✓ | If necessary, describe the restricted building work. | Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work. |
| Damp proofing ☐ | | ○ Carried out<br>○ Supervised |
| Roof cladding or roof cladding system ☐ | | ○ Carried out<br>○ Supervised |
| Ventilation system (for example, subfloor or cavity) ☑ | Feature Linea cavity systems with all components completed as Specifications and as per the approved consent for this new dwelling | ✓ Carried out<br>✓ Supervised |
| Wall cladding or wall cladding system ☑ | Install building wrap and install all flashing tape to all penetrations as per the approved consent for this new dwelling | ✓ Carried out<br>✓ Supervised |
| Waterproofing ☐ | | ○ Carried out<br>○ Supervised |
| Other ☐ | | ○ Carried out<br>○ Supervised |

## ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work.

| | |
|---|---|
| Name: Tim Ward | LBP number: 126666 |
| Class(es) licensed in: | |
| Carpentry | |
| Plumbers, Gasfitters and Drainlayers registration number (if applicable): | |
| Mailing address (if different from below): 14A Wainui Street | |
| Street address/Registered office: | |
| Suburb: The Wood | Town/City: Nelson |
| PO Box/Private Bag | Postcode: 7020 |
| Phone number: | Mobile: 0223 036 567 |
| After hours: | Fax: |
| Email address: Martelbuilders@gmail.com | Website: |

## DECLARATION

I Tim Ward carried out or supervised the restricted building work recorded on this form.

Signature: TWard

Date: 17/10/22

# ELECTRICAL CERTIFICATE OF COMPLIANCE & ELECTRICAL SAFETY CERTIFICATE

**REFERENCE/CERTIFICATE ID NO.:** 145596

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under **Part 1 or Part 2 of AS/NZS 3000** are safe to be connected to the **specified** system of electrical supply.

**Location Details:** 18 Kahikatea Way, Richmond

**Contact Details:** (Name and address) David and Sue Ford

**Name of Electrical worker:** Stuart Breading

**Registration/Practising licence number:** E264597

**Phone & email:** 0272138836 - stuart@energiseelectrical.co.nz

**Name and registration number of person(s) supervised:**

## Certificate of Compliance

**Type of work:** ☐ Addition ☐ Alteration ■ New work

**The prescribed electrical work is:** ☐ Low risk ☐ General ■ High-risk (Specify):

**Means of compliance:** ☐ Part 1 of AS/NZS 3000 ■ Part 2 of AS/NZS 3000

**Additional Standards or electrical code of practice were required:** ■ No ☐ Yes (specify):

**Date or range of dates that prescribed electrical work undertaken:** 27/9-30/922

**Contains fittings that are safe to connect to a power supply?** ■ Yes ☐ No

**Specify type of supply system:** 230v

**The installation has an earthing system that is correctly rated (where applicable)** ■ Yes ☐ No

**Parts of the installation to which this certificate relates that are safe to connect to a power supply?**

■ All ☐ Parts (specify)

**The work relies on manufacturers instructions:** ☐ Yes ■ No

If yes – identify the instruction manual including name, date and version. Also attach a copy of manufacturer's instructions to this certificate.
(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:
Link:

**The work has been done in accordance with a certified design:** ☐ Yes ■ No

If yes – identify the certified design including name, date and version. Also attach a copy of the certified design to this certificate.
(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:
Link:

**The work relies on a Supplier Declaration of Conformity (SDoC):** ☐ Yes ■ No

If yes - identify the SDoC including name, date and version OR EESS registration. Also attach a copy of the SDoC to this certificate.
(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:
Link:

**The installation has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010** ☐ No ■ Yes

**Description of Work:**

New Home
as per electrical drawings
including maserator, ac and smartvent system

| Test Results (provide values) | | |
|---|---|---|
| Polarity (Independent earth): | ok | |
| Insulation resistance: | 200M | Ohms |
| Earth Continuity: | 0.1 | Ohms |
| Bonding: | 0.1 | Ohms |
| Fault Loop impedance | 0.14 1.6ka | Ohms |
| Other (specify): | RCD ok | |

**By signing this document I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct.**

**Certifier's signature:** Stuart Breading Digitally signed by Stuart Breading Date: 2021.11.09 14:43:01 +13'00' **Date:** 30/9/22

## Electrical Safety Certificate

**By signing this document I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.**

**Certifier's name:** Stuart Breading

**Registration/Practising licence number:** E264597

**Certifier's signature:** Stuart Breading Digitally signed by Stuart Breading Date: 2021.11.09 14:43:15 +13'00'

**Certificate Issue Date:** 30/9/22

**Connection Date:** 30/9/22

**CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS**

This Electrical Safety Certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

# RECORD OF INSPECTION (ROI) OF HIGH-RISK PRESCRIBED ELECTRICAL WORK
## PURSUANT TO THE ELECTRICITY (SAFETY) REGULATIONS 2010

**Reference/Record ID Number:** 66084

**Issuer (Inspector) details:**

| | | | |
|---|---|---|---|
| Name of Inspector: | Aaron Hunter | Registration #: | I 3004 |
| Email address: | aaron.hunterelectrical@gmail.com | Telephone: | 021706665 |

**Location of installation:**

Location details: 18 Kahikatea Way Richmond ICP 0000061924NT6C0

Location type: ☑ Domestic ☐ Non-Domestic Accommodation ☐ Industrial ☐ Commercial
☐ Educational ☐ Healthcare ☐ Miscellaneous (other)

**Certifying Electrical Work and Certificate of Compliance (CoC) details:**

| | | | |
|---|---|---|---|
| Name of Electrical worker(s): | Stuart Breading | Registration #: | E264597 |
| | | | |

CoC details: 145596 ☐ CoC(s) attached

**Certifying Electrical Work and RoI details:**

What was inspected:

Temp to permanent connection, connect inspect liven and test new single phase 16mm neutral screen mains to M.E.N distribution switch board and main earth

Specify the regulation(s) and companion standard(s), or identify the certified design, followed when carrying out the inspection:

AS/NZS 3000
Reg 6A(2)(6)

What are the results of the inspection:

Mains insulation P-N 581 Mohm
EFLI P-N 0.14 ohm
PSCC 1.6 KA
Main Earth 32.2 ohm Earthing lead 0.00 ohm
Polarity Correct

**High Risk Category:**

☐ Not to AS/NZS 3000 Part 2 – 6A(2)(a)(i) ☐ Photovoltaic system – 6A(2)(a)(iv) ☐ Electrical medical area – 6A(2)(a)(vi)
☐ High voltage installation – 6A(2)(a)(ii) ☐ Hazardous area – 6A(2)(a)(v) ☑ Mains work – 6A(2)(b)
☐ Mains parallel generation – 6A(2)(a)(iii) ☐ Animal stunning or meat conditioning – 6A(2)(c)
☐ Other – please describe:

**Declaration**

I hereby confirm that the work described above has been done in accordance with the regulations; and the installation on which the work has been done is, and will be , when enlivened, electrically safe.

Signature: Aaron Hunter Digitally signed by: Aaron Hunter DN: CN = Aaron Hunter C = NZ O = Electrical Inspection Tasman Date: 2020.11.10 08:51:18 +13'00' Reason: I am the author of this document

Date: 30/09/2022

tasman district council | Te Kaunihera o te tai o Aorere

# Producer Statement - Construction

The producer statement construction does not replace the requirement for the scheduled inspection required by Tasman District Council Building Inspection Team. This producer statement construction may be an additional requirement to the scheduled inspection.

Issued to: LSK Builders 2011 Ltd

Issued by: (Name) Energise Electrical 2021 Ltd

Being a suitably qualified person: (Registration #) Stuart Breading, Electrician E264597

Address: 7 Trek Place, Richmond, nelson 7020

Town: Nelson

Phone: 0272138836

In respect of: (Type of work) Fresh Air Ventilation

Products Installed

Primer: _____

Bond breaker sealant: _____

Reinforcing bandage/mat: _____

Membrane product: _____

At: 18 Kahikatea Way, Richmond
Address of property

Building Consent Number: _____

I, Stuart Breading, Electrician E264597 being the

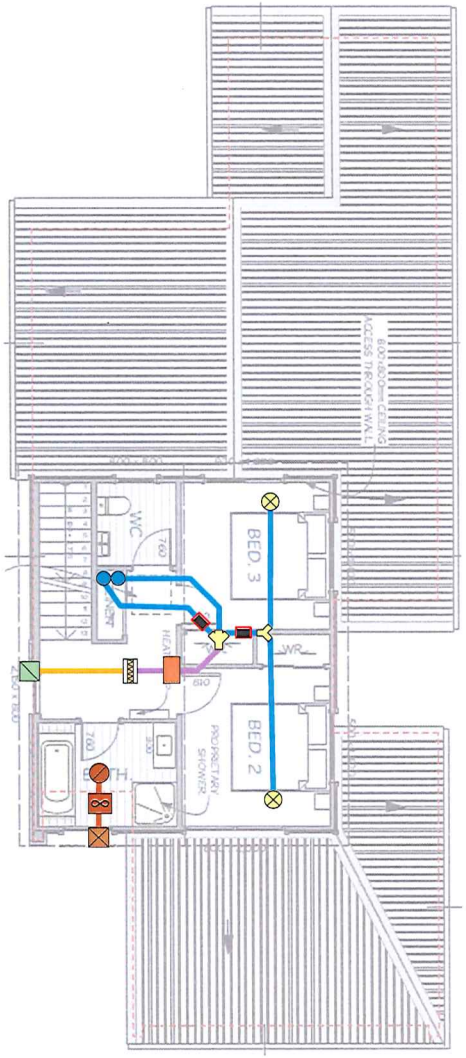
- [x] Tradesperson;
- [ ] Approved applicator; or
- [ ] Suitably qualified/experienced building practitioner.

Responsible for the work's identified above, declare that;

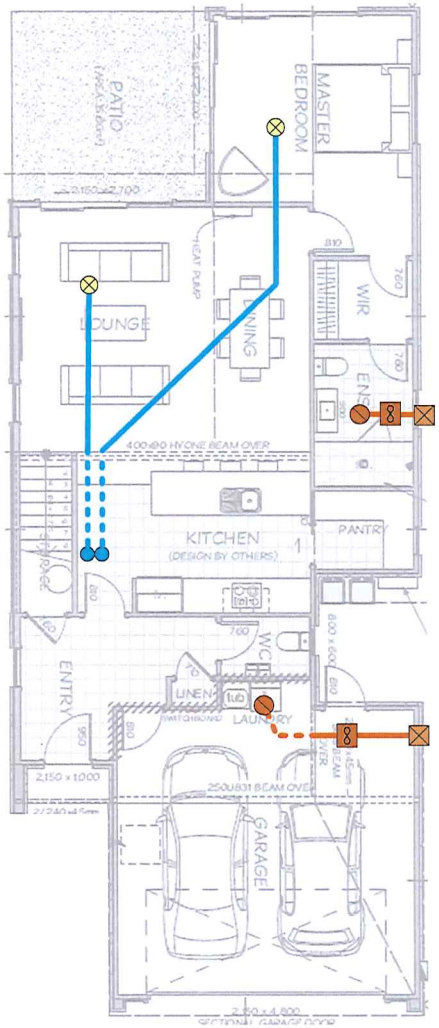
This work has been carried out in accordance with New Zealand Building Code Clause ..... and/or standard NZS .....

Signed by: Stuart Breading Date: 2/10/22

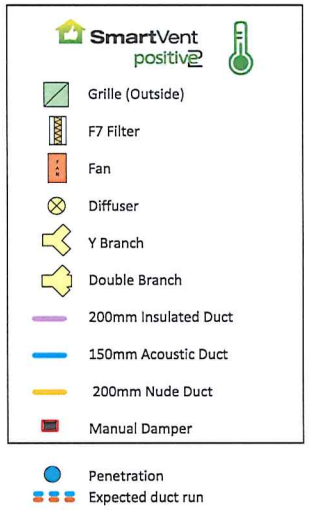
The above named person




LEVEL 1




GROUND LEVEL




| | | | | |
|---|---|---|---|---|
| Simx Limited<br>1 Haliday Place East Tamaki 2013<br>PO Box 14347 Panmure Auckland 1741<br>P: +64 9 259 1660 \| F: +64 9 259 1661<br>technical@simx.co.nz \| www.simx.co.nz | PROJECT/ADDRESS:<br>(Lots 363 - 367) 12,14,16,18, & 20, Kahikatea Way, Richmond | DRAWING:<br>Mechanical Ventilation Layout | DRAWN BY<br>Aiyappa Pullyanda | DATE<br>10/29/2021 |
| | | | REFERENCE<br>202107-51877 | PAGE<br>1 OF 3 |

# APPLICATION FOR CODE COMPLIANCE CERTIFICATE (Form 6)

Section 92. Building Act 2004.

## 1. What is the Building Consent? *Complete this field*

| | |
|---|---|
| Building consent number: | 220131 |
| Issued by:(name of building consent authority) | Tasman District Council |

## 2. Who owns the building? *Complete all fields, using N/A if a field is not applicable*

| | | | |
|---|---|---|---|
| Owner name: | Susan Mary & David John Ford | Title: e.g. Mr, Mrs, Ms, Dr | Mr & Mrs |
| Contact person: | Kent Strange | | |
| Owner mailing address: | 17 Petra Way | | |
| Street address / registered office: | | | |
| Owner email address: | | | |
| Owner contact numbers: | Ph: N/A | Cell: | |

Indicate which of the following Proof of Ownership documents is attached to your application. Your documents **must** be less that **3** months old.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ☐ | Copy of Certificate of Title | ☐ | Copy of Lease Agreement | ☐ | Agreement for Sale & Purchase | ☐ | Other document showing full name of legal owner |

| | | | | | |
|---|---|---|---|---|---|
| Are you using an Agent? | ✔ | Yes | ☐ | No | *If Yes, please also complete the following* |
| Who is the first point of contact for further correspondence? | ✔ | Agent | ☐ | Owner | |
| Agent name: | Kent Strange | | | | |
| Agent email: | kent.strange@gjgardner.co.nz | | | | |
| Agent contact numbers: | Ph: | Cell: 0272862233 | | | |
| Agent mailing address: | 195 Queen Street, Richmond 7020 | | | | |
| Relationship to owner: | Agent | | | | |

## 3. When was the building work completed? *Complete this field*

| | |
|---|---|
| All building work to be carried out under the building consent specified on this form was completed on: | *dd /mm / yyyy* 17/10/2022 |

## 4. Who completed the building work? *Complete all fields on each line. You will need to complete one line for each building practitioner. Use a separate sheet if necessary.*

| The licensed building practitioner(s) who carried out/supervised the restricted building work is/are: | | | |
|---|---|---|---|
| Name: | Licensing class: | LBP or registration number: | Work carried out / supervised: |
| Apex Roofing | Roofing | 133588 | Carried out |
| Mark Shuttleworth | Tiling | NZ2873 | |
| | | | |
| Jamie Bennett | Foundations | 138205 | Supervised |
| Sam Sturkenboom | Electrical Cert | E268091 | |

| Name: | Licensing class: | LBP or registration number: | Work carried out / supervised: |
|---|---|---|---|
| CGW Consultig Enginee | PS4 | 1009889 | |
| | | | |
| Tradespeople who carried out building work other than restricted building work are as follows: | | | |
| Name: | Address: | Contact number: | Registration number: |
| Leo Fearnley (Drain Lay | | | 14755 |
| | | | |
| | | | |
| The following specified systems are contained on the compliance schedule for the building and, in the opinion of the personnel who installed them, are capable of performing to the performance standards set out in the building consent: | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## 5. Declaration

☑ I understand that this application may *only* be made with the owner's approval. *Please tick to indicate your agreement.*

I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004. The code compliance certificate should be sent to:

| ☐ Owner | ☑ Agent | ☐ Owner address as per Section 2 | ☐ Agent address as per Section 2 |
|---|---|---|---|

| | |
|---|---|
| Name: | Kent Strange |
| Signature: | |
| Date: | 05/08/22 |

You can add a digital signature to this document, either using Adobe or your existing digital signature.

Once you have filled out the form, including signatures, please save the application to your computer. You can then submit the application with supporting documentation to your local Council.

If you are unsure about what information to include in your application, a guidance document is available (**click here**).

## 6. Have you attached all required documents?

*You are required to provide all the necessary documents to support your application. This includes (but is not limited to) the following sections:*

- *Memorandum of Licensed Building Practitioners – Record of Work (for each type of building work completed)*
- *Certificates relating to energy work*
- *Evidence that specified systems are capable of performing to the performance standards set out in the building consent (if changed from the building consent)*
- *Other documents from personnel who carried out the work.*

*Refer to your building consent approval letter for a full list of documents required to support your Code Compliance Certificate application.*

145596

# Form 6A

## Memorandum from licensed building practitioner: Record of building work

Section 88, Building Act 2004

Please fill in the form as fully and correctly as possible.
If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

| The property |
|---|
| Street address: LOT 366, 18 KAHIKATEA WAY |
| Suburb: |
| Town/City: RICHMOND — Postcode: 7020 |

| The project |
|---|
| Building consent number: 220131 |

| The owner(s) |
|---|
| Name(s): |
| Mailing address: |
| Suburb: — PO Box/Private Bag: |
| Town/City: — Postcode: |
| Phone number: — Email address: |

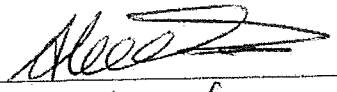
| PRIMARY STRUCTURE | | |
|---|---|---|
| **Work that is restricted building work** | **Description of restricted building work** | **Carried out or supervised** |
| Tick ✓ | If necessary, describe the restricted building work. | Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work. |
| Foundations and subfloor framing ☐ | | ◯ Carried out<br>◯ Supervised |
| Walls ☐ | | ◯ Carried out<br>◯ Supervised |
| Roof ☐ | | ◯ Carried out<br>◯ Supervised |
| Columns and beams ☐ | | ◯ Carried out<br>◯ Supervised |
| Bracing ☐ | | ◯ Carried out<br>◯ Supervised |
| Other ☐ | | ◯ Carried out<br>◯ Supervised |

| EXTERNAL MOISTURE MANAGEMENT SYSTEMS | | |
|---|---|---|
| **Work that is restricted building work** | **Description of restricted building work** | **Carried out or supervised** |
| Tick ✓ | If necessary, describe the restricted building work. | Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work. |
| Damp proofing ☐ | | ○ Carried out<br>○ Supervised |
| Roof cladding or roof cladding system ☑ | | ○ Carried out<br>✓ Supervised |
| Ventilation system (for example, subfloor or cavity) ☐ | | ○ Carried out<br>○ Supervised |
| Wall cladding or wall cladding system ☐ | | ○ Carried out<br>○ Supervised |
| Waterproofing ☐ | | ○ Carried out<br>○ Supervised |
| Other ☐ | | ○ Carried out<br>○ Supervised |

| Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work. | |
|---|---|
| Name: ALEX DAVIES | LBP number: 133588 |
| Class(es) licensed in: | |
| ROOFING | |
| Plumbers, Gasfitters and Drainlayers registration number (if applicable): | |
| Mailing address (if different from below): | |
| Street address/Registered office: 18 ECHODALE PLACE | |
| Suburb: STOKE | Town/City: NELSON |
| PO Box/Private Bag PO BOX 2113, STOKE | Postcode: 7041 |
| Phone number: | Mobile: 027 923 7215 |
| After hours: | Fax: |
| Email address: alex@apexroofingnelson.co.nz | Website: |

## DECLARATION

I ALEX DAVIES carried out or supervised the restricted building work recorded on this form.

Signature: 

Date: 06/07/22

## PS3 - Producer Statement – Waterproofing Application

*(for internal wet areas and external decks)*

Customer's name: David, Susan Ford

Site address: 19 Kohiketea Way, Richmond

Building consent number: 220131

Date work completed: 30/09/2022

Applicator's name: MARK SHUTTLEWORTH

Applicator licence number: NZ 2873

Applicator phone number: 022044 4449

Products installed:

Primer: Multiprime.

Bond breaker sealant: Yes.

Reinforcing bandage/mat: Yes.

Membrane product: Aidex 155 WPM.

List all wall/floor substrates: Concrete floor leveling, Aqua line Gib.

Product thickness: Floor: 2mm-3mm Walls: 2mm-3mm.

Flood test carried out: ~~Yes~~ / No

[Grab your reader's attention with a great quote from the document or use this space to emphasize a key point.

**I hereby declare that the above listed products have been applied as per the product manufacturers technical data sheets and I am satisfied the works undertaken meet the requirements of the New Zealand Building Code.**

**Signature of applicator:** [signature]

**Date:** 30 / 9 / 2022

**The Applicator shall complete all sections of this form.**

CGW CONSULTING ENGINEERS

# Site Notes

| | | | |
|---|---|---|---|
| Location: KAHIKATE WAY # 18 | | | Job No: 220237 |
| Date: 21.06.2022 | Time on site: 9.30 | | Time off site: 10:30 |
| CGW Attendees: Audrey Farneyre | | | Weather Conditions: Good |
| Purpose of attendance: PRELINE INSPECTION | | | BC Number: 220131 220131-A |
| Site Controller/Contact: TIM / MAURICE | | | Site Attendance H&S Form completed ☐ |

Site Notes / Tests Carried Out

Meeting with Tim / Maurice.

All bracing downstairs.

BLH length upstairs to be increased by moving bracket.

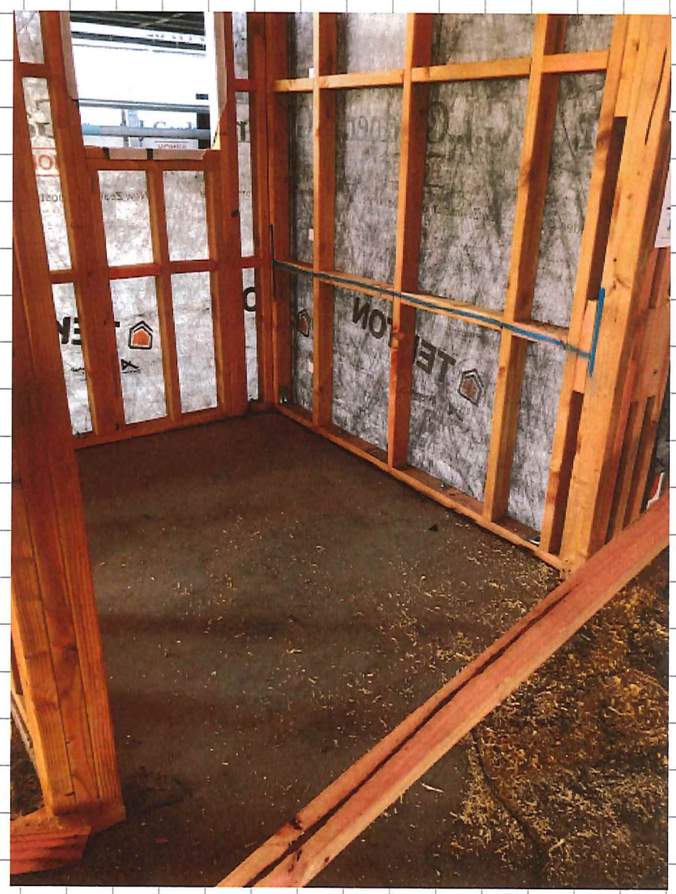
| | |
|---|---|
| Instructions Issued: See above<br>Photos received OK TO PROCEED. | To Whom: |
| Instructions Received: | By Whom: |

Are there additional site notes on the next page? Yes ☐ / No ☐

Signed:

| Date: | Job No: | Location: |
|---|---|---|

Site Notes / Tests Carried Out



Signed:

# Site Notes

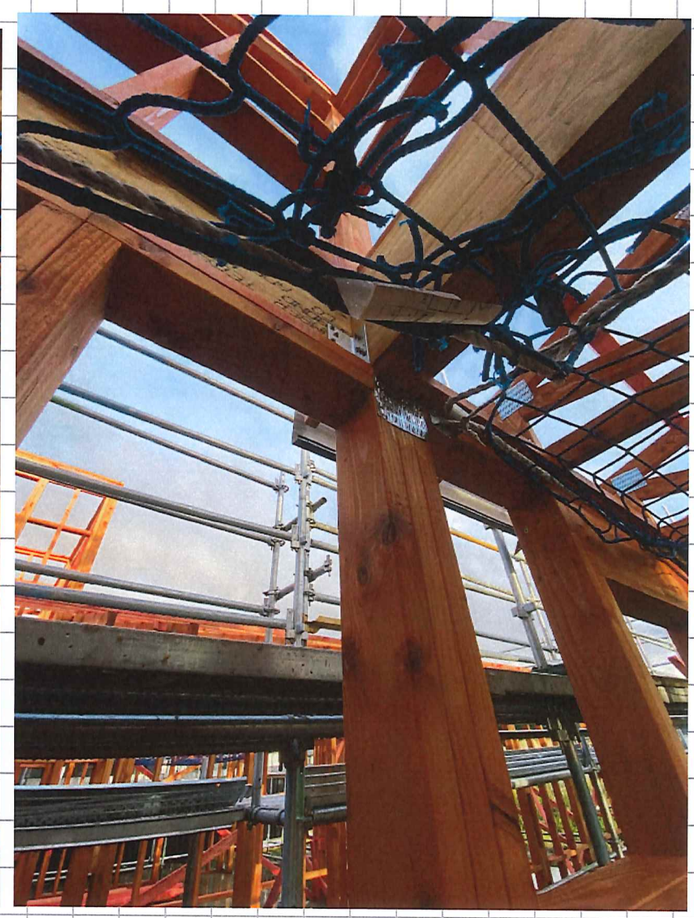
| | | | |
|---|---|---|---|
| Location: 18 Kahikatea Drive | | | Job No: 220237 |
| Date: 10.06.22 | Time on site: 9.00 | | Time off site: 9.30 |
| CGW Attendees: Nancy Jiang | | | Weather Conditions: |
| Purpose of attendance: midfloor beams and connections inspection | | | BC Number: BC220131 |
| Site Controller/Contact: Tim | | | Site Attendance H&S Form completed ☑ |

Site Notes / Tests Carried Out

Mid-floor beams B1-B5 were inspected against details on sheet SD1 by Wilton Joubert.
In general beams have been installed as per structural details.

Our comments are as follows:

1. Tylok plate missing to base of triple stud supporting B1. This was installed on site during inspection.
2. Tylok plate missing to top plate to triple stud connection supporting B5. This was installed on site during inspection.
3. Multigrip missing at B3 to B6 Connection.
4. 1 CPC80 missing at one end of the B2 connection to top plate, and two CPC80s missing at the other end.



| | |
|---|---|
| Instructions Issued: | To Whom: |
| As per items 3-4 above. Photos of missing fixings to be emailed through to engineer for review prior to lining | Tim (GJ Gardners Homes) |
| Instructions Received: | By Whom: |
| | |
| | |

Are there additional site notes on the next page? Yes ☑ / No ☐

Signed:

| Date: | Job No: | Location: |
|---|---|---|

Site Notes / Tests Carried Out

Signed:

145596

**PRECISION PLASTERING NELSON LTD**
P O Box 3462
Richmond, 7050
Nelson
p: 021 455 458
todd.precisionplastering@gmail.com

# PS3 PRODUCER / CONSTRUCTION STATEMENT EXTERNAL CLADDING

| | |
|---|---|
| Job Number : | 80363 |
| Site Address : | 18 Kahikatea Way, Richmond, Richmond |
| Consent No : | 220131 |
| Building Owner : | Susan & David Ford |
| Builder : | G J Gardner Homes |
| Registered Plasterer : | Precision Plastering Nelson Ltd |
| Systems Used : | EPS Insulated Facade System |
| Substrates Used : | EPS 50mm |
| Textures Used : | PSL Ezytex Float |
| Paint System Used : | 2 Coats of Resene X200 |
| Colours Used : | Carrara. |
| Installation/Application Start Date : | 18-Aug-2022 |
| Installation/Application End Date : | 06-Sep-2022 |
| Clauses and Further Information : | |

We the above firm have completed the above work in accordance with NZBC Code Clauses E2, B1, B2 and the Resene Construction Systems Specifications.

*Signed by Precision Plastering Nelson Ltd*

License Number
BP100858

# Memorandum from licensed building practitioner:

**Record of building work - Section 88, Building Act 2004**

| THE BUILDING | |
|---|---|
| Street address: 18 Kahikatea Way | |
| Suburb: Richmond | |
| Town / City: Richmond | Postcode: |

| THE PROJECT |
|---|
| Building consent number: 220131 |

| THE OWNERS | |
|---|---|
| Name(s): Susan & David Ford | |
| Mailing address: | |
| Suburb: | P O Box/Private Bag: N/A |
| Town / City: | Postcode: |
| Phone number: N/A | Email address: |

| RECORD OF WORK THAT IS RESTRICTED BUILDING WORK | | |
|---|---|---|
| **EXTERNAL MOISTURE MANAGEMENT SYSTEMS** | | |
| Ventilation system (for example subfloor or cavity): | Installed the cavity system and substrate to the EPS Insulated Facade System according to the manufacturers specifications. I supervised non-lbp's doing this work. All sitework complies with council approved documents on site. | Supervised |
| Wall cladding or wall cladding system: | Applied the plaster system to the EPS Insulated Facade System according to the manufacturers specifications. I supervised non-lbp's doing this work. All sitework complies with council approved documents on site. | Supervised |

| ISSUED BY | |
|---|---|
| Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work | |
| Name: Todd Adlam | LBP number: BP100858 |
| Class(es) licensed in: Exterior Plastering (PPCS) | |
| Mailing address(if different from below): | |
| Street address / Registered office: P O Box 3462 | |
| Suburb: Richmond, 7050 | Town / City: Nelson |
| PO Box / Private Bag: N/A | Postcode: |
| Phone number: 021 455 458 | Mobile: 021 455 458 |
| After hours: | Fax: |
| Email address: todd.precisionplastering@gmail.com | Website: N/A |

| DECLARATION | |
|---|---|
| I Todd Adlam carried out or supervised the restricted building work recorded on this form. | |
| Signature: | Date: 05/09/2022 |

# Required Documents Audit on BC220131

## Main Building

### Survey certificate / Building location certificate (Siting and Site Scrape Inspection) — N/A

**Historical Notes**

[ N/A @ 25 Oct 2022 14:35:51 ] Pete Fitzgerald:

Not required. Boundary pegs on site

### B1: Ground bearing certificate (Siting and Site Scrape Inspection) — N/A

**Historical Notes**

[ N/A @ 13 Jun 2022 9:51:09 ] Julian Malcolm:

Documents have been provided and accepted to cover Engineers scope of works.

### B1: Foundations - Construction monitoring records (Prepour) — N/A

**Historical Notes**

[ N/A @ 13 Jun 2022 9:51:16 ] Julian Malcolm:

Documents have been provided and accepted to cover Engineers scope of works.

### B1: Slab - Construction monitoring records (Floor Slab) — PASS

**Accepted Documents:**

- 220131-Ford-18_Kahikatea_Way-ROW-Slab.pdf (1.23MB)
  Accepted Date: 19 Aug 2022 15:08:30 - Friday
  Accepted By: Simon Kneebone

**Historical Notes**

[ PASS @ 29 Nov 2022 13:06:37 ] Pete Fitzgerald:

See below

[ 19 Aug 2022 15:08:30 ] Simon Kneebone:

Accepted Document: 220131-Ford-18_Kahikatea_Way-ROW-Slab.pdf (renamed to B1Slab-Constructionmonitoringrecords-001.pdf). Reasons / Notes:

Slab ROW received from Jamie Bennet, dated and signed, correct address and consent number

### B1: Mid-floor slab - Construction monitoring records (Concrete / Tilt panel / Steel frame) — PASS

**Accepted Documents:**

- 220131-Ford-18-Kahikatea-Way-PS4-Site-Notes-Mid-Floor.pdf (3.12MB)
  Accepted Date: 26 Oct 2022 13:06:43 - Wednesday
  Accepted By: Pete Fitzgerald

**Historical Notes**

[ PASS @ 29 Nov 2022 13:06:48 ] Pete Fitzgerald:
See below

[ 26 Oct 2022 13:06:43 ] Pete Fitzgerald:
Accepted Document: 220131-Ford-18-Kahikatea-Way-PS4-Site-Notes-Mid-Floor.pdf (renamed to B1Mid-floorslab-Constructionmonitoringrecords-001.pdf). Reasons / Notes: PS4/site notes correct mid floor

## E1: Stormwater drain leakage test and as-built plans (Drainage) **N/A**

**Historical Notes**

[ N/A @ 17 Oct 2022 14:22:08 ] Julian Malcolm:
na

## G4: Mechanical vent - Commissioning & construction monitoring (Final) **N/A**

**Historical Notes**

[ N/A @ 17 Oct 2022 14:22:21 ] Julian Malcolm:
Provided and accepted.

## G9: Energy works certificate (Final) **N/A**

**Historical Notes**

[ N/A @ 17 Oct 2022 14:22:04 ] Julian Malcolm:
Both provided and accepted.

## G12: Pipework pressure test documentation (Wastepipes) **PASS**

**Accepted Documents:**

- 220131-Ford-18_Kahikatea_Way-Pressure_Test_cert.pdf (467.54kB)
  Accepted Date: 19 Aug 2022 15:10:46 - Friday
  Accepted By: Simon Kneebone

**Historical Notes**

[ PASS @ 25 Oct 2022 14:36:02 ] Pete Fitzgerald:
See below

[ 19 Aug 2022 15:10:46 ] Simon Kneebone:
Accepted Document: 220131-Ford-18_Kahikatea_Way-Pressure_Test_cert.pdf (renamed to G12Pipeworkpressuretestdocumentation-001.pdf). Reasons / Notes: Plumber PTC received from Glyne Mclean, correct address and consent number, signed and dux scura pipes used

## G13: Underslab plumbing as-built & plumbers details (Wastepipes) PASS

**Accepted Documents:**

- 220131-Ford-18_Kahikatea_Way-PS3-Plumbing.pdf (384.91kB)
  Accepted Date: 19 Aug 2022 15:11:46 - Friday
  Accepted By: Simon Kneebone

**Historical Notes**

[ PASS @ 25 Oct 2022 14:36:16 ] Pete Fitzgerald:
See below

[ 19 Aug 2022 15:11:46 ] Simon Kneebone:
Accepted Document: 220131-Ford-18_Kahikatea_Way-PS3-Plumbing.pdf (renamed to G13Underslabplumbingas-builtplumbersdetails-001.pdf).
Reasons / Notes: Ps3 for under slab waste pipes from Glyne Mclean to G13 address and consent number correct,

## G13: As-builts, drainlayer details, pipework test (Drainage) PASS

**Accepted Documents:**

- 220131-Ford-18_Kahikatea_Way-as_built_drainage.pdf (1.46MB)
  Accepted Date: 19 Aug 2022 15:12:46 - Friday
  Accepted By: Simon Kneebone

**Historical Notes**

[ PASS @ 25 Oct 2022 14:36:30 ] Pete Fitzgerald:
See below

[ 19 Aug 2022 15:12:46 ] Simon Kneebone:
Accepted Document: 220131-Ford-18_Kahikatea_Way-as_built_drainage.pdf (renamed to G13As-builtsdrainlayerdetailspipeworktest-001.pdf).
Reasons / Notes: As Built drainage plan from Tom fearnley rego current, correct consent number

## Miscellaneous documents

**Accepted Documents:**

- 220131-Ford-18-Kahikatea-Way-PS4.pdf (5.87MB)
  Accepted Date: 13 Jun 2022 9:50:38 - Monday
  Accepted By: Julian Malcolm

**Historical Notes**

[ 13 Jun 2022 9:50:38 ] Julian Malcolm:
Accepted Document: 220131-Ford-18-Kahikatea-Way-PS4.pdf (renamed to Miscellaneousdocuments-001.pdf). Reasons / Notes: Documents have been provided and accepted to cover Engineers scope of works.

## Minor variations

**Accepted Documents:**

- BC220131-18_Kahikatea_Way-Minor_Variation_.pdf (0.99MB)
  Accepted Date: 26 Jul 2022 8:44:19 - Tuesday
  Accepted By: Simon Kneebone

**Historical Notes**
[ 26 Jul 2022 8:44:19 ] Simon Kneebone:
Accepted Document: BC220131-18_Kahikatea_Way-Minor_Variation_.pdf (renamed to 220131_Minorvariations_20220726.pdf)Reasons / Notes:
Automatically accepted as was uploaded by Council.

# Amendment 1

## B1: Slab - Construction monitoring records (Floor Slab) **N/A**

**Historical Notes**
[ N/A @ 25 Oct 2022 14:37:08 ] Pete Fitzgerald:
See engineers PS4 above

## E3: Internal waterproofing membrane product & installer warranties (Internal Membrane) **N/A**

**Historical Notes**
[ N/A @ 29 Nov 2022 13:06:58 ] Pete Fitzgerald:
Listed below

## G9: Energy works certificate (Final) **N/A**

**Historical Notes**
[ N/A @ 25 Oct 2022 14:39:06 ] Pete Fitzgerald:
See below

## G12: Pipework pressure test documentation (Wastepipes) **N/A**

**Historical Notes**
[ N/A @ 25 Oct 2022 14:37:28 ] Pete Fitzgerald:
See above

## Miscellaneous documents

**Accepted Documents:**
- 220131-Ford-18_Kahikatea_Way-as_built_truss.pdf (930.21kB)
  Accepted Date: 19 Aug 2022 15:14:53 - Friday
  Accepted By: Simon Kneebone

- 220131-Ford-18-Kahikatea-Way-ROW-Carpenter.pdf (1.09MB)
  Accepted Date: 17 Oct 2022 14:04:45 - Monday
  Accepted By: Julian Malcolm

- 220131-Ford-18-Kahikatea-Way-Electrical-Certificate.pdf (192.30kB)
  Accepted Date: 17 Oct 2022 14:14:55 - Monday
  Accepted By: Julian Malcolm

- 220131-Ford-18-Kahikatea-Way-Electrical-Vercom-Certificate.pdf (3.10MB)
  Accepted Date: 17 Oct 2022 14:15:19 - Monday
  Accepted By: Julian Malcolm

- 220131-Ford-18-Kahikatea-Way-Smartvent-PS3-And-PLan.pdf (720.04kB)
  Accepted Date: 17 Oct 2022 14:15:42 - Monday
  Accepted By: Julian Malcolm

- 220131-Ford-18-Kahikatea-Way-Code-Compliance-Application-Form.pdf (800.41kB)
  Accepted Date: 17 Oct 2022 13:27:30 - Monday
  Accepted By: Krystle Bang

- 220131-Ford-18-Kahikatea-Way-ROW-Roofer.pdf (756.52kB)
  Accepted Date: 17 Oct 2022 14:21:38 - Monday
  Accepted By: Julian Malcolm

- 220131-Ford-18-Kahikatea-Way-Tilers-Waterproofing-Certificate-01.pdf (337.03kB)
  Accepted Date: 19 Oct 2022 15:26:55 - Wednesday
  Accepted By: Casey Port

- 220131-Ford-18-Kahikatea-Way-PS3-And-Row-Rockcote.pdf (770.99kB)
  Accepted Date: 29 Nov 2022 13:00:09 - Tuesday
  Accepted By: Pete Fitzgerald

**Rejected Documents:**

- 220131-Ford-18-Kahikatea-Way-Tilers-Waterproofing-PS3.pdf (352.07kB)
  Rejected Date: 17 Oct 2022 13:40:29 - Monday
  Rejected By: Julian Malcolm

- 220131-Ford-18-Kahikatea-Way-Engineers-Site-Notes-01.pdf (1.80MB)
  Rejected Date: 17 Oct 2022 13:38:51 - Monday
  Rejected By: Julian Malcolm

**Historical Notes**

[ 29 Nov 2022 13:00:09 ] Pete Fitzgerald:
Accepted Document: 220131-Ford-18-Kahikatea-Way-PS3-And-Row-Rockcote.pdf (renamed to Miscellaneousdocuments-010.pdf). Reasons / Notes: ROW for the plaster work received

[ 19 Oct 2022 15:26:55 ] Casey Port:
Accepted Document: 220131-Ford-18-Kahikatea-Way-Tilers-Waterproofing-Certificate-01.pdf (renamed to Miscellaneousdocuments-009.pdf). Reasons / Notes: PS3 Checked OK

[ 17 Oct 2022 14:21:38 ] Julian Malcolm:
Accepted Document: 220131-Ford-18-Kahikatea-Way-ROW-Roofer.pdf (renamed to Miscellaneousdocuments-008.pdf). Reasons / Notes: ROW roofing current LBP. OK.

[ 17 Oct 2022 14:15:42 ] Julian Malcolm:
Accepted Document: 220131-Ford-18-Kahikatea-Way-Smartvent-PS3-And-PLan.pdf (renamed to Miscellaneousdocuments-007.pdf). Reasons / Notes: Smart vent ok. Current OK

[ 17 Oct 2022 14:15:19 ] Julian Malcolm:

Accepted Document: 220131-Ford-18-Kahikatea-Way-Electrical-Vercom-Certificate.pdf (renamed to Miscellaneousdocuments-006.pdf). Reasons / Notes: CoC current. OK

[ 17 Oct 2022 14:14:55 ] Julian Malcolm:
Accepted Document: 220131-Ford-18-Kahikatea-Way-Electrical-Certificate.pdf (renamed to Miscellaneousdocuments-005.pdf). Reasons / Notes: ESC Stuart Active. OK

[ 17 Oct 2022 14:04:45 ] Julian Malcolm:
Accepted Document: 220131-Ford-18-Kahikatea-Way-ROW-Carpenter.pdf (renamed to Miscellaneousdocuments-004.pdf). Reasons / Notes: Tim Ward ROW has been provided and accepted. Current.

[ 17 Oct 2022 13:40:31 ] Julian Malcolm:
Rejected Document: 220131-Ford-18-Kahikatea-Way-Tilers-Waterproofing-PS3.pdf Reasons / Notes: There are fields missing (Date by Signature)

Complete all fields and re-submit.

[ 17 Oct 2022 13:38:52 ] Julian Malcolm:
Rejected Document: 220131-Ford-18-Kahikatea-Way-Engineers-Site-Notes-01.pdf Reasons / Notes: Site notes are for wrong address.

[ 17 Oct 2022 13:27:30 ] Krystle Bang:
Accepted Document: 220131-Ford-18-Kahikatea-Way-Code-Compliance-Application-Form.pdf (renamed to Miscellaneousdocuments-003.pdf). Reasons / Notes: CCC Application checked by Takaka. Uploaded to main banner

[ 19 Aug 2022 15:14:53 ] Simon Kneebone:
Accepted Document: 220131-Ford-18_Kahikatea_Way-as_built_truss.pdf (renamed to Miscellaneousdocuments-002.pdf). Reasons / Notes: Truss As Built and manufactures statement from placemakers

## Minor variations

*- {no file(s) uploaded}*

# APPLICATION FOR CODE COMPLIANCE CERTIFICATE (Form 6)

Section 92. Building Act 2004.

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
Date: 17/10/2022

## 1. What is the Building Consent? *Complete this field*

| | |
|---|---|
| Building consent number: | 220131 |
| Issued by:(name of building consent authority) | Tasman District Council |

## 2. Who owns the building? *Complete all fields, using N/A if a field is not applicable*

| | | | |
|---|---|---|---|
| Owner name: | Susan Mary & David John Ford | Title: e.g. Mr, Mrs, Ms, Dr | Mr & Mrs |
| Contact person: | Kent Strange | | |
| Owner mailing address: | 17 Petra Way | | |
| Street address / registered office: | | | |
| Owner email address: | | | |
| Owner contact numbers: | Ph: N/A | Cell: | |

Indicate which of the following Proof of Ownership documents is attached to your application. Your documents **must** be less that **3** months old.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ☐ | Copy of Certificate of Title | ☐ | Copy of Lease Agreement | ☐ | Agreement for Sale & Purchase | ☐ | Other document showing full name of legal owner |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Are you using an Agent? | ✔ | Yes | ☐ | No | *If Yes, please also complete the following* | | |
| Who is the first point of contact for further correspondence? | ✔ | Agent | ☐ | Owner | | | |

| | | |
|---|---|---|
| Agent name: | Kent Strange | |
| Agent email: | kent.strange@gjgardner.co.nz | |
| Agent contact numbers: | Ph: | Cell: 0272862233 |
| Agent mailing address: | 195 Queen Street, Richmond 7020 | |
| Relationship to owner: | Agent | |

## 3. When was the building work completed? *Complete this field*

| | |
|---|---|
| All building work to be carried out under the building consent specified on this form was completed on: | *dd /mm / yyyy*<br>17/10/2022 |

## 4. Who completed the building work? *Complete all fields on each line. You will need to complete one line for each building practitioner. Use a separate sheet if necessary.*

The licensed building practitioner(s) who carried out/supervised the restricted building work is/are:

| Name: | Licensing class: | LBP or registration number: | Work carried out / supervised: |
|---|---|---|---|
| Apex Roofing | Roofing | 133588 | Carried out |
| Mark Shuttleworth | Tiling | NZ2873 | |
| | | | |
| Jamie Bennett | Foundations | 138205 | Supervised |
| Sam Sturkenboom | Electrical Cert | E268091 | |

| Name: | Licensing class: | LBP or registration number: | Work carried out / supervised: |
|---|---|---|---|
| CGW Consultig Enginee | PS4 | 1009889 | |
| | | | |
| Tradespeople who carried out building work other than restricted building work are as follows: | | | |
| Name: | Address: | Contact number: | Registration number: |
| Leo Fearnley (Drain Lay | | | 14755 |
| | | | |
| | | | |
| The following specified systems are contained on the compliance schedule for the building and, in the opinion of the personnel who installed them, are capable of performing to the performance standards set out in the building consent: | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## 5. Declaration

☑ I understand that this application may *only* be made with the owner's approval. *Please tick to indicate your agreement.*

I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004. The code compliance certificate should be sent to:

| ☐ Owner | ☑ Agent | ☐ Owner address as per Section 2 | ☐ Agent address as per Section 2 |
|---|---|---|---|

| | |
|---|---|
| Name: | Kent Strange |
| Signature: | |
| Date: | 05/08/22 |

You can add a digital signature to this document, either using Adobe or your existing digital signature.

Once you have filled out the form, including signatures, please save the application to your computer. You can then submit the application with supporting documentation to your local Council.

If you are unsure about what information to include in your application, a guidance document is available (**click here**).

## 6. Have you attached all required documents?

*You are required to provide all the necessary documents to support your application. This includes (but is not limited to) the following sections:*

- *Memorandum of Licensed Building Practitioners – Record of Work (for each type of building work completed)*
- *Certificates relating to energy work*
- *Evidence that specified systems are capable of performing to the performance standards set out in the building consent (if changed from the building consent)*
- *Other documents from personnel who carried out the work.*

*Refer to your building consent approval letter for a full list of documents required to support your Code Compliance Certificate application.*

# Form 7
# Code compliance certificate

*Section 95, Building Act 2004*

## The building

| | |
|---|---|
| Street address of building: | 18 Kahikatea Way, Richmond |
| Legal description of land where building is located: | LOT 366 DP 561194 |
| Building name: | N/A |
| Location of building within site/block number: | 18 Kahikatea Way, Richmond |
| Level/unit number: | 0 |
| Current, lawfully established, use: | 2.0 Housing: 2.0.2 Detached Dwelling |
| Year first constructed: | 2022 |

## The owner

| | |
|---|---|
| Name of owner: | David and Susan Ford |
| Contact person: | David and Susan Ford |
| Mailing address: | 17 Petra Way, Upper Moutere |
| Street address/registered office: | N/A |
| Phone number: | Landline: N/A Mobile: 0272288250 |
| Daytime: | Landline: N/A Mobile: 0272288250 |
| After hours: | Landline: N/A Mobile: 0272288250 |
| Facsimile number: | No information provided |
| Email address: | sueanddaveford@gmail.com |
| Website: | No information provided |

First point of contact for communications with the council/building consent authority:
Stephen Vercoe (LSK Builders 2011 Limited); Mailing Address: 195 Queen Street
Richmond 7020; Phone: 035439502; Email: nelson@gjgardner.co.nz

## Building work

| | |
|---|---|
| Building consent number: | BC220131 |
| Description: | Construct new dwelling with internal access garaging<br><br>Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised |
| Issued by: | Tasman District Council |

## Code compliance

The building consent authority named below is satisfied, on reasonable grounds, that -
the building work complies with the building consent.

Pete Fitzgerald

Position: Senior Building Technical Officer
On behalf of: Tasman District Council
Date: 29 November 2022

# Email #48893: BC220131

**Project ID:** 220131
**Date Received:** 2022-02-11 14:30:17
**Sender:** admin@premierservices.co.nz
**Checked By:** Renee Holmes
**Accepted By:** Renee Holmes
**Subject:**
Information Received Via Email: RE: BC220131 Request For Further Information - Vetting #1 - 18 Kahikatea Way, Richmond
**Message:**
Hello,

In reply BC220131 Request For Further Information - Vetting #1 - 18 Kahikatea Way, Richmond

Engineer Verification - PS1 not required at this stage, this will be included in the amendment.

Evidence of Ownership / Owner's Permission - yes, please remove.

Kind regards,

Miko

From: Tasman District Council <220131@tasman.abcs.co.nz<mailto:220131@tasman.abcs.co.nz>>
Date: 11 February 2022 at 1:01:33 PM NZDT
To: Jeremy Ritchie <jeremy@premierservices.co.nz<mailto:jeremy@premierservices.co.nz>>
Cc: nelson@gjgardner.co.nz<mailto:nelson@gjgardner.co.nz>
Subject: BC220131 Request For Further Information - Vetting #1 - 18 Kahikatea Way, Richmond
?Good afternoon

Thank you for your building consent application. We have reviewed it for completeness and we need some more information before we can formally accept your application for processing. Please find attached the Vetting Request for Further Information (VRFI).

Please respond by replying to this email, which will link your response to your application ensuring it receives prompt attention.

Ensure all items are addressed in a single response, and that this includes:

1 A covering note outlining the response to each item
2 Files that are in PDF format and to scale
3 Only provide information specifically relating to this project

Regards
Renee

Renee Holmes
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz<mailto:building.support@tasman.govt.nz> | W: http://www.tasman.govt.nz

_____

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Designated Recipient(s): jeremy@premierservices.co.nz<mailto:jeremy@premierservices.co.nz>

Sent From: AlphaOne Building Consent System

Sent Date: 11 February 2022 13:01 - Friday

# Email #49808: BC220131

**Project ID:** 220131
**Date Received:** 2022-03-03 15:35:07
**Sender:** coralie@premierservices.co.nz
**Checked By:** Karen FitzPatrick
**Accepted By:** Hazel Thelin
**Subject:**
Information Received Via Email: RE: BC220131 Request For Further Information #1 - 18 Kahikatea Way, Richmond
**Message:**
Hi Hazel,

Please see attached in response to your RFI for 18 Kahikatea Way, Richmond.

Regards

Coralie Walter
ON BEHALF OF
[X] <http://www.premierservices.co.nz/>
PREMIER SERVICES LIMITED
phone: 03 544 1829
email: coralie@premierservices.co.nz<mailto:coralie@premierservices.co.nz>
website: www.premierservices.co.nz<http://www.premierservices.co.nz/>
address: 6 Champion Road, Richmond 7020
[X]<http://www.business.govt.nz/lbp>
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IMPORTANT: This is an email from Premier Services Limited. We do not accept responsibility for any changes to this email or its attachments or for any attachments made by others, after we have transmitted it. UNAUTHORISED USE. This electronic message and attachments (if any) are confidential and may be legally privileged. If you are not the intended recipient do not copy, disclose or use contents in any way. In such case, you should delete this message and kindly notify the sender by reply email.

From: Tasman District Council <220131@tasman.abcs.co.nz<mailto:220131@tasman.abcs.co.nz>>
Sent: Wednesday, 23 February 2022 3:05 pm
To: nelson@gjgardner.co.nz<mailto:nelson@gjgardner.co.nz>
Cc: Jeremy Ritchie <jeremy@premierservices.co.nz<mailto:jeremy@premierservices.co.nz>>
Subject: BC220131 Request For Further Information #1 - 18 Kahikatea Way, Richmond

Dear Sir/Madam,

Thank you for your building consent application. We have reviewed it and we need some more information to make sure the proposed work meets the requirements of the Building Act 2004. We have detailed the information we need

in the attached letter.

Please respond through the AlphaOne portal by replying to this email, which will link your response to your application ensuring it receives prompt attention.

Ensure all items are addressed in a single response, and that this includes:

- A covering note outlining the response to each item
- Revised documents that clearly identify changes
(e.g. referenced by revision clouds and document versions)
- Files that are in PDF format and to scale
- Only provide information specifically relating to this project

Regards,

Hazel Thelin
Building Technical Officer (Processing)
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz<mailto:building.support@tasman.govt.nz> | W: http://www.tasman.govt.nz

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Designated Recipient(s): nelson@gjgardner.co.nz<mailto:nelson@gjgardner.co.nz>

Sent From: AlphaOne Building Consent System

Sent Date: 23 February 2022 15:05 - Wednesday

**ATTACHMENTS:**

- 18KahikateaWay_AmendedPlans.pdf

- 18KahikateaWay_RFI REPLY.pdf

# Email #50847: BC220131

**Project ID:** 220131
**Date Received:** 2022-03-22 17:10:11
**Sender:** coralie@premierservices.co.nz
**Checked By:** Karen FitzPatrick
**Accepted By:** Hazel Thelin
**Subject:**
Information Received Via Email: RE: BC220131.A1 Request For Further Information #1 - 18 Kahikatea Way, Richmond
**Message:**
Hi Hazel,

Please see attached in response to your RFI for 18 Kahikatea Way, Richmond.

Regards

Coralie Walter
ON BEHALF OF
[X] <http://www.premierservices.co.nz/>
PREMIER SERVICES LIMITED
phone: 03 544 1829
email: coralie@premierservices.co.nz<mailto:coralie@premierservices.co.nz>
website: www.premierservices.co.nz<http://www.premierservices.co.nz/>
address: 6 Champion Road, Richmond 7020
[X]<http://www.business.govt.nz/lbp>
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IMPORTANT: This is an email from Premier Services Limited. We do not accept responsibility for any changes to this email or its attachments or for any attachments made by others, after we have transmitted it. UNAUTHORISED USE. This electronic message and attachments (if any) are confidential and may be legally privileged. If you are not the intended recipient do not copy, disclose or use contents in any way. In such case, you should delete this message and kindly notify the sender by reply email.

Sent from my iPhone

Begin forwarded message:
From: Tasman District Council <220131@tasman.abcs.co.nz<mailto:220131@tasman.abcs.co.nz>>
Date: 14 March 2022 at 4:43:57 PM NZDT
To: nelson@gjgardner.co.nz<mailto:nelson@gjgardner.co.nz>
Cc: Jeremy Ritchie <jeremy@premierservices.co.nz<mailto:jeremy@premierservices.co.nz>>
Subject: BC220131.A1 Request For Further Information #1 - 18 Kahikatea Way, Richmond
?Dear Sir/Madam,

Thank you for your building consent application. We have reviewed it and we need some more information to make sure the proposed work meets the requirements of the Building Act 2004. We have detailed the information we need in the attached letter.

Please respond through the AlphaOne portal by replying to this email, which will link your response to your application ensuring it receives prompt attention.

Ensure all items are addressed in a single response, and that this includes:

- A covering note outlining the response to each item
- Revised documents that clearly identify changes
(e.g. referenced by revision clouds and document versions)
- Files that are in PDF format and to scale
- Only provide information specifically relating to this project

Regards,

Hazel Thelin
Building Technical Officer (Processing)
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz<mailto:building.support@tasman.govt.nz> | W: http://www.tasman.govt.nz

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Designated Recipient(s): nelson@gjgardner.co.nz<mailto:nelson@gjgardner.co.nz>

Sent From: AlphaOne Building Consent System

Sent Date: 14 March 2022 16:43 - Monday

**ATTACHMENTS:**

- 18KahikateaWay_AdditionalDocuments.pdf
- 18KahikateaWay_AmendedCupolex.pdf
- 18KahikateaWay_RFI REPLY.pdf
- 18KahikateaWay_AmendedPlans.pdf

# Email #51008: BC220131

**Project ID:** 220131
**Date Received:** 2022-03-25 13:25:03
**Sender:** hazel.thelin@tasman.govt.nz
**Checked By:** Debbie Woodley
**Accepted By:** Debbie Woodley
**Subject:**
Information Received Via Email: RE: BC220131: 18 Kahikatea Way - RMA check?
**Message:**
Will have a look

Hazel Thelin
Building Technical Officer - Processing
DDI +64 3 543 8983 |
Hazel.Thelin@tasman.govt.nz
Private Bag 4, Richmond 7050, NZ
This e-mail message and any attached files may contain confidential information, and may be subject to legal professional privilege. If you are not the intended recipient, please delete
?
From: Tasman District Council <220131@tasman.abcs.co.nz>
Sent: Friday, 25 March 2022 11:04 am
To: Hazel Thelin <Hazel.Thelin@tasman.govt.nz>
Subject: BC220131: 18 Kahikatea Way - RMA check?

Hi Hazel, hope you are feeling better each day.

Hey do you know why the RMA check is still showing incomplete on this job? Seems odd as none of the others had issues.

Debbie Woodley
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz<mailto:building.support@tasman.govt.nz> | W: http://www.tasman.govt.nz

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any other purpose, nor disclose its contents to any other person.

Designated Recipient(s): hazel.thelin@tasman.govt.nz<mailto:hazel.thelin@tasman.govt.nz>
Sent From: AlphaOne Building Consent System
Sent Date: 25 March 2022 11:04:07 am - Friday

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REJECTED ATTACHMENT(S):
Note: The listed file(s) below were rejected because they were not in PDF format.
- image593306.jpg
- image685386.png
- image716887.png
- image082379.jpg

# Email #51010: BC220131

**Project ID:** 220131
**Date Received:** 2022-03-25 13:30:05
**Sender:** hazel.thelin@tasman.govt.nz
**Checked By:** Debbie Woodley
**Accepted By:** Debbie Woodley
**Subject:**
Information Received Via Email: RE: BC220131: 18 Kahikatea Way - RMA check?

**Message:**
Hey Deb ,
The original form 5 has .....
The advice note Section 37 - RMA: This consent is issued subject to section 37 of the Building Act 2004. A deemed permitted boundary application to be made for infringment under the Resource Management Act 1991 for district plan non-compliance and this has not yet been obtained. Until this approval has been received from the relevant Territorial Authority no building work may proceed OR building work may only proceed to the extent stated on the Form 4 certificate

This was due to this filenote....
Sara Azevedo - Friday, 18 February 2022 17:33 pm
RFI
The proposal does not comply with internal setbacks pre approved.
Plans submitted have 1.129m (instead of 1.54 m) and 1.250m (instead of 1.3m) for internal setbacks in both sides.

Please let me know if you wish to amend the plans or apply for a resource consent.
Please also provide elevations showing building height to proceed.

I believe Resource consent is still required and they are aware. You could bring this up with them? The amended plans have no references to set backs

Cheers Hazey

Hazel Thelin
Building Technical Officer - Processing
DDI +64 3 543 8983 |
Hazel.Thelin@tasman.govt.nz
Private Bag 4, Richmond 7050, NZ
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?
From: Tasman District Council <220131@tasman.abcs.co.nz>
Sent: Friday, 25 March 2022 11:04 am

To: Hazel Thelin <Hazel.Thelin@tasman.govt.nz>
Subject: BC220131: 18 Kahikatea Way - RMA check?

Hi Hazel, hope you are feeling better each day.

Hey do you know why the RMA check is still showing incomplete on this job? Seems odd as none of the others had issues.

Debbie Woodley
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz<mailto:building.support@tasman.govt.nz> | W: http://www.tasman.govt.nz

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Designated Recipient(s): hazel.thelin@tasman.govt.nz<mailto:hazel.thelin@tasman.govt.nz>
Sent From: AlphaOne Building Consent System
Sent Date: 25 March 2022 11:04:07 am - Friday

---

REJECTED ATTACHMENT(S):
Note: The listed file(s) below were rejected because they were not in PDF format.
- image709450.jpg
- image583514.png
- image325597.png
- image682655.jpg

# Email #51068: BC220131

**Project ID:** 220131
**Date Received:** 2022-03-28 12:25:04
**Sender:** coralie@premierservices.co.nz
**Checked By:** Sara Azevedo
**Accepted By:** Debbie Woodley
**Subject:**
Information Received Via Email: RE: BC220131: 18 Kahikatea Way, Richmond
**Message:**
Hi Debbie,

I received the below email on the 18th Feb but no official RFI and then on the 23rd Feb we received the attached RFI from Hazel asking the same question, which we responded to.
And the resource consent application went in on the 8th of March so we had assumed this was being processed.

My apologies I may have missed responding to Sara's email amongst the others but is a response still required at this stage if the above is already underway?

Regards

Coralie Walter
ON BEHALF OF
[X] <http://www.premierservices.co.nz/>
PREMIER SERVICES LIMITED
phone: 03 544 1829
email: coralie@premierservices.co.nz<mailto:coralie@premierservices.co.nz>
website: www.premierservices.co.nz<http://www.premierservices.co.nz/>
address: 6 Champion Road, Richmond 7020
[X]<http://www.business.govt.nz/lbp>
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---------- Forwarded message ---------
From: Tasman District Council <220131@tasman.abcs.co.nz<mailto:220131@tasman.abcs.co.nz>>
Date: Mon, 28 Mar 2022 at 11:59
Subject: BC220131: 18 Kahikatea Way, Richmond
To: <nelson@gjgardner.co.nz<mailto:nelson@gjgardner.co.nz>>

Hi there, just letting you know that yes it does appear the RMA check is still incomplete on this BC as no response was ever received to Sara's (planning) email:
Sara Azevedo -- Friday, 18 February 2022 17:33 pm
The proposal does not comply with internal setbacks pre approved.
Plans submitted have 1.129m (instead of 1.54 m) and 1.250m (instead of 1.3m) for internal setbacks in both sides.
Please let me know if you wish to amend the plans or apply for a resource consent.
Please also provide elevations showing building height to proceed.

You may have been aware already but just a heads up if not, so you can get someone onto it.

Regards
Debbie Woodley
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz<mailto:building.support@tasman.govt.nz> | W: http://www.tasman.govt.nz

Dear Sir/Madam,

You recently applied for a building consent amendment, which has now been 'Recommended to Grant'. An invoice for the balance of fees outstanding is enclosed. Once payment is received and cleared, your building consent documentation can be generated.

Your amendment fee has been time tracked at $164.00 per hour and is based on:
0.22 hours building support time
3.27 hours processing time
3.49 Total building consent hours

PLEASE NOTE the RMA planning check is not yet complete (on the original). I am following up planning about this. The planning check may identify issues requiring a resource consent and consequently changes to these plans may be required. It is not recommended to start work until the planning check has been completed. DOING SO MAY BE IN BREACH OF THE TRMP (Tasman Resource Management Plan) AND SUBJECT TO PENALTIES.

Please note that building fees are due the 20th of the month following the invoice date. Council is not required to grant a building consent until it receives any fees and charges fixed by it in relation to the consent (Section 49.2(a) New Zealand Building Act 2004).

If you have any further queries regarding this matter, please contact your local Council Service Centre.

Regards,

Debbie Woodley

Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz<mailto:building.support@tasman.govt.nz> | W: http://www.tasman.govt.nz

_____

ATTACHMENTS:

* 220131-18 Kahikatea Way-Amendment invoice.pdf<https://tasman.abcs.co.nz/a2/public/download/5278066e-88ff-3ff1-8132-ec2fae3b6cbd>

_____

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Designated Recipient(s): nelson@gjgardner.co.nz<mailto:nelson@gjgardner.co.nz>
Sent From: AlphaOne Building Consent System
Sent Date: 28 March 2022 11:59:49 am - Monday

**ATTACHMENTS:**

- BC220131.1-20220223150508_Request-For-Further-Information.pdf

# Email #51172: BC220131

**Project ID:** 220131
**Date Received:** 2022-03-29 19:55:02
**Sender:** stephen.vercoe@gjgardner.co.nz
**Checked By:** Debbie Woodley
**Accepted By:** Debbie Woodley
**Subject:**
Information Received Via Email: Re: BC220131: 18 Kahikatea Way, Richmond
**Message:**
Hi Coralie,

Have you received any further response on this?

Thanks, Steve

On Mon, 28 Mar 2022, 12:21 pm Coralie Walter, <Coralie@premierservices.co.nz>
wrote:

> Hi Debbie,
>
>
>
> I received the below email on the 18th Feb but no official RFI and then
> on the 23rd Feb we received the attached RFI from Hazel asking the same
> question, which we responded to.
>
> And the resource consent application went in on the 8th of March so we
> had assumed this was being processed.
>
>
>
> My apologies I may have missed responding to Sara's email amongst the
> others but is a response still required at this stage if the above is
> already underway?
>
>
>
>
>
> Regards
>

>
>
> Coralie Walter
>
> ON BEHALF OF
>
> <http://www.premierservices.co.nz/>
>
> PREMIER SERVICES LIMITED
>
> phone: 03 544 1829
>
> email: coralie@premierservices.co.nz
>
> website: www.premierservices.co.nz
>
> address: 6 Champion Road, Richmond 7020
>
> <http://www.business.govt.nz/lbp>
>
> SAVE A TREE. DON'T HIT PRINT
>
> IMPORTANT: This is an email from Premier Services Limited. We do not
> accept responsibility for any changes to this email or its attachments or
> for any attachments made by others, after we have transmitted it.
> UNAUTHORISED USE. This electronic message and attachments (if any) are
> confidential and may be legally privileged. If you are not the intended
> recipient do not copy, disclose or use contents in any way. In such case,
> you should delete this message and kindly notify the sender by reply email.
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>
> ---------- Forwarded message ---------
> From: *Tasman District Council* <220131@tasman.abcs.co.nz>

> Date: Mon, 28 Mar 2022 at 11:59
> Subject: BC220131: 18 Kahikatea Way, Richmond
> To: <nelson@gjgardner.co.nz>
>
>
>
> Hi there, just letting you know that yes it does appear the RMA check is
> still incomplete on this BC as no response was ever received to Sara's
> (planning) email:
> Sara Azevedo -- Friday, 18 February 2022 17:33 pm
> The proposal does not comply with internal setbacks pre approved.
> Plans submitted have 1.129m (instead of 1.54 m) and 1.250m (instead of
> 1.3m) for internal setbacks in both sides.
> Please let me know if you wish to amend the plans or apply for a resource
> consent.
> Please also provide elevations showing building height to proceed.
>
> You may have been aware already but just a heads up if not, so you can get
> someone onto it.
>
>
> Regards
> Debbie Woodley
> Building Support Officer
> Tasman District Council
> 189 Queen Street, Richmond 7020
> P: 03 543 8400 | E: building.support@tasman.govt.nz | W:
> http://www.tasman.govt.nz
>
> Dear Sir/Madam,
>
> You recently applied for a building consent amendment, which has now been
> 'Recommended to Grant'. An invoice for the balance of fees outstanding is
> enclosed. Once payment is received and cleared, your building consent
> documentation can be generated.
>
> Your amendment fee has been time tracked at $164.00 per hour and is based
> on:
> 0.22 hours building support time
> 3.27 hours processing time
> 3.49 Total building consent hours
>
> PLEASE NOTE the RMA planning check is not yet complete (on the original).
> I am following up planning about this. The planning check may identify

> issues requiring a resource consent and consequently changes to these plans
> may be required. It is not recommended to start work until the planning
> check has been completed. DOING SO MAY BE IN BREACH OF THE TRMP (Tasman
> Resource Management Plan) AND SUBJECT TO PENALTIES.
>
> Please note that building fees are due the 20th of the month following the
> invoice date. Council is not required to grant a building consent until it
> receives any fees and charges fixed by it in relation to the consent
> (Section 49.2(a) New Zealand Building Act 2004).
>
> If you have any further queries regarding this matter, please contact your
> local Council Service Centre.
>
>
> Regards,
>
>
>
>
>
> Debbie Woodley
> Building Support Officer
> Tasman District Council
> 189 Queen Street, Richmond 7020
> P: 03 543 8400 | E: building.support@tasman.govt.nz | W:
> http://www.tasman.govt.nz
> ----------
>
> *ATTACHMENTS:*
>
> - 220131-18 Kahikatea Way-Amendment invoice.pdf
> <https://tasman.abcs.co.nz/a2/public/download/5278066e-88ff-3ff1-8132-ec2fae3b6cbd>
>
>
> ----------
>
> *DISCLAIMER*
> This message is for the designated recipient(s) only, and may contain
> confidential and/or privileged information. If you have received it in
> error, please delete it and advise the sender immediately. You should not
> copy or use it for any other purpose, nor disclose its contents to any
> other person.
>
> Designated Recipient(s): nelson@gjgardner.co.nz

> Sent From: AlphaOne Building Consent System

> Sent Date: 28 March 2022 11:59:49 am - Monday

>

# Email #194671: BC220131

**Project ID:** 220131
**Date Sent:** 2022-02-11 13:01:27
**Recipient:** jeremy@premierservices.co.nz
**Sender:** Renee Holmes
**Subject:**
BC220131 Request For Further Information - Vetting #1 - 18 Kahikatea Way, Richmond
**Message:**
Good afternoon

Thank you for your building consent application. We have reviewed it for completeness and we need some more information before we can formally accept your application for processing. Please find attached the Vetting Request for Further Information (VRFI).

Please respond by replying to this email, which will link your response to your application ensuring it receives prompt attention.

Ensure all items are addressed in a single response, and that this includes:

1 A covering note outlining the response to each item
2 Files that are in PDF format and to scale
3 Only provide information specifically relating to this project

Regards
Renee

Renee Holmes
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #194720: BC220131

**Project ID:** 220131
**Date Sent:** 2022-02-11 14:30:18
**Recipient:** admin@premierservices.co.nz
**Sender:** AlphaOne System
**Subject:**
RE: RE: BC220131 Request For Further Information - Vetting #1 - 18 Kahikatea Way, Richmond
**Message:**
Hello

Thank you for your message regarding your application with Tasman District Council. This is an automated response to confirm your message has been received by the assigned officer for review.

For further information or enquiries please email 220131@tasman.abcs.co.nz.

Kind regards

Tasman District Council
189 Queen Street
Richmond 7020
http://www.tasman.govt.nz

# Email #194722: BC220131

**Project ID:** 220131
**Date Sent:** 2022-02-11 14:33:21
**Recipient:** renee.holmes@tasman.govt.nz
**Sender:** Nikii Steele
**Subject:** BC220131: A new email has been allocated to you
**Message:**

Hello Renee Holmes,

A new email for BC220131 has been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131/communication/?optilbox

— AlphaOne System

# Email #194738: BC220131

**Project ID:** 220131
**Date Sent:** 2022-02-11 14:54:13
**Recipient:**
mike.harry@tasman.govt.nz, keren.barcas@tasman.govt.nz
**Sender:** Renee Holmes
**Subject:**
BC220131: 18 Kahikatea Way, Richmond - Miltiproof Clone Received
**Message:**
Hi Team

Just advising this clone of M107 has been received and to be allocated.  Please advise if any issues as we are new to this process.

Regards
Renee

Renee Holmes
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #194743: BC220131

**Project ID:** 220131
**Date Sent:** 2022-02-11 15:00:31
**Recipient:** nelson@gjgardner.co.nz
**Sender:** AlphaOne System
**Subject:** Application Accepted
**Message:**

Dear Sir/Madam,

Your application for Building Consent only with reference code BC220131 (18 Kahikatea Way, Richmond) has passed vetting and has been accepted by Tasman District Council for processing.

If you entered an electronic application you can track its progress on the customer portal https://consents-topofthesouth.abcs.co.nz/. You may need to register with AlphaOne and can do so by using the following link and signing up:

https://consents-topofthesouth.abcs.co.nz

Please respond to this email requesting access for your application once you have registered.

Your applications may attract development contributions. If you are unsure about this, please contact dc.admin@tasman.govt.nz

Regards,

Tasman District Council

# Email #194828: BC220131

**Project ID:** 220131
**Date Sent:** 2022-02-14 07:50:54
**Recipient:** Alex.Grigg@tasman.govt.nz
**Sender:** Mike Harry
**Subject:** BC220131: A new job for you
**Message:**

Hello Alex Grigg,

BC220131 has been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131

— AlphaOne System

# Email #194829: BC220131

**Project ID:** 220131
**Date Sent:** 2022-02-14 07:50:55
**Recipient:** hazel.thelin@tasman.govt.nz
**Sender:** Mike Harry
**Subject:** BC220131: A new job for you
**Message:**

Hello Hazel Thelin,

BC220131 has been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131

— AlphaOne System

# Email #194830: BC220131

**Project ID:** 220131
**Date Sent:** 2022-02-14 07:50:56
**Recipient:** Mark.Kopf@tasman.govt.nz
**Sender:** Mike Harry
**Subject:** BC220131: A new job for you
**Message:**

Hello Mark Kopf,

BC220131 has been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131

— AlphaOne System

# Email #194901: BC220131

**Project ID:** 220131
**Date Sent:** 2022-02-14 09:47:47
**Recipient:** pim@tasman.govt.nz
**Sender:** Sara Azevedo
**Subject:** BC220131: A new job for you
**Message:**

Hello Sara Azevedo,

BC220131 has been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131

— AlphaOne System

# Email #196219: BC220131

**Project ID:** 220131
**Date Sent:** 2022-02-18 17:33:14
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Sara Azevedo
**Subject:** BC220131: 18 Kahikatea Way, Richmond
**Message:**

Hi Stephen

The proposal does not comply with internal setbacks pre approved.
Plans submitted have 1.129m (instead of 1.54 m) and 1.250m (instead of 1.3m) for internal setbacks in both sides.

Please let me know if you wish to amend the plans or apply for a resource consent.
Please also provide elevations showing building height to proceed.

Kind regards

Sara Azevedo
Consents Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #197123: BC220131

**Project ID:** 220131
**Date Sent:** 2022-02-23 15:05:10
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Hazel Thelin
**Subject:**
BC220131 Request For Further Information #1 - 18 Kahikatea Way, Richmond
**Message:**
Dear Sir/Madam,

Thank you for your building consent application. We have reviewed it and we need some more information to make sure the proposed work meets the requirements of the Building Act 2004. We have detailed the information we need in the attached letter.

Please respond through the AlphaOne portal by replying to this email, which will link your response to your application ensuring it receives prompt attention.

Ensure all items are addressed in a single response, and that this includes:

- A covering note outlining the response to each item
- Revised documents that clearly identify changes
  (e.g. referenced by revision clouds and document versions)
- Files that are in PDF format and to scale
- Only provide information specifically relating to this project

Regards,

Hazel Thelin
Building Technical Officer (Processing)
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #198854: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-03 15:35:08
**Recipient:** coralie@premierservices.co.nz
**Sender:** AlphaOne System
**Subject:**
RE: RE: BC220131 Request For Further Information #1 - 18 Kahikatea Way, Richmond
**Message:**
Hello

Thank you for your message regarding your application with Tasman District Council. This is an automated response to confirm your message has been received by the assigned officer for review.

We accept email attachments in PDF, JPG and PNG format.

ACCEPTED ATTACHMENTS:
- 18KahikateaWay_AmendedPlans.pdf (1.61MB)
- 18KahikateaWay_RFI REPLY.pdf (151.05kB)

For further information or enquiries please email 220131@tasman.abcs.co.nz.

Kind regards

Tasman District Council
189 Queen Street
Richmond 7020
http://www.tasman.govt.nz

# Email #198870: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-03 15:47:43
**Recipient:** hazel.thelin@tasman.govt.nz
**Sender:** Renee Holmes
**Subject:** BC220131: A new email has been allocated to you
**Message:**

Hello Hazel Thelin,

A new email for BC220131 has been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131/communication/?optilbox

— AlphaOne System

# Email #199299: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-07 11:30:00
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Courtenay Lynn
**Subject:** BC220131: 18 Kahikatea Way, Richmond - Invoice
**Message:**

Dear Sir/Madam,

You recently applied for a building consent, which has now been "Recommended to Grant". An invoice for the balance of fees outstanding is enclosed. Once payment is received and cleared, your building consent documentation can be generated.

Your Building Consent fee has been time tracked at $164.00 per hour and is based on:

0.31 hours building support time
0.83 hours processing time
13.00 inspections
14.15 Total building consent hours

Further costs may be incurred or a credit may be owing and a final invoice/credit may be sent to you once your application for Code Compliance Certificate is accepted."

Please note that building fees are due the 20th of the month following the invoice date. Council is not required to grant a building consent until it receives any fees and charges fixed by it in relation to the consent (Section 49.2(a) New Zealand Building Act 2004).

If you have any further queries regarding this matter, please contact your local Council Service Centre, or call the number below and ask to speak to the Duty Building Officer.

Kindest regards

Courtenay Lynn
Team Leader Building Support - Building Assurance
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #199741: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-08 11:32:17
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Katherine Caldwell
**Subject:**
BC220131 Form 5: Building Consent - 18 Kahikatea Way, Richmond
**Message:**
Dear Sir/Madam,

Please find attached the copy of your granted Form 5: Building Consent.

WARNING

The RMA Planning check has not been completed at the time of granting and issuing of this Building Consent. The Planning check may identify issues requiring a Resource Consent and consequently changes to these plans may be required. It is not recommended to start work until the planning check has been completed. DOING SO MAY BE IN BREACH OF THE TRMP AND SUBJECT TO PENALTIES.

Your building consent documents are available to download from the AlphaOne portal. You may need to register with AlphaOne and can do so by using the following link and signing up:

https://consents-topofthesouth.abcs.co.nz

Please respond to this email requesting access for your application once you have registered.

To access your building consent documents:

1) click the link, or copy the following link into your internet web browser: https://consents-topofthesouth.abcs.co.nz/
2) click on the BC section of your consent applications progress bar
3) on the blue menu bar, click on Documents, then View Documents Issued
4) click on BC220131.pdf, select Save File
5) select where you would like to save this documentation to, and then click on save

Your files will be downloaded and available for you to save locally and use.

Regards,
Kathie

Katherine Caldwell
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #199826: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-08 13:13:06
**Recipient:** admin@premierservices.co.nz
**Sender:** System
**Subject:** Amendment to Building Consent: BC220131
**Message:**

Hello Premier Services Ltd,

Please find attached a copy of the information you have submitted to Tasman District Council. Thank you for your application, we will process your application electronically and be in contact with you.

Once your application has been vetted we will forward our account details for you to pay your deposit via direct debit. Processing of your application will commence once fees are paid.

Should you have any queries regarding your application please reply to this email or call our Building Services Team on (03) 543 8400.

— Tasman District Council

# Email #200018: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-09 07:16:09
**Recipient:** hazel.thelin@tasman.govt.nz
**Sender:** Mike Harry
**Subject:** BC220131: A new job for you
**Message:**

Hello Hazel Thelin,

BC220131 has been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131

— AlphaOne System

# Email #201091: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-14 16:43:47
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Hazel Thelin
**Subject:**
BC220131.A1 Request For Further Information #1 - 18 Kahikatea Way, Richmond
**Message:**
Dear Sir/Madam,

Thank you for your building consent application. We have reviewed it and we need some more information to make sure the proposed work meets the requirements of the Building Act 2004. We have detailed the information we need in the attached letter.

Please respond through the AlphaOne portal by replying to this email, which will link your response to your application ensuring it receives prompt attention.

Ensure all items are addressed in a single response, and that this includes:

- A covering note outlining the response to each item
- Revised documents that clearly identify changes
  (e.g. referenced by revision clouds and document versions)
- Files that are in PDF format and to scale
- Only provide information specifically relating to this project

Regards,

Hazel Thelin
Building Technical Officer (Processing)
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #202972: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-22 17:10:12
**Recipient:** coralie@premierservices.co.nz
**Sender:** AlphaOne System
**Subject:**
RE: RE: BC220131.A1 Request For Further Information #1 - 18 Kahikatea Way, Richmond
**Message:**
Hello

Thank you for your message regarding your application with Tasman District Council. This is an automated response to confirm your message has been received by the assigned officer for review.

We accept email attachments in PDF, JPG and PNG format.

ACCEPTED ATTACHMENTS:
- 18KahikateaWay_AdditionalDocuments.pdf (6.43MB)
- 18KahikateaWay_AmendedCupolex.pdf (5.59MB)
- 18KahikateaWay_RFI REPLY.pdf (149.05kB)
- 18KahikateaWay_AmendedPlans.pdf (1.28MB)

For further information or enquiries please email 220131@tasman.abcs.co.nz.

Kind regards

Tasman District Council
189 Queen Street
Richmond 7020
http://www.tasman.govt.nz

# Email #203009: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-23 08:24:49
**Recipient:** hazel.thelin@tasman.govt.nz
**Sender:** Nikii Steele
**Subject:** BC220131: A new email has been allocated to you
**Message:**

Hello Hazel Thelin,

A new email for BC220131 has been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131/communication/?optilbox

— AlphaOne System

# Email #203741: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-25 11:04:08
**Recipient:** hazel.thelin@tasman.govt.nz
**Sender:** Debbie Woodley
**Subject:** BC220131: 18 Kahikatea Way - RMA check?
**Message:**

Hi Hazel, hope you are feeling better each day.

Hey do you know why the RMA check is still showing incomplete on this job? Seems odd as none of the others had issues.

Debbie Woodley
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #203748: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-25 11:21:13
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Debbie Woodley
**Subject:**
BC220131: 18 Kahikatea Way, Richmond - Amendment invoice - RMA CHECK INCOMPLETE

**Message:**

Dear Sir/Madam,

You recently applied for a building consent amendment, which has now been 'Recommended to Grant'. An invoice for the balance of fees outstanding is enclosed. Once payment is received and cleared, your building consent documentation can be generated.

Your amendment fee has been time tracked at $164.00 per hour and is based on:
0.22 hours building support time
3.27 hours processing time
3.49 Total building consent hours

PLEASE NOTE the RMA planning check is not yet complete (on the original). I am following up planning about this. The planning check may identify issues requiring a resource consent and consequently changes to these plans may be required. It is not recommended to start work until the planning check has been completed. DOING SO MAY BE IN BREACH OF THE TRMP (Tasman Resource Management Plan) AND SUBJECT TO PENALTIES.

Please note that building fees are due the 20th of the month following the invoice date. Council is not required to grant a building consent until it receives any fees and charges fixed by it in relation to the consent (Section 49.2(a) New Zealand Building Act 2004).

If you have any further queries regarding this matter, please contact your local Council Service Centre.

Regards,

Debbie Woodley
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020

P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #203806: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-25 13:25:04
**Recipient:** hazel.thelin@tasman.govt.nz
**Sender:** AlphaOne System
**Subject:** RE: RE: BC220131: 18 Kahikatea Way - RMA check?
**Message:**

Hello

Thank you for your message regarding your application with Tasman District Council. This is an automated response to confirm your message has been received by the assigned officer for review.

We accept email attachments in PDF, JPG and PNG format.

REJECTED ATTACHMENTS:
- image593306.jpg (7.41kB)
- image685386.png (966.00B)
- image716887.png (850.00B)
- image082379.jpg (13.95kB)

Rejected image(s) may be from your signature. If you meant to send council an image, try attaching it with a descriptive filename, or upload it in the customer portal.

For further information or enquiries please email 220131@tasman.abcs.co.nz.

Kind regards

Tasman District Council
189 Queen Street
Richmond 7020
http://www.tasman.govt.nz

# Email #203809: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-25 13:30:07
**Recipient:** hazel.thelin@tasman.govt.nz
**Sender:** AlphaOne System
**Subject:** RE: RE: BC220131: 18 Kahikatea Way - RMA check?
**Message:**

Hello

Thank you for your message regarding your application with Tasman District Council. This is an automated response to confirm your message has been received by the assigned officer for review.

We accept email attachments in PDF, JPG and PNG format.

REJECTED ATTACHMENTS:
- image709450.jpg (7.41kB)
- image583514.png (966.00B)
- image325597.png (850.00B)
- image682655.jpg (13.95kB)

Rejected image(s) may be from your signature. If you meant to send council an image, try attaching it with a descriptive filename, or upload it in the customer portal.

For further information or enquiries please email 220131@tasman.abcs.co.nz.

Kind regards

Tasman District Council
189 Queen Street
Richmond 7020
http://www.tasman.govt.nz

# Email #203878: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-25 15:28:51
**Recipient:** debbie.woodley@tasman.govt.nz
**Sender:** Nikii Steele
**Subject:** BC220131: A new email has been allocated to you
**Message:**

Hello Debbie Woodley,

A new email for BC220131 has been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131/communication/?optilbox

— AlphaOne System

# Email #203881: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-25 15:36:55
**Recipient:** debbie.woodley@tasman.govt.nz
**Sender:** Nikii Steele
**Subject:** BC220131: A new email has been allocated to you
**Message:**

Hello Debbie Woodley,

A new email for BC220131 has been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131/communication/?optilbox

— AlphaOne System

# Email #204058: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-28 11:59:50
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Debbie Woodley
**Subject:** BC220131: 18 Kahikatea Way, Richmond
**Message:**

Hi there, just letting you know that yes it does appear the RMA check is still incomplete on this BC as no response was ever received to Sara's (planning) email:
Sara Azevedo -- Friday, 18 February 2022 17:33 pm
The proposal does not comply with internal setbacks pre approved.
Plans submitted have 1.129m (instead of 1.54 m) and 1.250m (instead of 1.3m) for internal setbacks in both sides.
Please let me know if you wish to amend the plans or apply for a resource consent.
Please also provide elevations showing building height to proceed.

You may have been aware already but just a heads up if not, so you can get someone onto it.

Regards
Debbie Woodley
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

Dear Sir/Madam,

You recently applied for a building consent amendment, which has now been 'Recommended to Grant'. An invoice for the balance of fees outstanding is enclosed. Once payment is received and cleared, your building consent documentation can be generated.

Your amendment fee has been time tracked at $164.00 per hour and is based on:
0.22 hours building support time
3.27 hours processing time
3.49 Total building consent hours

PLEASE NOTE the RMA planning check is not yet complete (on the original). I am following up planning about this. The planning check may identify issues requiring a resource consent and consequently changes to these plans may be required. It is not recommended to start work until the planning check has been completed. DOING SO MAY BE IN BREACH OF THE TRMP (Tasman Resource Management Plan) AND SUBJECT TO PENALTIES.

Please note that building fees are due the 20th of the month following the invoice date. Council is not required to grant a building consent until it receives any fees and charges fixed by it in relation to the consent (Section 49.2(a) New Zealand Building Act 2004).

If you have any further queries regarding this matter, please contact your local Council Service Centre.

Regards,

Debbie Woodley
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #204067: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-28 12:25:06
**Recipient:** coralie@premierservices.co.nz
**Sender:** AlphaOne System
**Subject:** RE: RE: BC220131: 18 Kahikatea Way, Richmond
**Message:**

Hello

Thank you for your message regarding your application with Tasman District Council. This is an automated response to confirm your message has been received by the assigned officer for review.

We accept email attachments in PDF, JPG and PNG format.

ACCEPTED ATTACHMENTS:

- BC220131.1-20220223150508_Request-For-Further-Information.pdf (22.45kB)

For further information or enquiries please email 220131@tasman.abcs.co.nz.

Kind regards

Tasman District Council
189 Queen Street
Richmond 7020
http://www.tasman.govt.nz

# Email #204119: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-28 13:56:11
**Recipient:** debbie.woodley@tasman.govt.nz
**Sender:** Katherine Caldwell
**Subject:** BC220131: A new email has been allocated to you
**Message:**

Hello Debbie Woodley,

A new email for BC220131 has been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131/communication/?optilbox

— AlphaOne System

# Email #204178: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-28 15:37:58
**Recipient:** pim@tasman.govt.nz
**Sender:** Debbie Woodley
**Subject:**
BC220131: 18 Kahikatea Way, Richmond - RMA check still outstanding?
**Message:**
Hi Sara or Julie,

Can you please check and let me or Coralie know if the planning check is actually still outstanding on this BC? As although there are no further notes from Sara since 18th Feb implying no response received, a resource consent was submitted. I guess it could potentially be checked off with a resource consent requirement on it?

Thanks
Debbie Woodley
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

Hi Debbie,

I received the below email on the 18th Feb but no official RFI and then on the 23rd Feb we received the attached RFI from Hazel asking the same question, which we responded to.
And the resource consent application went in on the 8th of March so we had assumed this was being processed.

My apologies I may have missed responding to Sara's email amongst the others but is a response still required at this stage if the above is already underway?

Regards

Coralie Walter
ON BEHALF OF
[X]
PREMIER SERVICES LIMITED
phone: 03 544 1829
email: coralie@premierservices.co.nz
website: www.premierservices.co.nz
address: 6 Champion Road, Richmond 7020

[X]

SAVE A TREE. DON'T HIT PRINT

IMPORTANT: This is an email from Premier Services Limited. We do not accept responsibility for any changes to this email or its attachments or for any attachments made by others, after we have transmitted it. UNAUTHORISED USE. This electronic message and attachments (if any) are confidential and may be legally privileged. If you are not the intended recipient do not copy, disclose or use contents in any way. In such case, you should delete this message and kindly notify the sender by reply email.

---------- Forwarded message ---------

From: Tasman District Council

Date: Mon, 28 Mar 2022 at 11:59

Subject: BC220131: 18 Kahikatea Way, Richmond

To:

Hi there, just letting you know that yes it does appear the RMA check is still incomplete on this BC as no response was ever received to Sara's (planning) email:

Sara Azevedo -- Friday, 18 February 2022 17:33 pm

The proposal does not comply with internal setbacks pre approved.

Plans submitted have 1.129m (instead of 1.54 m) and 1.250m (instead of 1.3m) for internal setbacks in both sides.

Please let me know if you wish to amend the plans or apply for a resource consent.

Please also provide elevations showing building height to proceed.

You may have been aware already but just a heads up if not, so you can get someone onto it.

Regards

Debbie Woodley

Building Support Officer

Tasman District Council

189 Queen Street, Richmond 7020

P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

Dear Sir/Madam,

You recently applied for a building consent amendment, which has now been 'Recommended to Grant'. An invoice for the balance of fees outstanding is enclosed. Once payment is received and cleared, your building consent documentation can be generated.

Your amendment fee has been time tracked at $164.00 per hour and is based on:

0.22 hours building support time

3.27 hours processing time

3.49 Total building consent hours

PLEASE NOTE the RMA planning check is not yet complete (on the original). I am following up planning about this. The planning check may identify issues requiring a resource consent and consequently changes to these plans may

be required. It is not recommended to start work until the planning check has been completed. DOING SO MAY BE IN BREACH OF THE TRMP (Tasman Resource Management Plan) AND SUBJECT TO PENALTIES.

Please note that building fees are due the 20th of the month following the invoice date. Council is not required to grant a building consent until it receives any fees and charges fixed by it in relation to the consent (Section 49.2(a) New Zealand Building Act 2004).

If you have any further queries regarding this matter, please contact your local Council Service Centre.

Regards,

Debbie Woodley
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

_____

ATTACHMENTS:

* 220131-18 Kahikatea Way-Amendment invoice.pdf

_____

DISCLAIMER
This message is for the designated recipient(s) only, and may contain confidential and/or privileged information. If you have received it in error, please delete it and advise the sender immediately. You should not copy or use it for any other purpose, nor disclose its contents to any other person.

Designated Recipient(s): nelson@gjgardner.co.nz
Sent From: AlphaOne Building Consent System
Sent Date: 28 March 2022 11:59:49 am - Monday

# Email #204202: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-28 15:59:22
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Katherine Caldwell
**Subject:**

BC220131.A1 Form 5: Building Consent - 18 Kahikatea Way, Richmond

**Message:**

Dear Sir/Madam,

Please find attached the copy of your granted Form 5: Building Consent.

Your building consent documents are available to download from the AlphaOne portal. You may need to register with AlphaOne and can do so by using the following link and signing up:

https://consents-topofthesouth.abcs.co.nz

Please respond to this email requesting access for your application once you have registered.

To access your building consent documents:

1) click the link, or copy the following link into your internet web browser: https://consents-topofthesouth.abcs.co.nz/
2) click on the BC section of your consent applications progress bar
3) on the blue menu bar, click on Documents, then View Documents Issued
4) click on BC220131.pdf, select Save File
5) select where you would like to save this documentation to, and then click on save

Your files will be downloaded and available for you to save locally and use.

Regards,
Kathie

Katherine Caldwell
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020

P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #204534: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-29 16:16:54
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Sara Azevedo
**Subject:**

BC220131 Form 4: Certificate attached to PIM - 18 Kahikatea Way, Richmond

**Message:**

Dear Sir/Madam,

Reference Number: BC220131

Form 4: Certificate attached to PIM

Sara Azevedo
Consents Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #204559: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-29 19:55:04
**Recipient:** stephen.vercoe@gjgardner.co.nz
**Sender:** AlphaOne System
**Subject:** RE: Re: BC220131: 18 Kahikatea Way, Richmond
**Message:**

Hello

Thank you for your message regarding your application with Tasman District Council. This is an automated response to confirm your message has been received by the assigned officer for review.

For further information or enquiries please email 220131@tasman.abcs.co.nz.

Kind regards

Tasman District Council
189 Queen Street
Richmond 7020
http://www.tasman.govt.nz

# Email #204734: BC220131

**Project ID:** 220131
**Date Sent:** 2022-03-30 14:21:27
**Recipient:** debbie.woodley@tasman.govt.nz
**Sender:** Katherine Caldwell
**Subject:** BC220131: A new email has been allocated to you
**Message:**

Hello Debbie Woodley,

A new email for BC220131 has been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131/communication/?optilbox

— AlphaOne System

# Email #208682: BC220131

**Project ID:** 220131
**Date Sent:** 2022-04-20 17:33:14
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Sara Azevedo
**Subject:** BC220131: 18 Kahikatea Way, Richmond
**Message:**

LSK Builders 2011 Limited

Dear Sir/Madam

BC220131: Resource Management Certificate Uplifted

The Resource Management Certificate which was previously issued under section 37 of the Building Act advising you that a resource consent was required for your building works has now been uplifted.

This is because the building works are now authorized by Deemed Permitted Boundary Activity PB220009 OR the proposal now demonstrates compliance with the planning requirements in the Tasman Resource Management Plan.

Once you building consent has been issued you may commence building work on your project.

Yours sincerely

Sara Azevedo
Consents Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #211521: BC220131

**Project ID:** 220131
**Date Sent:** 2022-05-05 15:31:44
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Neill Molloy
**Subject:** BC220131 Inspection Report
**Message:**

Our inspection team have carried out a site inspection on the above project today, please find attached the inspectors site notice for your information.

The AlphaOne system has the ability to mark the inspection record as a Pass or Fail, this is to ensure an accurate record is maintained of outstanding work or documents that is required to be completed or provided. The Inspector will discuss the inspection outcome and expectations with the onsite contact during the inspection.

If you have any queries regarding the content of the site notice please contact Tasman District Council on 03 543 8400.

Regards,

# Email #212751: BC220131

**Project ID:** 220131
**Date Sent:** 2022-05-11 16:16:10
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Neill Molloy
**Subject:** BC220131 Inspection Report
**Message:**

Our inspection team have carried out a site inspection on the above project today, please find attached the inspectors site notice for your information.

The AlphaOne system has the ability to mark the inspection record as a Pass or Fail, this is to ensure an accurate record is maintained of outstanding work or documents that is required to be completed or provided. The Inspector will discuss the inspection outcome and expectations with the onsite contact during the inspection.

If you have any queries regarding the content of the site notice please contact Tasman District Council on 03 543 8400.

Regards,

# Email #217135: BC220131

**Project ID:** 220131
**Date Sent:** 2022-06-02 14:58:46
**Recipient:** dutybuildinginspectors@tasman.govt.nz
**Sender:** Nikii Steele
**Subject:** BC220131: A new Document for you
**Message:**

Hello Duty Building Inspectors,

Documents on BC220131 have been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131

— AlphaOne System

# Email #217437: BC220131

**Project ID:** 220131
**Date Sent:** 2022-06-03 15:42:13
**Recipient:** mrphoneis1337@gmail.com, nelson@gjgardner.co.nz
**Sender:** Craig Jaquiery
**Subject:** BC220131 Inspection Report
**Message:**

Our inspection team have carried out a site inspection on the above project today, please find attached the inspectors site notice for your information.

The AlphaOne system has the ability to mark the inspection record as a Pass or Fail, this is to ensure an accurate record is maintained of outstanding work or documents that is required to be completed or provided. The Inspector will discuss the inspection outcome and expectations with the onsite contact during the inspection.

If you have any queries regarding the content of the site notice please contact Tasman District Council on 03 543 8400.

Regards,

# Email #221135: BC220131

**Project ID:** 220131
**Date Sent:** 2022-06-23 18:40:25
**Recipient:** mrphoneis1337@gmail.com, nelson@gjgardner.co.nz
**Sender:** Neill Molloy
**Subject:** BC220131 Inspection Report
**Message:**

Our inspection team have carried out a site inspection on the above project today, please find attached the inspectors site notice for your information.

The AlphaOne system has the ability to mark the inspection record as a Pass or Fail, this is to ensure an accurate record is maintained of outstanding work or documents that is required to be completed or provided. The Inspector will discuss the inspection outcome and expectations with the onsite contact during the inspection.

If you have any queries regarding the content of the site notice please contact Tasman District Council on 03 543 8400.

Regards,

# Email #226612: BC220131

**Project ID:** 220131
**Date Sent:** 2022-07-21 15:51:34
**Recipient:**
mrphoneis1337@gmail.com, todd.precisionplastering@gmail.com, nelson@gjgardner.co.nz
**Sender:** Neill Molloy
**Subject:** BC220131 Inspection Report
**Message:**

Our inspection team have carried out a site inspection on the above project today, please find attached the inspectors site notice for your information.

The AlphaOne system has the ability to mark the inspection record as a Pass or Fail, this is to ensure an accurate record is maintained of outstanding work or documents that is required to be completed or provided. The Inspector will discuss the inspection outcome and expectations with the onsite contact during the inspection.

If you have any queries regarding the content of the site notice please contact Tasman District Council on 03 543 8400.

Regards,

# Email #227255: BC220131

**Project ID:** 220131
**Date Sent:** 2022-07-26 08:48:53
**Recipient:** building.support@tasman.govt.nz
**Sender:** Simon Kneebone
**Subject:**
BC220131 Inspection Report #6 - 18 Kahikatea Way, Richmond- Minor variation fee applies
**Message:**
Dear Sir/Madam,

Our inspection team have carried out a site inspection on the above project today, please find attached the inspectors site notice for your information.

The AlphaOne system has the ability to mark the inspection record as a Pass or Fail, this is to ensure an accurate record is maintained of outstanding work or documents that is required to be completed or provided. The Inspector will discuss the inspection outcome and expectations with the onsite contact during the inspection.

If you have any queries regarding the content of the site notice please contact Tasman District Council on 03 543 8400.

Regards,

Simon Kneebone
Building Technical Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #228430: BC220131

**Project ID:** 220131
**Date Sent:** 2022-08-01 15:51:12
**Recipient:** mrphoneis1337@gmail.com, nelson@gjgardner.co.nz
**Sender:** Neill Molloy
**Subject:** BC220131 Inspection Report
**Message:**

Our inspection team have carried out a site inspection on the above project today, please find attached the inspectors site notice for your information.

The AlphaOne system has the ability to mark the inspection record as a Pass or Fail, this is to ensure an accurate record is maintained of outstanding work or documents that is required to be completed or provided. The Inspector will discuss the inspection outcome and expectations with the onsite contact during the inspection.

If you have any queries regarding the content of the site notice please contact Tasman District Council on 03 543 8400.

Regards,

# Email #230887: BC220131

**Project ID:** 220131
**Date Sent:** 2022-08-11 14:38:01
**Recipient:** mrphoneis1337@gmail.com, nelson@gjgardner.co.nz
**Sender:** Neill Molloy
**Subject:** BC220131 Inspection Report
**Message:**

Our inspection team have carried out a site inspection on the above project today, please find attached the inspectors site notice for your information.

The AlphaOne system has the ability to mark the inspection record as a Pass or Fail, this is to ensure an accurate record is maintained of outstanding work or documents that is required to be completed or provided. The Inspector will discuss the inspection outcome and expectations with the onsite contact during the inspection.

If you have any queries regarding the content of the site notice please contact Tasman District Council on 03 543 8400.

Regards,

# Email #233013: BC220131

**Project ID:** 220131
**Date Sent:** 2022-08-23 10:51:17
**Recipient:**
mrphoneis1337@gmail.com, todd.precisionplastering@gmail.com, nelson@gjgardner.co.nz
**Sender:** Neill Molloy
**Subject:** BC220131 Inspection Report
**Message:**

Our inspection team have carried out a site inspection on the above project today, please find attached the inspectors site notice for your information.

The AlphaOne system has the ability to mark the inspection record as a Pass or Fail, this is to ensure an accurate record is maintained of outstanding work or documents that is required to be completed or provided. The Inspector will discuss the inspection outcome and expectations with the onsite contact during the inspection.

If you have any queries regarding the content of the site notice please contact Tasman District Council on 03 543 8400.

Regards,

# Email #241067: BC220131

**Project ID:** 220131
**Date Sent:** 2022-09-30 16:39:12
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Julian Malcolm
**Subject:** BC220131 Inspection Report
**Message:**

Our inspection team have carried out a site inspection on the above project today, please find attached the inspectors site notice for your information.

The AlphaOne system has the ability to mark the inspection record as a Pass or Fail, this is to ensure an accurate record is maintained of outstanding work or documents that is required to be completed or provided. The Inspector will discuss the inspection outcome and expectations with the onsite contact during the inspection.

If you have any queries regarding the content of the site notice please contact Tasman District Council on 03 543 8400.

Regards,

# Email #244114: BC220131

**Project ID:** 220131
**Date Sent:** 2022-10-17 13:38:52
**Recipient:** nelson@gjgardner.co.nz
**Sender:** AlphaOne System
**Subject:**
BC220131: Document Rejected | Address: 18 Kahikatea Way, Richmond
**Message:**

Dear LSK builders 2011 Ltd GJGardner homes,

The following document for BC220131 has been rejected for the following reasons: Site notes are for wrong address.

Document Name: 220131-Ford-18-Kahikatea-Way-Engineers-Site-Notes-01.pdf

Regards,

Tasman District Council
03 543 8400 | building.support@tasman.govt.nz | http://www.tasman.govt.nz

# Email #244115: BC220131

**Project ID:** 220131
**Date Sent:** 2022-10-17 13:40:31
**Recipient:** nelson@gjgardner.co.nz
**Sender:** AlphaOne System
**Subject:**
BC220131: Document Rejected | Address: 18 Kahikatea Way, Richmond
**Message:**

Dear LSK builders 2011 Ltd GJGardner homes,

The following document for BC220131 has been rejected for the following reasons: There are fields missing (Date by Signature)

Complete all fields and re-submit.

Document Name: 220131-Ford-18-Kahikatea-Way-Tilers-Waterproofing-PS3.pdf

Regards,

Tasman District Council
03 543 8400 | building.support@tasman.govt.nz | http://www.tasman.govt.nz

# Email #244141: BC220131

**Project ID:** 220131
**Date Sent:** 2022-10-17 14:16:05
**Recipient:** kent.strange@gjgardner.co.nz
**Sender:** Krystle Bang
**Subject:**
BC220131: 18 Kahikatea Way, Richmond- Final Inspection
**Message:**
Hi Kent

Got the final inspection booked for the 25th of October, as discussed you will need to make sure the PS4 is in prior to the inspection taking place, Please ensure all works have been completed before this inspection takes place, it is also requested that a copy of the stamped plans are onsite for the inspectors viewing, this includes the plans to any amendments or minor variations that may have been made to the granted consent .
A building inspector will be in contact with you the working day prior or no later than the morning of inspection to confirm an approximate time he will meet with you,
If this date no longer works for you and you wish to reschedule please call our customer service team on 035438400 to rebook.

Kind regards
Krystle Bang
Customer Service Officer - Takaka
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #244143: BC220131

**Project ID:** 220131
**Date Sent:** 2022-10-17 14:17:17
**Recipient:** building.support@tasman.govt.nz
**Sender:** Krystle Bang
**Subject:**

BC220131: 18 Kahikatea Way, Richmond-Review Consent for credit or invoice

**Message:**

Hey Team

As per block can you review BC to identify if credit or further Invoice is required

Happy Monday

Krystle Bang
Customer Service Officer - Takaka
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #245056: BC220131

**Project ID:** 220131
**Date Sent:** 2022-10-20 14:44:40
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Renee Holmes
**Subject:**
BC220131: 18 Kahikatea Way, Richmond - Reconciliation Invoice
**Message:**
Good afternoon

You have recently applied for your code compliance certificate (CCC) and your final inspection has been booked. As you were previously advised when the building consent was originally issued:

"Further costs may be incurred or a credit may be owing and a final invoice/credit may be sent to you once your application for CCC is received"

As this consent has been time tracked, we have reviewed your consent and an invoice for the balance of fees outstanding is enclosed. Please note we cannot issue your code compliance certificate until all outstanding balances are paid in full.

Regards

Renee Holmes
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #245079: BC220131

**Project ID:** 220131
**Date Sent:** 2022-10-20 15:37:20
**Recipient:** dutybuildinginspectors@tasman.govt.nz
**Sender:** Nikii Steele
**Subject:** BC220131: A new Document for you
**Message:**

Hello Duty Building Inspectors,

Documents on BC220131 have been allocated to you. Please check and take appropriate action.

https://tasman.abcs.co.nz/jobs/220131

— AlphaOne System

# Email #245287: BC220131

**Project ID:** 220131
**Date Sent:** 2022-10-21 12:06:29
**Recipient:** kent.strange@gjgardner.co.nz
**Sender:** Sarah Jones
**Subject:** BC220131: 18 Kahikatea Way, Richmond
**Message:**

Hi Kent,

As per request from Debra, the Final Inspection for 18 Kahikatea Way has now been moved to Wednesday 26th October.

Kind regards

Sarah Jones
Customer Service Officer - Takaka
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #245314: BC220131

**Project ID:** 220131
**Date Sent:** 2022-10-21 13:21:03
**Recipient:** kent.strange@gjgardner.co.nz
**Sender:** AlphaOne System
**Subject:** RE: Re: BC220131: 18 Kahikatea Way, Richmond
**Message:**

Hello

Thank you for your message regarding your application with Tasman District Council. This is an automated response to confirm your message has been received by the assigned officer for review.

For further information or enquiries please email 220131@tasman.abcs.co.nz.

Kind regards

Tasman District Council
189 Queen Street
Richmond 7020
http://www.tasman.govt.nz

# Email #245870: BC220131

**Project ID:** 220131
**Date Sent:** 2022-10-26 13:22:16
**Recipient:**
bc.admin@tasman.govt.nz, kent.strange@gjgardner.co.nz
**Sender:** Pete Fitzgerald
**Subject:** BC220131 Inspection Report
**Message:**

Our inspection team have carried out a site inspection on the above project today, please find attached the inspectors site notice for your information.

The AlphaOne system has the ability to mark the inspection record as a Pass or Fail, this is to ensure an accurate record is maintained of outstanding work or documents that is required to be completed or provided. The Inspector will discuss the inspection outcome and expectations with the onsite contact during the inspection.

If you have any queries regarding the content of the site notice please contact Tasman District Council on 03 543 8400.

Regards,

# Email #245877: BC220131

**Project ID:** 220131
**Date Sent:** 2022-10-26 13:33:12
**Recipient:** nelson@gjgardner.co.nz
**Sender:** Nikii Steele
**Subject:** BC220131: 18 Kahikatea Way, Richmond - Invoice
**Message:**

Good afternoon,

Please find attached an invoice for the failed inspection dated - 26-10-2022

Kind regards,

Nikii Steele
Building Support Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# Email #252574: BC220131

**Project ID:** 220131
**Date Sent:** 2022-11-29 13:03:14
**Recipient:**
kent.strange@gjgardner.co.nz, nelson@gjgardner.co.nz
**Sender:** Pete Fitzgerald
**Subject:** BC220131 Inspection Report
**Message:**

Our inspection team have carried out a site inspection on the above project today, please find attached the inspectors site notice for your information.

The AlphaOne system has the ability to mark the inspection record as a Pass or Fail, this is to ensure an accurate record is maintained of outstanding work or documents that is required to be completed or provided. The Inspector will discuss the inspection outcome and expectations with the onsite contact during the inspection.

If you have any queries regarding the content of the site notice please contact Tasman District Council on 03 543 8400.

Regards,

# Email #252577: BC220131

**Project ID:** 220131
**Date Sent:** 2022-11-29 13:09:17
**Recipient:** kent.strange@gjgardner.co.nz
**Sender:** Pete Fitzgerald
**Subject:**
BC220131 Form 7: Code Compliance Certificate - 18 Kahikatea Way, Richmond
**Message:**
Dear Sir/Madam,

Please find attached a copy of your code compliance certificate for BC220131.

If you have any questions please contact Tasman District Council on 03 543 8400.

Regards

Pete Fitzgerald
Senior Building Technical Officer
Tasman District Council
189 Queen Street, Richmond 7020
P: 03 543 8400 | E: building.support@tasman.govt.nz | W: http://www.tasman.govt.nz

# File Notes: BC220131

**Blog ID:** 273450
**Author:** Renee Holmes
**Created:** 2022-02-11 12:45:07
**Notes:** Application Notes:

This application has been imported as new application instead of amendment with BC Number:

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**Blog ID:** 273451
**Author:** Renee Holmes
**Created:** 2022-02-11 12:46:51
**Notes:** Multiproof Template M107 was applied to this job.

---

**Blog ID:** 273456
**Author:** Renee Holmes
**Created:** 2022-02-11 13:01:49
**Notes:** Assets Input:Natural Hazard Check has already been undertaken at subdivision stage and no concerns were raised

---

**Blog ID:** 273481
**Author:** Renee Holmes
**Created:** 2022-02-11 14:53:32
**Notes:** Premier discussed with Helen and advised Formal Amendments are to be submitted on granting of this BC. This is a Multiproof clone of M107. Email to Mike and Keren from the project for allocation of this Multiproof

---

**Blog ID:** 273989
**Author:** Sara Azevedo
**Created:** 2022-02-15 17:18:19
**Notes:** Reduced setbacks in comparison to plans pre aproved.
plans submitted has 1.129m (instead of 1.54 m) and 1.250m (instead of 1.3m) for internal setbacks (both sides).
Waiting for Julie`s instructions.

---

**Blog ID:** 274636
**Author:** Alex Grigg
**Created:** 2022-02-18 13:35:20
**Notes:** Property has a reticulated water, wastewater and stormwater connection available (stormwater connection only has capacity for current land use zoning). Wastewater connection is via an individual wastewater pump station maintained by Council with the power supplied by the property owner.
Owner, Occupiers and Commissioning Manual is available on Councils website. The pump station is located within your property and protected by an easement and cannot be built over.
Existing Vehicle Crossing

---

**Blog ID:** 274695
**Author:** Sara Azevedo
**Created:** 2022-02-18 17:33:33
**Notes:** RFI
The proposal does not comply with internal setbacks pre approved.
Plans submitted have 1.129m (instead of 1.54 m) and 1.250m (instead of 1.3m) for internal setbacks in both sides.

Please let me know if you wish to amend the plans or apply for a resource consent.
Please also provide elevations showing building height to proceed.

---

**Blog ID:** 277110
**Author:** Hazel Thelin
**Created:** 2022-03-07 08:07:15
**Notes:** Hazel Thelin added 'BC Issue Awaiting Invoice' block for the following reason: Invoice Due

---

**Blog ID:** 277111
**Author:** Hazel Thelin
**Created:** 2022-03-07 08:07:15
**Notes:** Hazel Thelin added 'CCC Issue Other' block for the following reason: CCC Not Ready

---

**Blog ID:** 277112
**Author:** Hazel Thelin
**Created:** 2022-03-07 08:07:15
**Notes:** Hazel Thelin added 'Inspections BC Not Granted/Issued' block for the following reason: Building Consent can be granted and issued on payment of the appropriate fees and levies.

---

**Blog ID:** 277113
**Author:** Hazel Thelin
**Created:** 2022-03-07 08:07:15
**Notes:** Hazel Thelin added 'Inspections Other' block for the following reason: RMA has not been completed

---

**Blog ID:** 277217
**Author:** Courtenay Lynn
**Created:** 2022-03-07 11:30:17
**Notes:** Courtenay Lynn removed 'BC Issue Awaiting Invoice' block for the following reason: Invoiced

---

**Blog ID:** 277218
**Author:** Courtenay Lynn
**Created:** 2022-03-07 11:30:32
**Notes:** Courtenay Lynn added 'BC Issue Awaiting Payment' block for the following reason: Your Building Consent fee has been time tracked at $164.00 per hour and is based

on: 0.31 hours building support time 0.83 hours processing time 13.00 inspections 14.15 Total building consent hours

---

**Blog ID:** 277219
**Author:** Courtenay Lynn
**Created:** 2022-03-07 11:31:11
**Notes:** Courtenay Lynn added 'CCC Issue Other' block for the following reason: On Acceptance of CCC Application, please send email to Building Support so they can review BC to identify if credit or further Invoice is required

---

**Blog ID:** 277413
**Author:** Katherine Caldwell
**Created:** 2022-03-08 11:28:21
**Notes:** Katherine Caldwell removed 'BC Issue Awaiting Payment' block for the following reason: Paid In full

---

**Blog ID:** 277415
**Author:** Katherine Caldwell
**Created:** 2022-03-08 11:31:16
**Notes:** Katherine Caldwell removed 'Inspections BC Not Granted/Issued' block for the following reason: BC is now granted and issued

---

**Blog ID:** 277416
**Author:** Katherine Caldwell
**Created:** 2022-03-08 11:31:23
**Notes:** Katherine Caldwell added 'CCC Issue Other' block for the following reason: CCC Not Ready

---

**Blog ID:** 277417
**Author:** Katherine Caldwell
**Created:** 2022-03-08 11:31:39
**Notes:** Katherine Caldwell removed 'CCC Issue Other' block for the following reason: Duplicate

---

**Blog ID:** 277579
**Author:** Debbie Woodley
**Created:** 2022-03-08 15:55:14
**Notes:** Other Notes From Applicant (Amendment 1): Reply & additional documents for rejected building consent application.

---

**Blog ID:** 277580
**Author:** Debbie Woodley
**Created:** 2022-03-08 15:55:14
**Notes:** Debbie Woodley added 'Inspections Amendment' block for the following reason: Amendment Lodged

---

**Blog ID:** 277581
**Author:** Debbie Woodley
**Created:** 2022-03-08 15:56:28
**Notes:** Spoke at length with Coralie. Number 12 Kahikatea Way is the only BC of all five on M107 (12, 14, 16, 18 & 20 Kahikatea Way) that is amending truss design however under original approved template M107, there was one truss design and certification for ALL 5 addresses. This then means it changes the truss design for all 5 addresses. This will be a problem at inspections or CCC stage when the as-builts get uploaded as they will not match four of the five BCs. So, Coralie is going to have number 12 separated out to it's own truss design and plans, and 14, 16, 18 & 20 will remain the original design approved under M107. No need for updated docs to be provided as this can be captured via incoming docs.

---

**Blog ID:** 277603
**Author:** Debbie Woodley

**Created:** 2022-03-08 16:29:33
**Notes:** Amendment 1: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised. No RMA re-check required. Manually loaded in NCS.

---

**Blog ID:** 277626
**Author:** Mike Harry
**Created:** 2022-03-09 07:15:49
**Notes:** Original processor: Hazel Thelin. Amendment 1 description of work: Walk in robe area increased, laundry and entry design altered, change first floor bathrooms to tiled floors and ensuite shower to tiled, finished floor levels adjusted, and bracing revised. No RMA re-check required.

---

**Blog ID:** 277882
**Author:** Hazel Thelin
**Created:** 2022-03-09 17:01:32
**Notes:** Coralie is awaiting further information from CGW for no.18 slab thickenings. I have stated that I will send the RFI for this on Monday to give them more time should the information arrive prior to this

---

**Blog ID:** 280400
**Author:** Hazel Thelin
**Created:** 2022-03-23 16:34:44
**Notes:** processing whilst covid positive

---

**Blog ID:** 280590
**Author:** Hazel Thelin
**Created:** 2022-03-24 13:50:34
**Notes:** Hazel Thelin added 'BC Issue Awaiting Invoice' block for the following reason: Invoice Due

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**Blog ID:** 280770
**Author:** Debbie Woodley
**Created:** 2022-03-25 11:09:05
**Notes:** Debbie Woodley removed 'BC Issue Awaiting Invoice' block for the following reason: Invoiced

---

**Blog ID:** 280771
**Author:** Debbie Woodley
**Created:** 2022-03-25 11:11:04
**Notes:** Debbie Woodley added 'BC Issue Awaiting Payment' block for the following reason: Awaiting payment amendment 1. Over $500. Amendment fee has been time tracked at $164.00 per hour and is based on: 0.22 hours building support time, 3.27 hours processing time, 3.49 Total building consent hours. Checking if Hazel knows why RMA check is still incomplete on the original as none of the other four were held up.

---

**Blog ID:** 281112
**Author:** Katherine Caldwell
**Created:** 2022-03-28 15:58:37
**Notes:** Katherine Caldwell removed 'BC Issue Awaiting Payment' block for the following reason: Paid in Full

---

**Blog ID:** 281113
**Author:** Katherine Caldwell
**Created:** 2022-03-28 15:58:52
**Notes:** Katherine Caldwell removed 'Inspections Amendment' block for the following reason: BC Issued

---

**Blog ID:** 281353

**Author:** Sara Azevedo
**Created:** 2022-03-29 16:13:39
**Notes:** PB220009 lodged for internal setbacks breach. No decision yet, (on hold awaiting payment).

---

**Blog ID:** 281355
**Author:** Sara Azevedo
**Created:** 2022-03-29 16:16:21
**Notes:** Sara Azevedo added 'Inspections Resource Consent' block for the following reason: RMA Hold

---

**Blog ID:** 281357
**Author:** Sara Azevedo
**Created:** 2022-03-29 16:18:10
**Notes:** As the RC decision was not issued yet, a form 4 was created and sent to owner/agent (BC issued)

---

**Blog ID:** 283725
**Author:** Renee Holmes
**Created:** 2022-04-11 15:46:35
**Notes:** Called Dave and explained the hourly charge for the amendment fee SR2205548. Dave was happy with this.

---

**Blog ID:** 285071
**Author:** Sara Azevedo
**Created:** 2022-04-20 17:23:01
**Notes:** PB220009 granted and now reduced internal setbacks are approved.

---

**Blog ID:** 285072
**Author:** Sara Azevedo
**Created:** 2022-04-20 17:26:36
**Notes:** I have uploaded the Resource Consent document. (20 April 2022)

---

**Blog ID:** 285073
**Author:** Sara Azevedo
**Created:** 2022-04-20 17:26:36
**Notes:** Sara Azevedo removed 'Inspections Resource Consent' block for the following reason: RMA Hold

---

**Blog ID:** 285074
**Author:** Sara Azevedo
**Created:** 2022-04-20 17:28:07
**Notes:** Sara Azevedo removed 'Inspections Other' block for the following reason: DPBA 220009 granted approving reduced internal setback.

---

**Blog ID:** 285075
**Author:** Sara Azevedo
**Created:** 2022-04-20 17:35:02
**Notes:** S37 uplift letter sent to agent.

---

**Blog ID:** 287222
**Author:** Neill Molloy
**Created:** 2022-05-05 15:31:42
**Notes:** Neill Molloy added 'Inspections No further inspection' block for the following reason: Engineers supporting documentation to be provided for SED slab construction and ground bearing.

---

**Blog ID:** 287620
**Author:** Nikii Steele
**Created:** 2022-05-09 10:25:06
**Notes:** Nikii Steele overrides the existing blocks to edit booking for the following reason: Drainage only - rearranging the inspection

---

**Blog ID:** 291372
**Author:** Renee Holmes
**Created:** 2022-06-01 08:47:43
**Notes:** Renee Holmes removed 'Inspections No further inspection' block for the following reason: Paperwork is in documents ready to be checked by duty BI

---

**Blog ID:** 291913
**Author:** Craig Jaquiery
**Created:** 2022-06-03 15:42:10
**Notes:** Craig Jaquiery added 'Inspections No further inspection' block for the following reason: Engineers site notes to be up loaded to Alpha One to remove inspection block

---

**Blog ID:** 292906
**Author:** Julian Malcolm
**Created:** 2022-06-13 09:51:52
**Notes:** Julian Malcolm removed 'Inspections No further inspection' block for the following reason: Documents have been provided and accepted to cover Engineers scope of works including SED floor slab and ground bearing.

---

**Blog ID:** 300047
**Author:** Debbie Woodley
**Created:** 2022-07-26 11:07:24
**Notes:** Minor variation for additional detailing of inter-storey Z flashing in alcove behind garage, received 26th July, to be charged during account reconciliation. Simon K approved and accepted. I have merged with existing BC issued and public PL (page 34), and added to

DORIS.

---

**Blog ID:** 325294
**Author:** Julian Malcolm
**Created:** 2022-09-30 16:39:11
**Notes:** Julian Malcolm added 'Inspections No further inspection' block for the following reason: Provide PS4 to cover Structual inspection from a CPENG Engineer.

---

**Blog ID:** 331251
**Author:** Krystle Bang
**Created:** 2022-10-17 13:23:54
**Notes:** I have uploaded the Application for CCC - Paper (17 October 2022)

---

**Blog ID:** 331252
**Author:** Krystle Bang
**Created:** 2022-10-17 13:23:54
**Notes:** Krystle Bang made a decision to start the CCC clock for the following reason: CCC application-received

---

**Blog ID:** 331266
**Author:** Simon Kneebone
**Created:** 2022-10-17 13:53:51
**Notes:** Simon Kneebone overrides the existing blocks to create booking for the following reason: paperwork only- final can take place

---

**Blog ID:** 332701
**Author:** Renee Holmes

**Created:** 2022-10-20 14:45:06
**Notes:** Renee Holmes removed 'CCC Issue Other' block for the following reason: Reconciliation completed

---

**Blog ID:** 332702
**Author:** Renee Holmes
**Created:** 2022-10-20 14:46:39
**Notes:** Renee Holmes added 'CCC Issue Other' block for the following reason: Do not issue CCC without full payment

---

**Blog ID:** 332703
**Author:** Renee Holmes
**Created:** 2022-10-20 14:48:54
**Notes:** Renee Holmes overrides the existing blocks to edit booking for the following reason: Adding note

---

**Blog ID:** 332983
**Author:** Sarah Jones
**Created:** 2022-10-21 11:55:54
**Notes:** Sarah Jones overrides the existing blocks to edit booking for the following reason: Already booked by Simon Knebone - just amending date - to one day out as per request from Debra Lithgow

---

**Blog ID:** 344354
**Author:** Pete Fitzgerald
**Created:** 2022-11-29 11:17:29
**Notes:** Pete Fitzgerald overrides the existing blocks to create booking for the following reason: To be addressed at the final

---

**Blog ID:** 344376
**Author:** Pete Fitzgerald
**Created:** 2022-11-29 13:07:47
**Notes:** Pete Fitzgerald removed 'Inspections No further inspection' block for the following reason: Added to the required docs

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**Blog ID:** 344377
**Author:** Pete Fitzgerald
**Created:** 2022-11-29 13:08:03
**Notes:** Pete Fitzgerald removed 'CCC Issue Other' block for the following reason: No outstanding fees

---

**Blog ID:** 344378
**Author:** Pete Fitzgerald
**Created:** 2022-11-29 13:08:27
**Notes:** Pete Fitzgerald removed 'CCC Issue Other' block for the following reason: BC has been issued and final inspection has been complete

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**Blog ID:** 344379
**Author:** Pete Fitzgerald
**Created:** 2022-11-29 13:08:38
**Notes:** Pete Fitzgerald added 'CCC Issue Awaiting Invoice' block for the following reason: Invoice Due

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**Blog ID:** 344380
**Author:** Pete Fitzgerald
**Created:** 2022-11-29 13:08:54
**Notes:** Pete Fitzgerald removed 'CCC Issue Awaiting Invoice' block for the following reason: No outstanding fees

---

**Blog ID:** 344514
**Author:** System
**Created:** 2022-11-30 02:46:15
**Notes:** API added 'Project at End Other' block for the following reason: System set this project as read-only as the project is at end.

---