Waimakariri District Council
215 High Street
Private Bag 1005
Rangiora 7440, New Zealand
Phone 0800 965 468

BC No: 221264

SITE DETAILS:

38 CROSSLEY AVENUE

WOODEND

LEGAL:

LOT 755

AS BUILT TRUSS LAYOUT REQUIRED –
This must be received by the Building Unit **AT LEAST** 10 WORKING DAYS PRIOR to the Structure Pre-Roof Pre-Wrap Inspection

Truss "As-Built" Designs may be sent to:
buildinginfo@wmk.govt.nz

Approved Building Consent Documents and Plans

(Full set)

On Site Copy

- These plans and specifications must be kept on site during construction, and made available to the building officer on request. Failure to do so will mean an automatic failure of the building inspection and will necessitate re-booking the inspection at the applicant's expense.
- All boundary survey pegs must be located and flagged by the owner before work is commenced.

Inspections

For bookings or building enquiries please phone the Building Unit on:

03 311 8906

or

Email inspection bookings to: bcbooking@wmk.govt.nz

- Please refer to your inspection schedule for details of inspections to be carried out.
- At least 2-3 full working days' notice should be given when booking an inspection.
- Please be advised that it may not always be possible to carry out the inspection within the time frame you require.
- Provision is to be made to allow access.
- The Code Compliance Certificate will be issued once the:
  - Final inspection has been carried out and passed.
  - Audit of WDC building consent file has been completed.
  - Payment of any outstanding invoices is received.

211208196566 / QD BU Information 003 – Version 1.0 – December 2021

CONSENT ISSUED BC221264 - Page 2 of 359

Dial Before You Dig

Safety near underground cables and services

MainPower is committed to providing a safe, secure and reliable electricity supply to all customers.

This fact sheet is designed to inform you about safety around electricity, particularly underground cables.

Working near electricity cables

Serious personal injury can result from damaging underground services during excavation and ground penetration. Supply disruption and repairs can be costly and extremely irritating to customers.

The positions where cables are buried are subject to reasonable tolerance however, the depth of cover may have changed since installation.

It is your responsibility to verify the position and depth of cables before excavation.

Steps to ensure safe digging

- Obtain up-to-date plans from the relevant local authorities.
- Use a cable locator, if possible, to mark-out the underground services before commencing work.
- Practice safe digging procedures.
- The Worksafe Guide for Safety with Underground Services sets out agreed work methods and preferred work practices for the location and excavation of underground services. Download the guide at - http://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/underground-services-guide-for-safety-with/underground.pdf

Underground electricity cables

For copies of plans showing MainPower's electricity cables phone 03 311 8300, weekdays 8am - 5pm or email us at underground.records@mainpower.co.nz.

Please allow 2 working days to receive copies of plans. MainPower may hold some records of privately-owned cables connected to the MainPower network system; contact MainPower in the first instance.

Additional services MainPower can provide if you are planning your digging:

- Mark-out Services: MainPower can trace cables using an electronic locator.
- On-Site Supervision: For difficult work or locations, MainPower can provide on-site safety supervision.

Underground council services

All contractors are reminded of their legal responsibility to take all practicable steps to locate and protect existing services. In the road corridor, service plans and a Corridor Access Request (CAR) permit need to be obtained through the Beforeudig website (www.beforeudig.co.nz). The Beforeudig service helps contractors to determine the location of any underground services before excavating. For service plans on private property, and lateral locations for work on private property that will not extend into any part of the road reserve, contact the Waimakariri District Council's Customer Services team at office@wmk.govt.nz.

Contact MainPower

To report a fault:
0508 60 70 80

For electricity emergencies:
0508 60 70 80

For general enquiries:
www.mainpower.co.nz
info@mainpower.co.nz
03 311 8300 (8am to 5pm, Monday to Friday)

Disclaimer This fact sheet is not an exhaustive list of all safety matters that need to be considered. Whilst care is taken in the preparation of this material, MainPower does not guarantee the accuracy and completeness of the information.

CONSENT ISSUED BC221264 - Page 3 of 359

THINGS YOU SHOULD KNOW ABOUT...

Noisy Heat Pumps

AS THE DISTRICT GROWS WE'RE SEEING MORE HOMES BEING BUILT ON SMALLER SECTIONS.

Smaller sections mean that you need to pay closer attention to products which both eliminate and produce noise.

While a heat pump is not assessed under the Building Consent application, and therefore not checked or signed off under any building inspection, some models produce noise which is deemed excessive under the District Plan.

The onus is upon the individual / landlord to ensure that it complies with your local council's District Plan rules.

BELOW ARE QUESTIONS TO ASK YOURSELF BEFORE INSTALLING A HEAT PUMP:

- **Does your heat pump comply with the permitted noise levels allowed by the Waimakariri District Council?** i.e. Does the noise produced from your heat pump measure less than 50dBA during the day and less than 40dBA at other times? You may not be allowed to use it if complaints are received.
- **Where are you mounting the unit?** The level of noise produced by your heat pump will depend upon the size, the location and how it has been fixed /mounted.

It is common sense that heat pumps will produce some noise as they do contain a compressor and fan. However what is regarded as 'acceptable noise' is a personal and subjective opinion.

Please note that if the unit makes a constant penetrating monotone engine noise similar to generators or water heater pumps, then those types of noise may cause significant issues for neighbours who will render the noise 'unreasonable'. Such noise may not even be exceeding the noise levels but will potentially still be rated as 'unreasonable'.

Most noise issues occur when the outdoor unit is located too close to the neighbouring boundary or not raised off the ground.

Noise specifications will be found in the sales brochure, and you are advised to check these prior to purchase and installation.

If you are having a heat pump installed, make sure the installer is trade qualified to install air conditioning units and heat pumps. The installer should be a member of IRHACE.

Have your heat pump installed by a qualified installer.

MORE INFORMATION Visit waimakariri.govt.nz for more information, or contact Customer Services on 0800 965 468 (0800WMKGOV)

190215017430 / MARCH 2019

Access Around House Building Sites

It is important when you are building your house that you take care not to damage roads, kerbs, footpaths, street trees, swales and berms.

The Council will be monitoring building sites in subdivisions to make sure that builders have the correct arrangements in place to help avoid damage and to ensure public safety.

In particular:

- **Vehicles accessing the site should only use an approved vehicle crossing**
- **Vehicles should not park on the footpath or berm**
- **Take care unloading plant and materials to protect the road surface**
- **You must ensure no litter encroaches into a public place (road/berm/footpath). Litter includes such items as earth, dirt or stones. An infringement notice up to $400.00 may be issued to any person or company found in breach of the Litter Act 1979.**

If you need to block footpaths for any reason such as pouring foundations or unloading materials you need to provide alternative access for pedestrians. You need to do this to fulfil the requirements of the Health and Safety in Work Act 2015, and the Code of Practice for Temporary Traffic Management (CoPTTM). As site owner you or your builder are responsible for the health and safety of workers and the general public.

Vehicles are not allowed to be parked on footpaths, berms or swales. The Council will issue parking infringement notices if required.

Thank you for helping to keep our roads and footpaths safe for everyone, and doing what you can to reduce costly damage to new roads, footpaths and berms.

Find out more at waimakariri.govt.nz

CONSENT ISSUED BC221264 - Page 5 of 359

Dwellings, Outbuildings, Swimming Pools and Other Works (Not Commercial)

Section 1
Statutory Forms

- **Inspection List** – By Council
- **Building Consent Form (Form 5)** – By Council
- **Code Compliance Application (Form 6)** – By Council
- **Installation & PS3 Forms** – By Council
- **Application Form**
- **LBP Design Certificates**
- **Record of Title or Sales & Purchase Agreement**
- **PIM, Resource Consent** – By Council

WAIMAKARIRI DISTRICT COUNCIL

Private Bag 1005, Rangiora 7440
Ph 03 311 8900, 03 327 6834 Fax 03 313 4432
www.waimakariri.govt.nz

PRODUCER STATEMENT PIPEWORK TESTING

BC No.

Issued by *(Plumber)*:

At *(address)*:

For *(Owner)*:

In respect of the testing of water pipe work prior to concealment.

I hereby state that I have personally tested the water pipe work installed in the building authorised under this Building Consent by the method indicated hereunder.

☐ By pressurising the pipe work to 1500 kPa for a period of not less than 15 minutes for the hot and cold water supply and checking to see there are no leaks. (NZBC G12/AS1 7.5.1 (a), (b).)

☐ By pressurising the uPVC pipe work to 1.5 times the maximum working pressure for a period of not less than 15 minutes and checking that there are no leaks. (NZBC G12/AS1 7.5.2, NZS 7643).

Max working pressure was:

☐ By pressurising the pipe work to 1500 kPa for a period of not less than 5 minutes and checking to see there are no leaks. (NZBC G12 VM1, AS3500:Part 1.2 1998)

And believe on reasonable grounds that the pipe work has passed that test.

☐ All work complies with the NZBC

I also understand that Waimakariri District Council in accepting this producer statement will be relying on it to issue the Code Compliance Certificate at the completion of the building work.

SIGNATURE OF LICENSED CERTIFYING PLUMBER:

Signature:

Registration Number:

Company Name:

Date:

Waimakariri District Council
215 High Street
Private Bag 1005
Rangiora 7440, New Zealand
Phone 0800 965 468

PLEASE NOTE

- Although your Consent documentation states 2-3 full working days' notice is required, it may not always be possible to carry out the inspection within the time frame you require.
- If an inspection of the building works is not carried out in accordance with the Inspection Schedule it could affect the issue of the Code Compliance Certificate.

To book inspections ring WDC on
03 311 8906

All inspections are subject to a separate charge.

All re-inspections will be charged and recorded separately even if other inspections are carried out on the same day.

Using engineers & other professionals
If an engineer has been engaged to carry out various site inspections you will need to provide copies of his/her site notices to us and a producer statement, a PS4 from the engineer confirming the building elements designed and inspected by the engineer were completed in accordance with the approved design.

Confirmation of installation of products
We require producer statements, warranties & installation certificates from various installers as a way of confirming products have been installed in accordance with the manufacturer's recommendations. These are commonly required for exterior claddings, wet area tanking, membrane roofing/decking and effluent fields. Energy certificates such as electrical and gas certificates need to be provided too. You will need to provide these to us prior to the issue of the Code Compliance Certificate.

Applying for a Code Compliance Certificate (CCC)
When you are satisfied your project is complete please book a final inspection and complete and sign *Form 6*, application for Code Compliance Certificate which is enclosed with your building consent. You should have this form ready for when the building Inspector arrives on site to carry out the final inspection. Please note all outstanding monies must be paid prior to the issue of the CCC.

Grant or refuse a CCC
We are required to make a decision to grant or refuse a CCC if you do not formally apply for a CCC within two years of the granting of the building consent. The date your consent was granted is the date at the bottom of the building consent form. If you do not apply for a CCC or arrange an extension with us within the two year period we may carry out an inspection of the building work. An additional fee applies for this work.

Lapsing of your consent
Your building consent will lapse if building work has not commenced within 12 months after the date of issue of the building consent. The issue date is deemed to be the day you paid for the consent. In saying this we understand things don't always run smoothly so you can apply for a time extension which we may agree to. A fee applies for this.

Site Inspection Sheet

Application

Wendelborn Property Limited C/- Archiplus Limited 17 Goh Street Lincoln 7608	No.	BC221264
	Issue date	24 January 2023
	Overseer	Chris Keegan

Project

Description	1100 New (& prebuilt) House, Unit, Bach, Crib, Town Houses BC - New or Relocated Dwelling, New Detached Dwelling, 01 Standard Building Consent(20 W Processing Days)
Intended Life	Indefinite (50+)
Intended Use	Residential
Estimated Value	$298000.00
Location	38 Crossley Avenue WOODEND
Legal Description	LOT 755 DP 582033 0.040200 Ha
Valuation No.	2161410168

This inspection sheet and all the approved plans and specifications relating to this building consent are to be available on site during construction. If the documentation required for a particular inspection is not available, this will mean automatic failure of the building inspection and will necessitate re booking the inspection at the applicant's expense.

Work cannot proceed past each step until that step has been inspected and approved.

All inspections listed below are to be inspected by a WDC Building Inspector, an Engineer may also need to be engaged to inspect engineer requirements, this will be noted below.

BC221264
Compacted Hardfill - pre DPM - Engineer to inspect excavation also.
Foundation / Floor Slab - Engineer to inspect also
Structure Pre Roof Pre Wrap -
Building Wrap & Sill Tape -
Cavity Battens & Flashings - Oblique Vertical weatherboard includes head flashing
Mid Height Veneer -
Drains - includes strip drain & sump
Preline & Plumbing -
Prestopping -
Final -

Please give at least 2-3 full working days' notice for the next required inspection, please be advised that it may not always be possible to carry out the inspection within the time frame you require.

Waimakariri District Council
215 High Street
Private Bag 1005
Rangiora 7440, New Zealand
Phone 0800 965 468

Form 5
Building consent BC221264

Section 51, Building Act 2004

The building

Street address of building: 38 Crossley Avenue WOODEND
Legal description of land where building is located: LOT 755 DP 582033 0.040200 Ha
Valuation number: 2161410168
Building name:
Location of building within site/block number:
Level/unit number: 1

The owner

Name of owner: Wendelborn Property Limited
Contact person:
Mailing address: 387 West Melton Road RD 5 Christchurch 7675
Street address/registered office:
Phone number: Landline: Mobile: 0274310635
Daytime: After hours:
Facsimile number:
Email address: Info@wendelbornproperty.co.nz
Website:
First point of contact for communications with the council/building consent authority:
Archiplus Limited

Building work

The following building work is authorised by this building consent:
DWELLING WITH ATTACHED GARAGE 38 CROSSLEY AVENUE WOODEND LOT 755 DP 582033
Primary Specified Intended Use: Housing - Detached dwellings
Description of Intended Use: Residential

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.

This building consent is subject to the following conditions:

The Building Act 2004, Section 90, states that agents authorised by the building consent authority (the Council) 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.

This building consent is issued with the following advice notes:

All inspections listed must be requested and carried out in accordance with the attached schedule (list) of inspection types. It is advisable to request bookings at least 2-3 full working days' in advance, please be advised that it may not always be possible to carry out the inspection within the time frame you require. It is the owner's responsibility to ensure all necessary inspections are carried out. Please contact the building consent authority if you are unsure what requires inspection - do not cover or enclose any building work without prior inspection.
Please note that the consent fees allow for a single inspection of construction stages of the project as specified in the inspection schedule. Any extra inspections required will be invoiced and must be paid for before a code compliance certificate is issued.

All boundary survey pegs must be located by discovery or redefinition before work is commenced.

Comply with the endorsements on the plan.

The duplicate copy of the approved consent documents and inspection schedule must remain on site during construction.

Engineers site reports are to be kept on site for the review and collection by the building Inspector.

A PS4 construction review will be required from the engineer prior to the issue of a Code Compliance Certificate.

Please note that any material deviation from the approved documents will require a formal application for amendment. Amendments that are not of a material nature can be approved by a Building Officer or Building Inspector by way of the endorsement of the approved consent documentation.

WorkSafe New Zealand to be notified prior to any disturbance of asbestos or hazardous materials on site during demolition or construction.

The electrical certificate shall be provided to the building consent authority prior to issue of Code Compliance Certificate where the project involves electrical works.

Your consent is issued subject to manufacturers technical information about their products, installation and maintenance is to be as this technical information requires.

Licenced building practitioners records of work shall be provided to the Territorial Authority (TA) / Building Consent Authority (BCA) for foundations, carpentry / primary structure, roof cladding, wall cladding systems, brick & block laying as applicable at the conclusion of the relevant work.

A Building Consent lapses and is of no effect if the building work to which it relates does not commence within 12 months after the date of issue of the building consent or any further period that the Building Consent Authority may allow. (Time extensions to commence building work after 12 months must be submitted to the Building Consent Authority in writing stating the reason for the request, prior to the lapse date of the consent.

A Building Consent is not completed until it has been issued with a Code Compliance Certificate. The owner is required to complete a separate application for a Code Compliance Certificate as soon as practicable after the building work is completed. In any event no later than two (2) years after the granting of the Building Consent. Council is required to decide whether or not a Code Compliance Certificate can be issued. If your project will not be completed within two years you will need to apply for a time extension*. *fees apply

CCC will not be issued prior to the subdivision 224c being issued.

The certifying drainlayer's registration number shall be provided to the Building Consent Authority prior to issue of the Code Compliance Certificate.

The plumbing pressure test PS3 & plumbers registration number shall be provided to the Building Consent Authority prior to issue of the Code Compliance Certificate

Compliance schedule

A Compliance Schedule is not required for this building.

Attachments

Copies of the following documents are attached to this building consent:
Consented Plans
Consented Specifications
Inspection List

Cathy Thornton
Building Unit Administration Officer

On behalf of: Waimakariri District Council
Date: 24 January 2023

BC221264
Waimakariri District Council
215 High Street
Private Bag 1005
Rangiora 7440, New Zealand
Phone 0800 965 468

BUILDING UNIT

Form 2 Application for a Project Information Memorandum and/or Building Consent

Dwellings, Outbuildings, Swimming Pools and Other Works e.g. Septic Tank, Bridge, Retaining Wall, Amendments and Exemptions

Under The Building Act 2004, Sections 33, 45 & Schedule 1, Part 1, Clause 2

BC No.: 221264

1. The Building

Street address (street/road/township): (*for structures that do not have a street address, state the nearest street intersection and the distance and direction from that intersection)*

Proposed Lot 755 Underlying 50 Bob Robertson Drive Woodend (38 Crossley Avenue)

Legal description of the land where the building is located: *(state legal description as at the date of application and, if the land is proposed to be subdivided, include details of relevant lot numbers and subdivision consent)*

Lot: 9001 DP: 576593 Valuation Number: 2161410100 Resource Consent:

Building name: *(if applicable)*

Location of building within site/block number: *(include nearest street access)*

Number of levels: 1 Unit/Level No.:

Area: *(total floor area; indicate area affected by the building work if less than the total area)*

Existing: New: 156.56m² Total: 156.56m²

Current lawfully established use: *(include number of occupants per level and per use if more than 1)*

Year building first constructed: *(Approximate date is acceptable, eg 1920's)*

2. The Owner - all details must be the legal owner's

Name of owner: *(include preferred form of address, e.g. Mr, Mrs, Ms, Miss, Dr, if an individual)*

Wendelborn Property Limited

Contact person: *(not required if the owner is an individual. Must have a New Zealand address)*

Mailing address: PO BOX 9315 Tower Junction, 8149 Christchurch

Street address/Registered office: *(if different than above)*

Phone number:

Landline:	Mobile:	Daytime:	After hours:	Fax:
	0274310635			

Email: info@wendelbornproperty.co.nz Website:

As the owner, where you have given authorisation for an Agent to act on your behalf, please confirm if you require a copy of Building Consent/PIM correspondence and associated Building Consent Inspection Notices following the formally received notification: ☐ Yes ☑ No

The following evidence of ownership is attached to this application:

☐ Copy of Record of Title OR ☐ Council to provide *(additional charge of $15)*
(Current within 1 month of being issued and must include a deposited plan [diagram]. Where the Record of Title is not current, Council will provide this [additional charge of $15 applies]).

☑ Signed copy of Sales and Purchase Agreement *(If Record of Title is not issued)*

3. Applicant - only required when the applicant is not the owner or the agent e.g. leasee/tenant

PLEASE NOTE - *Authorisation is required from the owner of the property.*

Name of applicant: *(e.g. leasee/tenant)*

Contact person: *(not required if the applicant is an individual)*

Mailing address:

Street address/Registered office: *(if different than above)*

Phone number:

Landline:	Mobile:	Daytime:	After hours:	Fax:

Email: Website:

Relationship to owner: *(state details of the authorisation from the owner to make the application on the owner's behalf)*

4. Agent – only required when the application is being made on behalf of the owner

PLEASE NOTE - *Authorisation is required from the owner of the property.*

Name of agent: Archiplus Ltd

Contact person: *(not required if the applicant is an individual)* Min Goh

Mailing address: 17 Goh St, Lincoln

Street address/Registered office: *(if different than above)*

Phone number:

Landline:	Mobile:	Daytime:	After hours:	Fax:
	02102381905			

Email: mg.archiplus@gmail.com Website:

Relationship to owner: *(state details of the authorisation from the owner to make the application on the owner's behalf)*
Designer

PLEASE NOTE - *The Agent will be the first point of contact for communications with the Council/Building Consent Authority regarding this application/building work*

5. Application

I request that the following (please select one) be issued for the building work described in this Application:

☐ Project Information Memorandum (PIM) only
☐ Building Consent for PIM No:
☐ Building Consent with PIM
☑ Building Consent without PIM *(Compliance Check applies)*
☐ Exemption from the need for B/C
(Refer Building Act 2004 Schedule 1, Part 1, Clause 2)
☐ Amendment to Building Consent
Please Note: *Amendments must be authorised by the owner*
☐ Building Consent for Above Ground Pool and/or Non-Exempt Small Heated Pool

I wish to receive my approved documentation in the following format:

PLEASE NOTE - *If USB or hard copy, please confirm if you wish to pick it up from the Council or have it posted.*

☑ Electronically via Sharefile Transfer Portal (You must be set up and registered for this option)

☐ USB: *(this is an additional charge)* ☐ Post OR ☐ Pick-up

☐ Hard copy: *(onsite - this is an additional charge)* ☐ Post OR ☐ Pick-up

PLEASE NOTE - *One set of "Onsite" hard copy consented documents must be available at all times for inspections.*

All consent related invoices/refunds to be billed and sent to:

☐ Owner ☐ Applicant ☑ Agent ☑ Or other (If other, please complete below)

Company name: *(if applicable)* SHC Ltd

Contact person: Fiona Morrison

Mailing address: PO Box 9315 Tower Junction, 8149 Christchurch

Phone number:

Landline:	Mobile:	Daytime:	After hours:	Fax:
	027 255 0667			

Email: fiona.morrison@wendelbornproperty.co.nz Website:

PLEASE NOTE - *Any refunds are to the receipted name unless written authorisation has been received from the receipted person or company.*

Terms of trade

I/We understand that:

Building Consents shall be paid for when the consent is collected/uploaded or if the consent is not collected/uploaded within three months after the date of consent being granted, the work done to date portion i.e. admin and processing costs of the account will be due and payable. The balance of the invoice will be payable when the consent is collected/uploaded.

All other accounts shall be paid by the 20th day of the month following the month in which the invoice is issued.

I/We agree to pay according to these terms for any goods or services you supply to us. Failure to meet these Terms of Trade may result in any credit arrangement being withdrawn with any balance becoming payable within seven days. Should failure to meet the terms of trade result in debt recovery and/or legal proceedings, any costs whatsoever incurred in the collection of the debt including debt collector's fees and commissions and legal costs, charges and expenses on a solicitor and own client basis will be added to the account and will be payable by me/us.

Application authorisation

By entering your name in the box below you are giving your authority for this application to proceed under Sections 33 and 45 of the Building Act 2004.

Name: Min Goh Date: 28/09/2022

I am the: ☐ Owner ☐ Applicant on behalf of, and with the authority of the owner
☑ Agent on behalf of, and with the authority of the owner

6. The Project

Description of work *(e.g. dwelling, alteration/addition). If an amendment, please provide a complete description of the nature of the amendment.*

New single storey dwelling with attached garage.

BC221264

Specify the intended use of the building: *(e.g. detached dwelling, multi-unit dwelling, show home, sleepout or outbuilding - shed/garage etc.)*

Detached dwelling

Will the building work result in a change of use of this building? ☐ Yes ☑ No

If Yes, provide details of the new use:

Will hazardous substances be stored in the building? ☐ Yes ☑ No

Intended life of the building:

☑ Indefinite but not less than 50 years Or specified as years

Is this a staged consent? ☐ Yes ☑ No

If staged, provide details *(e.g. Stage 1 of 3)*

List Building Consents previously issued for this building (if any): *(i.e. is this project being constructed in stages? Is this consent for a relocated or transportable building?)*

Estimated value of the building work on which the building levy will be calculated (incl. GST): *(state estimated value as defined in section 7 of the Building Act 2004)*

$ 297464

If this is an application to amend a building consent, advise the estimated value of amended building work (incl. GST) $

Is this in addition to, or reduction from, what was stated with the original application?

☐ Addition ☐ Reduction ☐ No change

7. Restricted building work

Will the building work include any restricted building work? ☑ Yes ☐ No

If Yes, provide the following details of all Licensed Building Practitioners who will be involved in carrying out or supervising the restricted building work (if these details are unknown at the time of the application, they must be supplied before the work begins).

Licence class	Name	Licensed building practitioner number (or registration number if treated as being licensed under section 291 of the Building Act 2004)
Foundations		
Carpentry		
Exterior Plasterer		
Bricklayer		
Blocklayer		
Roofer		

Key personnel

Builder

Name:		Reg. No.:	
Address:			
Phone No.:		Email:	

Designer(s)

Name:	Tuan Main (Min) Goh	Reg. No.:	BP129011
Address:	17 Goh Street, Lincoln		
Phone No.:	02102381905	Email:	mg.archiplus@gmail.com

Certifying drainlayer

Name:	Michael Boulton	Reg. No.:	24836
Address:			
Phone No.:	02763057267	Email:	dandbdrainage@gmail.com

Certifying plumber

Name:	Greg Bell	Reg. No.:	14899
Address:			
Phone No.:	021440451	Email:	ontapplumbing@icloud.com

Certifying gasfitter

Name:		Reg. No.:	
Address:			
Phone No.:		Email:	

Registered electrician

Name:		Reg. No.:	
Address:			
Phone No.:		Email:	

Structural engineer

Name:	David Lau	Reg. No.:	221906
Address:	108 Lunn Avenue, Mt. Wellington, Auckland 1072		
Phone No.:	09 527 0196	Email:	david@wjl.co.nz

8. Project Information Memorandum - this section is not applicable if this application is for a building consent only

The following matters are involved in the project:

- ☐ Subdivision
- ☐ Alterations to land contours
- ✓ New or altered connections to public utilities
- ✓ New or altered locations and/or external dimensions of buildings
- ✓ New or altered access for vehicles
- ☐ Building work over or adjacent to any road or public place
- ✓ Disposal of stormwater and wastewater
- ☐ Building work over any existing drains or sewers or in close proximity to wells or water mains
- ☐ Registered historic site or place, tick if applicable (only applies where a PIM has not previously been issued for the building work)
- ☐ Other matters known to the applicant that may require authorisations from the territorial authority:

Notes

Other notes or comments which you may wish to add, eg: Resource Consents

9. Building consent - this section is not applicable if this application is for a Project Information Memorandum only

The following plans and specifications are attached to this application, or refer to the Appendix section for plans and specifications provided. ✓

BC221264

The building work will comply with the Building Code as follows: *(Note: if you are not sure what clauses are applicable, consult with your builder, designer or architect)*

Clause *(Tick relevant clause numbers of Building Code)*	**Means of compliance** *(Refer to the relevant compliance document(s) or detail of alternative solution in the plans and specifications)*	**Waiver/modification required** *(State nature of waiver or modification of building code required)*
✓ B1 Structure	AS1, VM1, VM4	
✓ B2 Durability	AS1	
✓ C1-C6 Protection from fire	AS1	
✓ D1 Access routes	AS1	
☐ D2 Mechanical installations for access		
✓ E1 Surface water	AS1	
✓ E2 External moisture	AS1	
✓ E3 Internal moisture	AS1	
☐ F1 Hazardous agents on site		
✓ F2 Hazardous building materials	AS1	
☐ F3 Hazardous substances and processes		
✓ F4 Safety from falling	AS1	
✓ F5 Construction and demolition hazards	AS1	
☐ F6 Visibility in escape routes		
✓ F7 Warning systems	AS1	
☐ F8 Signs		
☐ F9 Means of restricting access to residential pools		
✓ G1 Personal hygiene	AS1	
✓ G2 Laundering	AS1	
✓ G3 Food preparation and prevention of contamination	AS1	
✓ G4 Ventilation	AS1	
☐ G5 Interior environment		
☐ G6 Airborne and impact sound		
✓ G7 Natural light	AS1	
✓ G8 Artificial light	AS1	
✓ G9 Electricity	AS1	
☐ G10 Piped services		
☐ G11 Gas as an energy source		
✓ G12 Water supplies	AS1	
✓ G13 Foul water	AS1, AS2	
☐ G14 Industrial liquid waste		
☐ G15 Solid waste		
✓ H1 Energy efficiency	AS1	

10. Compliance schedule - this section is not applicable if there are no specified systems or if the application is for a Project Information Memorandum

The specified systems for the building are as follows: *(specified systems are defined in regulations)*

The following specified systems are being altered, added to, or removed in the course of the building work:

☑ There are no specified systems in the building

11. Attachments

The following documents are attached to this application:

☑ Plans and specifications (list under section 9)

☑ Memoranda from licensed building practitioner(s) who carried out or supervised any design work that is restricted building work

☐ Project information memorandum

☐ Development contribution notice

☐ Certificate attached to project information memorandum

☑ Completed relevant application checklist(s) – refer to Appendix

Please continue on the Appendix as follows for further information requested by the Waimakariri District Council.

Appendix - further information requested by the Waimakariri District Council

National Environment Standard (NES)

This section relates to the National Environmental Standard for Assessing & Managing Contaminants in Soil to Protect Human Health (NES).

The NES includes regulations controlling **soil disturbance, change of use, subdivision, and removal/ replacement of fuel storage systems** on properties which have been used either now or in the past for a hazardous activity or industry (known as HAIL) that may have resulted in contamination of the soil. The table below determines whether the NES applies to your proposal.

	Yes	No
Is the application site listed on Environment Canterbury's Listed Land Use Register (LLUR)? www.llur.ecan.govt.nz If **YES**, please include a copy of the LLUR statement with your application.	☐	☑
If the site is not listed on the LLUR, is an activity described on the Hazardous Substances and Industries List (HAIL) currently being undertaken on the piece of land to which this application relates, or is it more likely than not to have ever been undertaken on the land? The HAIL list is available to view at Hazardous Activities and Industries List (HAIL)	☐	☑

Type of HAIL activity:

If the answer to either of the above questions is YES, then the NES will apply, depending on the type of activity. Please identify whether the application involves the activities below.

PLEASE NOTE - *If the answer to both of the previous questions is No, you do not need to answer the remaining questions in this section.*

	Yes	No
Has the property been recently subdivided?	☐	☐
Will the proposed activity involve the disturbance of more than 25m³ of soil (per 500m² of disturbed area)? Volume of soil disturbed:	☐	☐
Will the proposed activity involve the removal of more than 5m³ of soil (per 500m² of disturbed area) from the site? Volume of soil removal:	☐	☐
Does the application involve changing the use of the land to one which, because the land has been subject to a HAIL activity, is reasonably likely to harm human health? (e.g. orchard to a residence)	☐	☐
Does the application involve replacing or removing fuel storage systems or parts of it?	☐	☐

If the answer to any of the above activity questions is also YES, then the NES will apply and you will need to establish whether the proposed activity complies with the NES.

- Changing the land use will require resource consent if the permitted activity requirements of the NES are not complied with. These include provision of a Preliminary Site Investigation carried out by a suitably qualified and experienced practitioner.
- Soil disturbance or removal exceeding the specified volumes require resource consent.
- Removal or replacement of a fuel storage system will require consent if the permitted activity requirements of the NES are not complied with.

Does the proposed activity require resource consent under the NES? If **YES**, a resource consent is required and with the application an assessment under the NES must be provided. A Detailed Site Investigation may be required.	☐	☐

Vehicle crossing

Is a new vehicle crossing required or an existing crossing altered for this project?

☑ Yes ☐ No ☐ Resource consent applied for

If yes, please complete and submit the Vehicle Crossing Application Form **and send to** office@wmk.govt.nz

BC221264

Application form

(One copy)

Office use only

These have been provided:

- ✓ All sections fully completed as applicable to the project
- ✓ Means of Compliance with NZBC - designer to complete
- ✓ Provide the correct legal description (Council can help with this)
- ✓ Provide one copy of the current Record of Title, or Sales and Purchase Agreement - not more than one month old
- ✓ Give name and contact numbers of contact person (if not the owner)
- ✓ State the project location (street address or location details as near as possible if no address)
- ✓ Application authorised and dated
- ✓ Agent relationship to owner stated (where applicable)
- ✓ Certificate/s of design work (LBP) ☐

Bookmarks

PLEASE NOTE - *Our current software does not enable us to maintain bookmarks within the consent documents during processing and granting. (This may be reviewed once a software solution becomes available.)*

Project Information Memorandum (PIM)

This section must be completed if you are applying for a PIM. **DO NOT** *complete this section if a PIM has already been issued. The following documents are attached to this application:*

- ☐ Site plan, Floor plans, Elevations for proposed building (electronic preferred or if hard-copy minimum size A3)
- ☐ Record of Title, or Sales and Purchase Agreement if Record of Title is not issued. Current Record of Title required (current within one month of application)
- ☐ Application fee (as per Council Fees and Charges Schedule) ☐

Building consent

This section must be completed if you are applying for a building consent. **DO NOT** *complete this section if the Application is for a Project Information Memorandum only.*

The following documents are attached to this application:

- ✓ 1 copy - building plans (site plans, floor plans, elevation plans. All plans to be dimensioned, scaled and accurate electronic preferred or if hard-copy minimum size A3)
- ✓ 1 copy of each - specifications, producer statements, truss details (refer below)
- ✓ 1 copy - Record of Title or Sale and Purchase Agreement if Record of Title is not issued. Current Record of Title required (current within one month of application)
- ✓ Restricted building work - see page 4
- ✓ Key personnel - see page 5
- ✓ Building work compliance with the Building Code - see page 7 ☐

PLEASE NOTE - *Swimming Pool document checklist on the following page to be completed if applicable.*

BC221264

Swimming pools (as applicable)

Office use only

These have been provided:

- ☐ Site plan, showing location of pool and existing buildings, location of fence, boundaries and existing waterways
- ☐ Fence construction. Show the height, gates, self-closing device, construction type etc (see "A Guide to Pool Fencing")
- ☐ Also show how any doors or windows that form part of the fence will comply

Brand and model of pool:

Size of the pool:

- ☐ Drainage plan. Show discharge point
- ☐ Producer statement (where applicable)
- ☐ Installation instructions/manual
- ☐ Show filling point for pool (tap) and backflow protection ☐

Design basis

(To be completed by the designer)

Please list the following basis for the building design:

✓ Wind zone	High
✓ Earthquake zone	2
✓ Snow zone/altitude	N4<100m
✓ Corrosion zone (if applicable)	C

- ☐ Building is specifically engineer-designed
- ☐ Complies with NZS 3604:2011
- ✓ Both specific design and NZS 3604:2011 ☐

Design documents

(One copy)

- ✓ Weather tightness risk matrix
- ✓ Truss design layout and Producer Statement
- ✓ Bracing calculations/plan
- ✓ H1 Energy efficiency calculations ☐

Site plan

(One copy, electronic preferred or if hard-copy minimum size A3)

- ✓ Overview of site showing legal boundaries as per current Record of Title
- ✓ Showing proposed and existing structures (including swimming pools)
- ✓ Distances to boundaries
- ✓ Proposed and existing site levels
- ✓ North point
- ✓ Utility infrastructure (sewer, water pipelines, septic tanks etc) where applicable
- ☐ Water races, drains, topographic features ☐

BC221264

Drainage layout

(One copy to scale usually 1:100 or 1:50, electronic preferred or if hard copy minimum size A3)

- ✓ Foul water - showing waste pipes, sizes, grades, venting
- ✓ Foul water to discharge point
- ✓ Storm water - pipe sizes, grades, downpipe locations
- ✓ Storm water drain to discharge point

Office use only

These have been provided:

☐

Foundation layout

(One copy to scale usually 1:100 or 1:50, electronic preferred or if hard copy minimum size A3)

- ✓ Full foundation layout plan
- For timber floors, show all pile layout, pile types and bracing location
- ✓ Slab thickenings, shrinkage control joints and reinforcing rebates

☐

Floor plans

(One copy to scale usually 1:100 or 1:50, electronic preferred or if hard copy minimum size A3)

- ✓ Layout of all floors fully dimensioned. For alterations and/or additions provide both new and existing floor plans
- ✓ Doors and window positions and sizes
- ✓ Layout of amenity areas (laundry etc)
- Main structural beams that are not shown elsewhere
- Lintel sizes
- ✓ HWC location
- ✓ Roof space access
- Gas cylinder location
- ✓ Room names
- ✓ Location of smoke alarms
- ✓ Location of heating unit (if applicable)

☐

Exterior elevations

(One copy to scale usually 1:100 or 1:50, electronic preferred or if hard copy minimum size A3)

- ✓ Elevations of all external walls showing claddings
- ✓ Doors and windows showing opening sections
- Show location of solar panels
- ✓ Accurate ground levels existing and proposed
- Subfloor ventilation for timber floors
- ☐ Show roof bracing on elevations if not shown elsewhere

☐

Cross section and construction details

(One copy to scale usually 1:50 or 1:20 for sections and 1:10 for details - minimum scale, electronic preferred or if hard copy minimum size A3)

- ✓ Roof lines, overhangs, floor levels, ground levels
- ✓ Major vertical dimensions
- ✓ Foundation, wall and roof structure materials
- ☐ Upper level decks or balconies over lower level room must be fully detailed including the stormwater disposal and overflow precautions

- [ ] Stairs, handrails and balustrade showing pitch and head clearances
- [x] Structural connections, posts to footings, beams to posts, trusses or beams to walls
- [x] Component fixing information is to be provided for all structural and framing components
- [x] Foundation and footing details and reinforcing. Show height from finished floor to ground level
- [ ] Pile details for timber floors
- [ ] Floor bracing details
- [x] Timber grade and treatment
- [x] Damp proof membranes, building papers and insulation systems/materials
- [x] Flashing details and documents
- [x] Roof penetrations
- [x] Shower floor details and wall to shower base junction detail
- [x] Sealing to wet area fixtures
- [x] Water splash prevention
- [x] All other building components that are not otherwise detailed or are unusual in any way ☐

Specification

(One copy)

The specification must be for the project. We will not accept standard specifications unless they relate directly to the building and they cover the project accurately and fully. Multi-choice specifications will not be accepted. A brief accurate specification is usually best.

- [x] Provide a written specification to cover all of the trades involved in the project. All materials used in the project are fully specified including fixings of all materials and components
- [x] The specification can be written on the drawings as long as all materials are fully covered ☐

Important things to include in your application

(One copy - where relevent)

- [x] The chartered professional engineer's Producer Statement
- [x] The engineer's monitoring schedule if the engineer chooses to do site monitoring
- [x] All structural calculations
- [x] Structural details showing connections and details of the components
- [ ] Solar technical details and plumbing schematic
- [ ] Log fire and flue installation instructions
- [ ] If log fire secondhand, engineer's certification required
- [ ] Current potable water test (current within 18 months)
- [ ] Effluent disposal design & ECan's copy of the submitted application form or approval
- [ ] Wastewater system designs when required to be done by a chartered professional engineer such as in a hazard zone
- [x] Supporting manufacturer's trade literature and appraisals / certificates included ☐

Geotechnical report

- [x] Geotechnical report provided, if applicable. Record report number: ☐

BC221264

Office use only

Further information required? ☐ Yes ☐ No

Date/time received: 28/09/2022 12.49pm Officer:

Date/time vetted/accepted: 30/09/2022 1.00pm Officer: Diana Firth

Office use only

Amount paid: $ 1635.00 Date: Officer:

☐ Fee paid on application ☑ Deposit invoice sent

Date payment processed: 03/10/2022 Receipt: dc Officer: shirley cresswell

Important information

All the relevant information on this form is required to be provided under the *Building Act 2004* and/or *Resource Management Act 1991* for the Waimakariri District Council to assess your application. Under these Acts this information has to be made available to members of the public if requested. The information contained in this application may be made available to other units of the Council. You have the right to access the personal information held about you by the Council which can be readily retrieved. You can also request that the Council correct any personal information it holds about you.

Application information

a. Project Information Memorandum (PIM):

A PIM will be issued within 20 working days provided all the required information is supplied with the application. Processing time is stopped whenever further information is required and starts again when the correct information is received.

It is not mandatory to apply for a PIM. Applicants can choose not to apply for a PIM when they consider that the information would not be relevant for their building project.

A fee is required to accompany your PIM application (as per Council's Fees and Charges Schedule).

b. Compliance Check:

Where a PIM is not sought, a Compliance Check will be undertaken to ensure your proposal complies with the District Plan.

c. Building Consent (BC):

A Building Consent will be processed within a maximum allowable time of 20 working days provided all the information required has been supplied. Processing time is stopped whenever further information is required and starts again when the correct information is received.

Once the Building Consent has been granted, you will receive notification, which will include an invoice for the fees payable.

Once the fees are paid in full, your Building Consent will be issued. Work must not start until the Building Consent is issued, and any Resource Consent requirements have been resolved.

A Building Consent lapses and is of no effect if the building work to which it relates does not commence within 12 months after the date of issue of the Building Consent or any further period that the Building Consent Authority may allow. You may request an extension which will need to be agreed to by Council (fees apply), refer to building application forms and fact sheets.

d. Combined Project Information Memorandum & Building Consent Applications:

Applications for a combined PIM/BC will only be accepted when sufficient information is provided to permit the Building Consent to be processed.

If insufficient information is provided, then further information will be requested, or your application may be returned to you.

e. If the applicant does not own the land, they must provide written approval from the owner to submit this application.

Levies payable

Under *the Building Act 2004 s53, s55 s402* Council are authorised to collect levies for the MBIE (*Building Levy Order 2005*) and BRANZ (*Building Research Levy Act 1969*). Levies are only payable on building works where the construction value exceeds a prescribed amount.

Building Act 2004

Building Levy Order 2005

Building Research Levy Act 1969

Fees

The application for a PIM and/or Building Consent must be accompanied by the fees as described in *Sections 33 and 45 of the Building Act 2004*. The work to process a PIM and/or Building Consent will be invoiced and needs to be paid in full before the PIM and/or Building Consent can be granted, refer to building services fees and charges.

Inspections

During the process of construction, inspections will be necessary to confirm all work complies with your approved Building Consent documentation. Please phone the Council Building Unit on 03 311 8906 at least **48 hours in advance** of requiring an inspection. Bookings are subject to demand and the availability of Inspectors, **please be advised that it is not always possible to carry out an inspection within 48 hours.**

The inspections required will be set out in the Building Consent documentation issued by the Council. Failure to have a prescribed inspection carried out may put the issue of the Code Compliance Certificate at risk.

All inspections including re-inspections are subjected to a separate charge, even if carried out on the same day.

Resource consent

Your application will be assessed by the Planning Unit of the Council to determine whether your project complies with the relevant District Plan requirements.

If your application does not comply with District Plan requirements, you will need to either amend your proposal to comply or apply for a Resource Consent. A Certificate will be attached to your Project Information Memorandum to notify that a Resource Consent is required prior to building work commencing. It is recommended that you phone the Planning Unit on 0800 965 468 to discuss the process.

Code compliance certificate

A Building Consent is not completed until it has been issued with a Code Compliance Certificate. The owner is required to complete a separate application for a Code Compliance Certificate as soon as practicable after the building work is completed. In any event no later than two (2) years after the granting of the Building Consent, Council is required to decide whether or not a Code Compliance Certificate can be issued. If your project will not be completed within two years, you may request an extension which will need to be agreed to by Council (fees apply), refer to building application forms and fact sheets.

Agency

The owner may authorise an agent to submit an application on their behalf.

The Agent will be the first point of contact for all communications with the Council/Building Consent Authority regarding this application under *Sections 33 and 45 of the Building Act 2004*. They will receive all correspondence and must be authorised by the Owner. All amendments require new authorisation.

The owner can elect to receive a copy of correspondence regarding this Building Consent/PIM and associated Building Consent Inspection Notices in "The owner" section of this application form, or by notifying Council during the Building Consent/PIM and/or Code Compliance Certificate process.

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**959097**
Land Registration District	**Canterbury**
Date Issued	11 May 2021

Prior References
876490

Estate	Fee Simple
Area	39.0790 hectares more or less
Legal Description	Lot 9002 Deposited Plan 553112 and Lot 1 Deposited Plan 57316

Registered Owners
Ravenswood Developments Limited

Interests

10582003.5 Mortgage to Bank of New Zealand - 6.10.2016 at 4:43 pm

10738648.1 Variation of Mortgage 10582003.5 - 30.3.2017 at 3:07 pm

11252529.1 Variation of Mortgage 10582003.5 - 19.10.2018 at 12:42 pm

11960892.5 Mortgage to CapitalGroup (Kurow) Limited - 22.12.2020 at 5:22 pm

12101745.6 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 11.5.2021 at 3:52 pm (affects Lot 9002 DP 553112)

Subject to a right (in gross) to convey telecommunications over part Lot 9002 DP 553112 marked D on DP 553112 in favour of Enable Networks Limited created by Easement Instrument 12101745.7 - 11.5.2021 at 3:52 pm

The easements created by Easement Instrument 12101745.7 are subject to Section 243 (a) Resource Management Act 1991

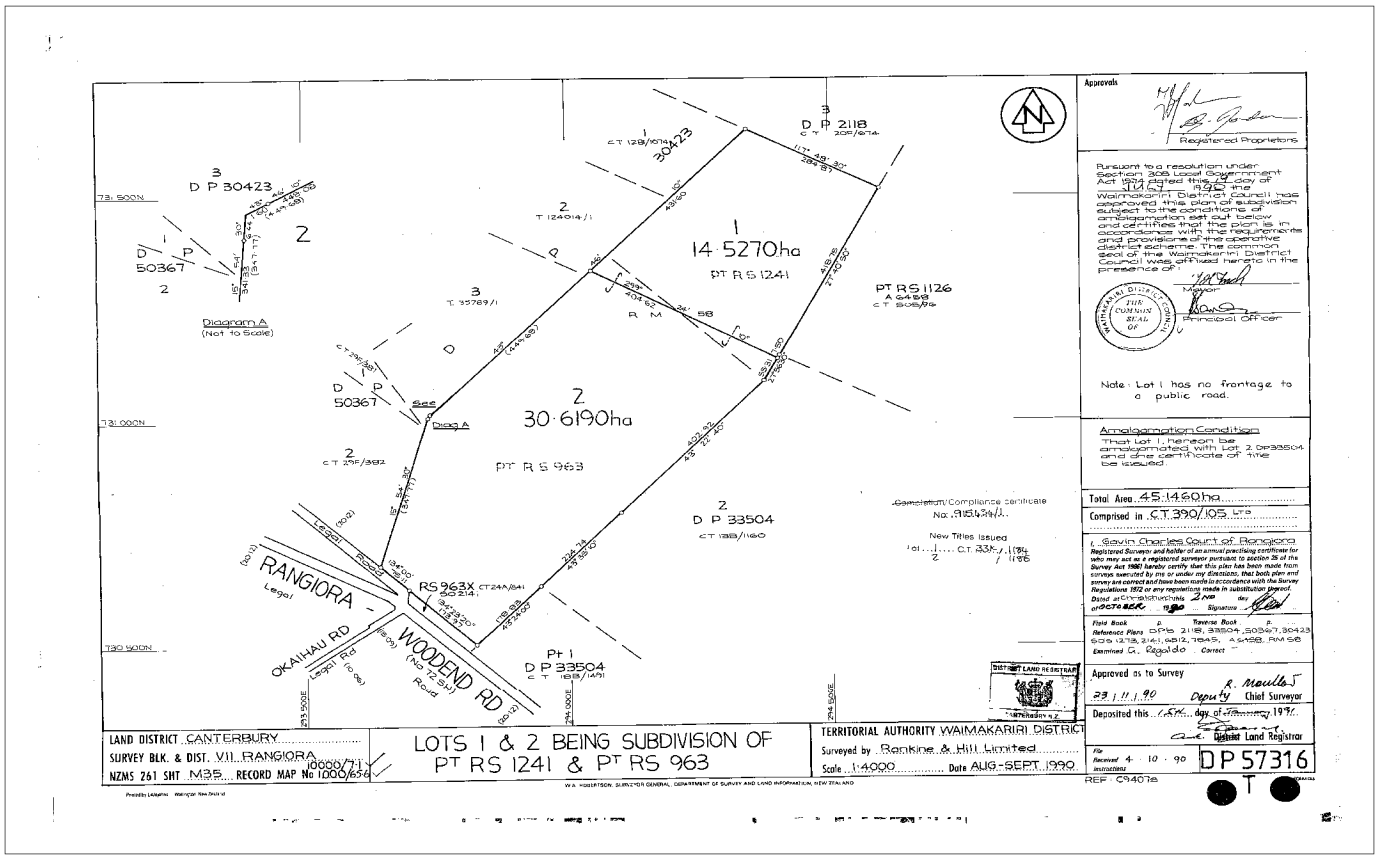
Subject to a right of way, right to convey water and right to drain sewage and water (in gross) over part Lot 9002 DP 553112 marked D on DP 553112# in favour of Waimakariri District Council created by Easement Instrument 12101745.8 - 11.5.2021 at 3:52 pm

The easements created by Easement Instrument 12101745.8 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right (in gross) to convey electricity over part Lot 9002 DP 553112 marked D on DP 553112 in favour of Mainpower New Zealand Limited created by Easement Instrument 12101745.9 - 11.5.2021 at 3:52 pm

The easements created by Easement Instrument 12101745.9 are subject to Section 243 (a) Resource Management Act 1991

Identifier 959097

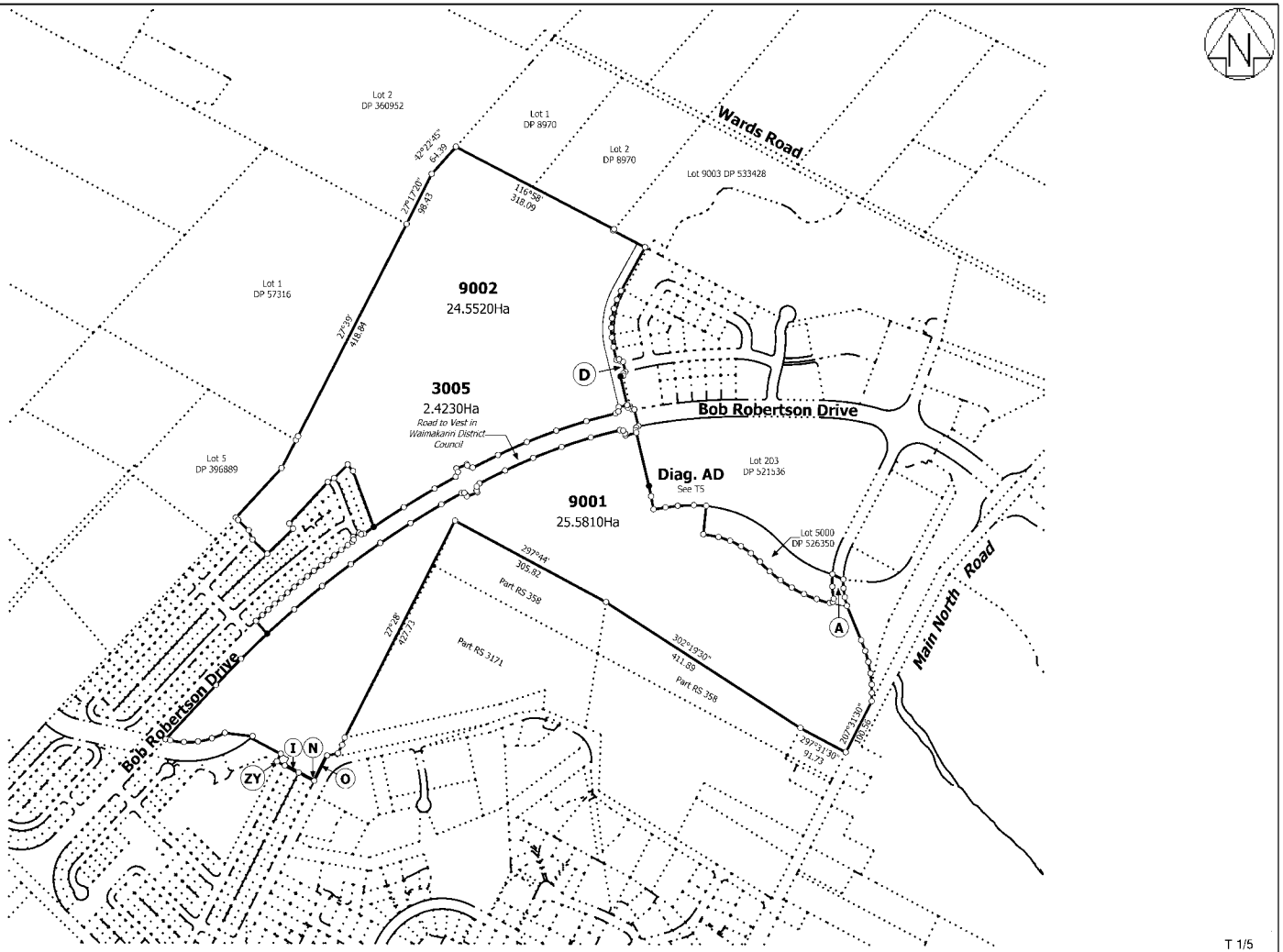


CONSENT ISSUED BC221264 - Page 30 of 359

Transaction Id: 67523396
Client Reference: scresswell001

Search Copy Dated 20/12/21 1:42 pm, Page 3 of 3
Register Only

Diag. A



Land District: Canterbury Digitally Generated Plan Generated on: 19/05/2021 1:39pm Page 3 of 7	LOTS 3005, 9001 & 9002 BEING A SUBDIVISION OF LOT 9001 DP 533428	Surveyor: Christopher Paul Hopper Firm: Davis Ogilvie & Partners Ltd (Christcl	Title Plan LT 553112 Approved on: 19/05/2021

CONSENT ISSUED BC221264 - Page 31 of 359

WENDELBORN PROPERTY LIMITED *(6662254) Registered*

To maintain this company log on here

Last updated on 05 Apr 2022

Company Summary Addresses Directors (2) Shareholdings (2) Documents (21) PPSR Search NZBN

Company number:	6662254
NZBN:	9429046559319
Incorporation Date:	23 Jan 2018
Company Status:	Registered
Entity type:	NZ Limited Company
Constitution filed:	No
AR filing month:	April , last filed on 05 Apr 2022
Ultimate holding company	No
Company addresses:	**Registered Office** 387 West Melton Road, Rd 5, West Melton, 7675 , New Zealand **Address for service** 387 West Melton Road, Rd 5, West Melton, 7675 , New Zealand View all addresses
Directors	Showing 2 of 2 directors Warwick Albert ISAACS 387 West Melton Road, Rd 5, West Melton, 7675 , New Zealand James Stephen PARKER 208/a, Salisbury Street, Christchurch, 8013 , New Zealand
Company record link:	https://app.companiesoffice.govt.nz/co/6662254

AGREEMENT FOR SALE AND PURCHASE OF REAL ESTATE

This form is approved by the Real Estate Institute of New Zealand Incorporated and by Auckland District Law Society Incorporated.

DATE: 01/04/21

VENDOR: **Ravenswood Developments Limited**

PURCHASER: GJEK Properties 2019 Ltd **and/or nominee**

GUARANTOR: Michael Allan

The vendor is registered under the GST Act in respect of the transaction evidenced by this agreement and/or will be so registered at settlement: **Yes/~~No~~**

PROPERTY Address: Lot 755 , Stage 4E, Ravenswood (as generally shown on the attached Scheme Plan)

Estate: **FREEHOLD** ~~**LEASEHOLD**~~ ~~**STRATUM IN FREEHOLD**~~ ~~**STRATUM IN LEASEHOLD**~~ ~~**CROSS-LEASE (FREEHOLD)**~~ ~~**CROSS-LEASE (LEASEHOLD)**~~

If none of the above are deleted, the estate being sold is the first option of freehold.

Legal Description:

~~***Area (more or less):***~~ ~~***Lot/Flat/Unit:***~~ ~~***DP:***~~ ~~***Record of Title (unique identifier):***~~

Lot 755 (as generally shown on the attached Scheme Plan) which is part of the land currently comprised in the Head Titles, being approximately 400 square metres (subject to survey and the terms of this agreement).

© Copyright June 2020 New Zealand Institute & Auckland District Law Society Inc

PAYMENT OF PURCHASE PRICE

Purchase price: **$**169,565.22

Plus GST (if any) ~~OR **Inclusive of GST** (if any)~~
If neither is deleted, the purchase price includes GST (if any).

GST date (refer clause 13.0):

Deposit (refer clause 2.0): 10% of the purchase price payable in accordance with clause 22 of the Further Terms of Sale.

Balance of purchase price to be paid or satisfied as follows:

(1) By payment in cleared funds on the settlement date which is set out at clause 44 of the Further Terms of Sale.

~~OR~~

~~(2) In the manner described in the Further Terms of Sale.~~

Interest rate for late settlement: 15 **% p.a.**

CONDITIONS (refer clause 9.0)

~~**Finance required (subclause 9.1):**~~	~~**Yes/No**~~	**OIA consent required (subclause 9.6):**	~~**Yes/**~~**No**
~~**Finance date:**~~		**OIA date (subclause 9.8):**	
~~**LIM required (subclause 9.3):**~~	~~**Yes/No**~~	~~**Land Act consent required (subclause 9.7):**~~	~~**Yes/No**~~
~~**Building report required (subclause 9.4):**~~	~~**Yes/No**~~	~~**Land Act date (subclause 9.8):**~~	
~~**Toxicology report required (subclause 9.5):**~~	~~**Yes/No**~~		

~~**TENANCIES**~~ ~~**Yes/No**~~

~~**Name of Tenant(s):**~~

~~Particulars of any tenancies are set out in Schedule 3 or another schedule attached to this agreement by the parties.~~

SALE BY:

Licensed Real Estate Agent under Real Estate Agents Act 2008

It is agreed that the vendor sells and the purchaser purchases the property, and the chattels listed in Schedule 2, on the terms set out above and in the General Terms of Sale and any Further Terms of Sale.

© AUCKLAND DISTRICT LAW SOCIETY INC. & REAL ESTATE INSTITUTE OF NEW ZEALAND INC. All Rights Reserved. See full terms of copyright on the back page.

ma

GENERAL TERMS OF SALE

1.0 Definitions, time for performance, notices, and interpretation

1.1 Definitions

(1) Unless the context requires a different interpretation, words and phrases not otherwise defined have the same meanings ascribed to those words and phrases in the Goods and Services Tax Act 1985, the Property Law Act 2007, the Resource Management Act 1991 or the Unit Titles Act 2010.

(2) "Accessory unit", "owner", "principal unit", "unit", and "unit plan" have the meanings ascribed to those terms in the Unit Titles Act.

(3) "Agreement" means this document including the front page, these General Terms of Sale, any Further Terms of Sale, and any schedules and attachments.

(4) "Associated person", "conveyancer", "offshore RLWT person", "residential land purchase amount", "RLWT", "RLWT certificate of exemption" and "RLWT rules" have the meanings ascribed to those terms in the Income Tax Act 2007.

(5) "Building", "building consent", "code compliance certificate", "commercial on-seller", "compliance schedule" and "household unit" have the meanings ascribed to those terms in the Building Act.

(6) "Building Act" means the Building Act 1991 and/or the Building Act 2004.

(7) "Building warrant of fitness" means a building warrant of fitness supplied to a territorial authority under the Building Act.

(8) "Cleared funds" means:

(a) An electronic transfer of funds that has been made strictly in accordance with the requirements set out in the PLS Guidelines; or

~~(b) A bank cheque, but only in the circumstances permitted by the PLS Guidelines and only if it has been paid strictly in accordance with the requirements set out in the PLS Guidelines.~~

(9) "Commissioner" has the meaning ascribed to that term in the Tax Administration Act 1994.

(10) "Default GST" means any additional GST, penalty (civil or otherwise), interest, or other sum imposed on the vendor (or where the vendor is or was a member of a GST group its representative member) under the GST Act or the Tax Administration Act 1994 by reason of non-payment of any GST payable in respect of the supply made under this agreement but does not include any such sum levied against the vendor (or where the vendor is or was a member of a GST group its representative member) by reason of a default or delay by the vendor after payment of the GST to the vendor by the purchaser.

(11) "Electronic instrument" has the same meaning as ascribed to that term in the Land Transfer Act 2017.

(12) "Going concern", "goods", "principal place of residence", "recipient", "registered person", "registration number", "supply", "taxable activity" and "taxable supply" have the meanings ascribed to those terms in the GST Act.

(13) "GST" means Goods and Services Tax arising pursuant to the Goods and Services Tax Act 1985 and "GST Act" means the Goods and Services Tax Act 1985.

(14) "Landonline Workspace" means an electronic workspace facility approved by the Registrar-General of Land pursuant to the provisions of the Land Transfer Act 2017.

(15) "Leases" means any tenancy agreement, agreement to lease (if applicable), lease, sublease, or licence to occupy in respect of the property, and includes any receipt or other evidence of payment of any bond and any formal or informal document or letter evidencing any variation, renewal, extension, review, or assignment.

(16) "LIM" means a land information memorandum issued pursuant to the Local Government Official Information and Meetings Act 1987.

(17) "LINZ" means Land Information New Zealand.

(18) "Local authority" means a territorial authority or a regional council.

(19) "OIA consent" means consent to purchase the property under the Overseas Investment Act 2005.

(20) "PLS Guidelines" means the most recent edition, as at the date of this agreement, of the Property Transactions and E-Dealing Practice Guidelines prepared by the Property Law Section of the New Zealand Law Society.

(21) "Proceedings" means any application to any court or tribunal or any referral or submission to mediation, adjudication or arbitration or any other dispute resolution procedure.

(22) "Property" means the property described in this agreement.

(23) "Purchase price" means the total purchase price stated in this agreement which the purchaser has agreed to pay the vendor for the property and the chattels included in the sale.

(24) "Regional council" means a regional council within the meaning of the Local Government Act 2002.

(25) "Remote settlement" means settlement of the sale and purchase of the property by way of the purchaser's lawyer paying the moneys due and payable on the settlement date directly into the trust account of the vendor's lawyer, in consideration of the vendor agreeing to meet the vendor's obligations under subclause 3.8(2), pursuant to the protocol for remote settlement recommended in the PLS Guidelines.

(26) "Residential (but not otherwise sensitive) land" has the meaning ascribed to that term in the Overseas Investment Act 2005.

(27) "Rules" means body corporate operational rules under the Unit Titles Act.

(28) "Secure web document exchange" means an electronic messaging service enabling messages and electronic documents to be posted by one party to a secure website to be viewed by the other party immediately after posting.

(29) "Settlement" means (unless otherwise agreed by the parties in writing) the moment in time when the vendor and purchaser have fulfilled their obligations under subclause 3.8.

(30) "Settlement date" means the date specified as such in this agreement.

(31) "Settlement statement" means a statement showing the purchase price, plus any GST payable by the purchaser in addition to the purchase price, less any deposit or other payments or allowances to be credited to the purchaser, together with apportionments of all incomings and outgoings apportioned at the settlement date.

(32) "Tax information" and "tax statement" have the meanings ascribed to those terms in the Land Transfer Act 2017.

(33) "Territorial authority" means a territorial authority within the meaning of the Local Government Act 2002.

(34) "Title" includes where appropriate a record of title within the meaning of the Land Transfer Act 2017.

Copyright June 2020 Auckland District Law Society Inc. • New Zealand Real Estate Institute

© ADLS & REINZ. All Rights Reserved.

ma

(35) "Unit title" means a unit title under the Unit Titles Act.
(36) "Unit Titles Act" means the Unit Titles Act 2010.
(37) "Working day" means any day of the week other than:
(a) Saturday, Sunday, Waitangi Day, Good Friday, Easter Monday, Anzac Day, the Sovereign's Birthday, and Labour Day;
(b) if Waitangi Day or Anzac Day falls on a Saturday or Sunday, the following Monday;
(c) a day in the period commencing on the 24th day of December in any year and ending on the 5th day of January (or in the case of subclause 9.3(2) the 15th day of January) in the following year, both days inclusive; and
(d) the day observed as the anniversary of any province in which the property is situated.
A working day shall be deemed to commence at 9.00 am and to terminate at 5.00 pm.

1.2 Unless a contrary intention appears on the front page or elsewhere in this agreement:
(1) the interest rate for late settlement is equivalent to the interest rate charged by the Inland Revenue Department on unpaid tax under the Tax Administration Act 1994 during the period for which the interest rate for late settlement is payable, plus 5% per annum; and
(2) a party is in default if it did not do what it has contracted to do to enable settlement to occur, regardless of the cause of such failure.

1.3 Time for Performance
(1) Where the day nominated for settlement or the fulfilment of a condition is not a working day, then the settlement date or the date for fulfilment of the condition shall be the last working day before the day so nominated.
(2) Any act done pursuant to this agreement by a party, including service of notices, after 5.00 pm on a working day, or on a day that is not a working day, shall be deemed to have been done at 9.00 am on the next succeeding working day.
(3) Where two or more acts done pursuant to this agreement, including service of notices, are deemed to have been done at the same time, they shall take effect in the order in which they would have taken effect but for subclause 1.3(2).

1.4 Notices
The following apply to all notices between the parties relevant to this agreement, whether authorised by this agreement or by the general law:
(1) All notices must be served in writing.
(2) Any notice under section 28 of the Property Law Act 2007, where the purchaser is in possession of the property, must be served in accordance with section 353 of that Act.
(3) All other notices, unless otherwise required by the Property Law Act 2007, must be served by one of the following means:
(a) on the party as authorised by sections 354 to 361 of the Property Law Act 2007, or
(b) on the party or on the party's lawyer:
(i) by personal delivery; or
(ii) by posting by ordinary mail; or
(iii) by email; or
(iv) in the case of the party's lawyer only, by sending by document exchange or, if both parties' lawyers have agreed to subscribe to the same secure web document exchange for this agreement, by secure web document exchange.
(4) In respect of the means of service specified in subclause 1.4(3)(b), a notice is deemed to have been served:
(a) in the case of personal delivery, when received by the party or at the lawyer's office;
(b) in the case of posting by ordinary mail, on the third working day following the date of posting to the address for service notified in writing by the party or to the postal address of the lawyer's office;
(c) in the case of email:
(i) when sent to the email address provided for the party or the party's lawyer on the back page; or
(ii) any other email address notified subsequently in writing by the party or the party's lawyer (which shall supersede the email address on the back page); or
(iii) if no such email address is provided on the back page or notified subsequently in writing, the office email address of the party's lawyer's firm appearing on the firm's letterhead or website;
(d) in the case of sending by document exchange, on the second working day following the date of sending to the document exchange number of the lawyer's office;
(e) in the case of sending by secure web document exchange, on the first working day following the date of sending to the secure web document exchange.
(5) Any period of notice required to be given under this agreement shall be computed by excluding the day of service.

1.5 Interpretation
(1) If there is more than one vendor or purchaser, the liability of the vendors or of the purchasers, as the case may be, is joint and several.
(2) Where the purchaser executes this agreement with provision for a nominee, or as agent for an undisclosed or disclosed but unidentified principal, or on behalf of a company to be formed, the purchaser shall at all times remain liable for all obligations on the part of the purchaser.
(3) If any inserted term (including any Further Terms of Sale) conflicts with the General Terms of Sale the inserted term shall prevail.
(4) Headings are for information only and do not form part of this agreement.
(5) References to statutory provisions shall be construed as references to those provisions as they may be amended or re-enacted or as their application is modified by other provisions from time to time.

~~**2.0 Deposit**~~

~~2.1 The purchaser shall pay the deposit to the vendor or the vendor's agent immediately upon execution of this agreement by both parties and/or at such other time as is specified in this agreement.~~

© ADLS & REINZ. All Rights Reserved.

ma

2.2 If the deposit is not paid on the due date for payment, the vendor may at any time thereafter serve on the purchaser notice requiring payment. If the purchaser fails to pay the deposit on or before the third working day after service of the notice, time being of the essence, the vendor may cancel this agreement by serving notice of cancellation on the purchaser. No notice of cancellation shall be effective if the deposit has been paid before the notice of cancellation is served.

2.3 The deposit shall be in part payment of the purchase price.

2.4 The person to whom the deposit is paid shall hold it as a stakeholder until:

(1) the requisition procedure under clause 6.0 is completed without either party cancelling this agreement; and

(2) where this agreement is entered into subject to any condition(s) expressed in this agreement, each such condition has been fulfilled or waived; and

(3) where the property is a unit title:

(a) a pre-settlement disclosure statement, certified correct by the body corporate, under section 147 of the Unit Titles Act; and

(b) an additional disclosure statement under section 148 of the Unit Titles Act (if requested by the purchaser within the time prescribed in section 148(2)),

have been provided to the purchaser by the vendor within the times prescribed in those sections or otherwise the purchaser has given notice under section 149(2) of the Unit Titles Act to postpone the settlement date until after the disclosure statements have been provided; or

(4) this agreement is:

(a) cancelled pursuant to:

(i) subclause 6.2(3)(c); or

(ii) sections 36 or 37 of the Contract and Commercial Law Act 2017; or

(b) avoided pursuant to subclause 9.10(5); or

(5) where the property is a unit title and the purchaser, having the right to cancel this agreement pursuant to section 151(2) of the Unit Titles Act, has cancelled this agreement pursuant to that section, or has elected not to cancel by giving notice to the vendor, or by completing settlement of the purchase.

2.5 Where the person to whom the deposit is paid is a real estate agent, the period for which the agent must hold the deposit as a stakeholder pursuant to subclause 2.4 shall run concurrently with the period for which the agent must hold the deposit under section 123 of the Real Estate Agents Act 2008, but the agent must hold the deposit for the longer of those two periods, or such lesser period as is agreed between the parties in writing as required by section 123 of the Real Estate Agents Act 2008, but in no event shall the deposit be released prior to the expiry of the requisition period under clause 6.0, unless the requisition period is expressly waived in writing after the effect of the same is explained to the purchaser by the agent or by the purchaser's lawyer or conveyancer.

3.0 Possession and Settlement

Possession

3.1 Unless particulars of a tenancy are included in this agreement, the property is sold with vacant possession and the vendor shall so yield the property on the settlement date.

3.2 If the property is sold with vacant possession, then subject to the rights of any tenants of the property, the vendor shall permit the purchaser or any person authorised by the purchaser in writing, upon reasonable notice:

(1) to enter the property on one occasion prior to the settlement date for the purposes of examining the property, chattels and fixtures which are included in the sale; and

(2) to re-enter the property no later than the day prior to the settlement date to confirm compliance by the vendor with any agreement made by the vendor to carry out any work on the property, the chattels and the fixtures.

3.3 Possession shall be given and taken on the settlement date. Outgoings and incomings in respect of the settlement date are the responsibility of and belong to the vendor.

3.4 On the settlement date, the vendor shall make available to the purchaser keys to all exterior doors that are locked by key, electronic door openers to all doors that are opened electronically, and the keys and/or security codes to any alarms. The vendor does not have to make available keys, electronic door openers, and security codes where the property is tenanted and these are held by the tenant.

Settlement

3.5 The vendor shall prepare, at the vendor's own expense, a settlement statement. The vendor shall tender the settlement statement to the purchaser or the purchaser's lawyer a reasonable time prior to the settlement date.

3.6 The purchaser's lawyer shall:

(1) within a reasonable time prior to the settlement date create a Landonline Workspace for the transaction, notify the vendor's lawyer of the dealing number allocated by LINZ, and prepare in that workspace a transfer instrument in respect of the property; and

(2) prior to settlement:

(a) lodge in that workspace the tax information contained in the transferee's tax statement; and

(b) certify and sign the transfer instrument.

3.7 The vendor's lawyer shall:

(1) within a reasonable time prior to the settlement date prepare in that workspace all other electronic instruments required to confer title on the purchaser in terms of the vendor's obligations under this agreement; and

(2) prior to settlement:

(a) lodge in that workspace the tax information contained in the transferor's tax statement; and

(b) have those instruments and the transfer instrument certified, signed and, where possible, pre-validated.

Copyright
Auckland Law Society Inc & Real Estate Institute of New Zealand Inc • August 2020

ma

3.8 On the settlement date:

(1) the balance of the purchase price, interest and other moneys, if any, shall be paid by the purchaser in cleared funds or otherwise satisfied as provided in this agreement (credit being given for any amount payable by the vendor under subclause 3.12 or 3.13, or for any deduction allowed to the purchaser under subclause 5.2, or for any compensation agreed by the vendor in respect of a claim made by the purchaser pursuant to subclause 10.2(1), or for any interim amount the purchaser is required to pay to a stakeholder pursuant to subclause 10.8);

(2) the vendor's lawyer shall immediately thereafter:

(a) release or procure the release of the transfer instrument and the other instruments mentioned in subclause 3.7(1) so that the purchaser's lawyer can then submit them for registration;

(b) pay to the purchaser's lawyer the LINZ registration fees on all of the instruments mentioned in subclause 3.7(1), unless these fees will be invoiced to the vendor's lawyer by LINZ directly; and

(c) deliver to the purchaser's lawyer any other documents that the vendor must provide to the purchaser on settlement in terms of this agreement, including where this agreement provides for the property to be sold tenanted, all leases relating to the tenancy that are held by the vendor and a notice from the vendor to each tenant advising them of the sale of the property and directing them to pay to the purchaser as landlord, in such manner as the purchaser may prescribe, all rent or other moneys payable under the leases.

3.9 All obligations under subclause 3.8 are interdependent.

3.10 The parties shall complete settlement by way of remote settlement, ~~provided that where payment by bank cheque is permitted under the PLS Guidelines, payment may be made by the personal delivery of a bank cheque to the vendor's lawyer's office, so long as it is accompanied by the undertaking from the purchaser's lawyer required by those Guidelines.~~

Last-Minute Settlement

3.11 If due to the delay of the purchaser, settlement takes place between 4.00 pm and 5.00 pm on the settlement date ("last-minute settlement"), the purchaser shall pay the vendor:

(1) one day's interest at the interest rate for late settlement on the portion of the purchase price paid in the last-minute settlement; and

(2) if the day following the last-minute settlement is not a working day, an additional day's interest (calculated in the same manner) for each day until, but excluding, the next working day.

Purchaser Default: Late Settlement

3.12 If any portion of the purchase price is not paid upon the due date for payment, then, provided that the vendor provides reasonable evidence of the vendor's ability to perform any obligation the vendor is obliged to perform on that date in consideration for such payment:

(1) the purchaser shall pay to the vendor interest at the interest rate for late settlement on the portion of the purchase price so unpaid for the period from the due date for payment until payment ("the default period"); but nevertheless, this stipulation is without prejudice to any of the vendor's rights or remedies including any right to claim for additional expenses and damages. For the purposes of this subclause, a payment made on a day other than a working day or after the termination of a working day shall be deemed to be made on the next following working day and interest shall be computed accordingly; and

(2) the vendor is not obliged to give the purchaser possession of the property or to pay the purchaser any amount for remaining in possession, unless this agreement relates to a tenanted property, in which case the vendor must elect either to:

(a) account to the purchaser on settlement for incomings in respect of the property which are payable and received during the default period, in which event the purchaser shall be responsible for the outgoings relating to the property during the default period; or

(b) retain such incomings in lieu of receiving interest from the purchaser pursuant to subclause 3.12(1).

(3) If the parties are unable to agree upon any amount payable under this subclause 3.12, either party may make a claim under clause 10.0.

Vendor Default: Late Settlement or Failure to Give Possession

3.13 (1) For the purposes of this subclause 3.13:

(a) the default period means:

(i) in subclause 3.13(2), the period from the settlement date until the date when the vendor is able and willing to provide vacant possession and the purchaser takes possession; and

(ii) in subclause 3.13(3), the period from the date the purchaser takes possession until the date when settlement occurs; and

(iii) in subclause 3.13(5), the period from the settlement date until the date when settlement occurs; and

(b) the vendor shall be deemed to be unwilling to give possession if the vendor does not offer to give possession.

(2) If this agreement provides for vacant possession but the vendor is unable or unwilling to give vacant possession on the settlement date, then, provided that the purchaser provides reasonable evidence of the purchaser's ability to perform the purchaser's obligations under this agreement:

(a) the vendor shall pay the purchaser, at the purchaser's election, either:

(i) compensation for any reasonable costs incurred for temporary accommodation for persons and storage of chattels during the default period; or

(ii) an amount equivalent to interest at the interest rate for late settlement on the entire purchase price during the default period; and

Copyright June 2020

ma

(b) the purchaser shall pay the vendor an amount equivalent to the interest earned or which would be earned on overnight deposits lodged in the purchaser's lawyer's trust bank account on such portion of the purchase price (including any deposit) as is payable under this agreement on or by the settlement date but remains unpaid during the default period less:
(i) any withholding tax; and
(ii) any bank or legal administration fees and commission charges; and
(iii) any interest payable by the purchaser to the purchaser's lender during the default period in respect of any mortgage or loan taken out by the purchaser in relation to the purchase of the property.

(3) If this agreement provides for vacant possession and the vendor is able and willing to give vacant possession on the settlement date, then, provided the purchaser provides reasonable evidence of the purchaser's ability to perform the purchaser's obligations under this agreement, the purchaser may elect to take possession in which case the vendor shall not be liable to pay any interest or other moneys to the purchaser but the purchaser shall pay the vendor the same amount as that specified in subclause 3.13(2)(b) during the default period. A purchaser in possession under this subclause 3.13(3) is a licensee only.

(4) Notwithstanding the provisions of subclause 3.13(3), the purchaser may elect not to take possession when the purchaser is entitled to take it. If the purchaser elects not to take possession, the provisions of subclause 3.13(2) shall apply as though the vendor were unable or unwilling to give vacant possession on the settlement date.

(5) If this agreement provides for the property to be sold tenanted then, provided that the purchaser provides reasonable evidence of the purchaser's ability to perform the purchaser's obligations under this agreement, the vendor shall on settlement account to the purchaser for incomings which are payable and received in respect of the property during the default period less the outgoings paid by the vendor during that period. Apart from accounting for such incomings, the vendor shall not be liable to pay any other moneys to the purchaser but the purchaser shall pay the vendor the same amount as that specified in subclause 3.13(2)(b) during the default period.

(6) The provisions of this subclause 3.13 shall be without prejudice to any of the purchaser's rights or remedies including any right to claim for any additional expenses and damages suffered by the purchaser.

(7) If the parties are unable to agree upon any amount payable under this subclause 3.13, either party may make a claim under clause 10.0.

Deferment of Settlement and Possession

3.14 If
(1) this is an agreement for the sale by a commercial on-seller of a household unit; and
(2) a code compliance certificate has not been issued by the settlement date in relation to the household unit,
then, unless the parties agree otherwise (in which case the parties shall enter into a written agreement in the form (if any) prescribed by the Building (Forms) Regulations 2004), the settlement date shall be deferred to the fifth working day following the date upon which the vendor has given the purchaser notice that the code compliance certificate has been issued (which notice must be accompanied by a copy of the certificate).

3.15 In every case, if neither party is ready, willing, and able to settle on the settlement date, the settlement date shall be deferred to the third working day following the date upon which one of the parties gives notice it has become ready, willing, and able to settle.

3.16 If
(1) the property is a unit title;
(2) the settlement date is deferred pursuant to either subclause 3.14 or subclause 3.15; and
(3) the vendor considers on reasonable grounds that an extension of time is necessary or desirable in order for the vendor to comply with the warranty by the vendor in subclause 8.2(3),
then the vendor may extend the settlement date:
(a) where there is a deferment of the settlement date pursuant to subclause 3.14, to the tenth working day following the date upon which the vendor gives the purchaser notice that the code compliance certificate has been issued, provided the vendor gives notice of the extension to the purchaser no later than the second working day after such notice; or
(b) where there is a deferment of the settlement date pursuant to subclause 3.15, to the tenth working day following the date upon which one of the parties gives notice that it has become ready, willing, and able to settle, provided the vendor gives notice of the extension to the purchaser no later than the second working day after such notice.

New Title Provision

~~3.17 (1) Where~~
~~(a) the transfer of the property is to be registered against a new title yet to be issued, and~~
~~(b) a search copy, as defined in section 60 of the Land Transfer Act 2017, of that title is not obtainable by the tenth working day prior to the settlement date,~~
~~then, unless the purchaser elects that settlement shall still take place on the agreed settlement date, the settlement date shall be deferred to the tenth working day following the later of the date on which:~~
~~(i) the vendor has given the purchaser notice that a search copy is obtainable, or~~
~~(ii) the requisitions procedure under clause 6.0 is complete.~~
~~(2) Subclause 3.17(1) shall not apply where it is necessary to register the transfer of the property to enable a plan to be deposited and title to the property to be issued.~~

4.0 Residential Land Withholding Tax

4.1 If the vendor does not have a conveyancer or the vendor and the purchaser are associated persons, then:
(1) the vendor must provide the purchaser or the purchaser's conveyancer, on or before the second working day before the due date for payment of the first residential land purchase amount payable under this agreement, with:
(a) sufficient information to enable the purchaser or the purchaser's conveyancer to determine to their reasonable satisfaction whether section 54C of the Tax Administration Act 1994 applies to the sale of the property; and

Copyright © ADLS & REINZ June 2020

ma

(b) if the purchaser or the purchaser's conveyancer determines to their reasonable satisfaction that section 54C of the Tax Administration Act 1994 does apply, all of the information required by that section and either an RLWT certificate of exemption in respect of the sale or otherwise such other information that the purchaser or the purchaser's conveyancer may reasonably require to enable the purchaser or the purchaser's conveyancer to determine to their reasonable satisfaction the amount of RLWT that must be withheld from each residential land purchase amount;

(2) the vendor shall be liable to pay any costs reasonably incurred by the purchaser or the purchaser's conveyancer in relation to RLWT, including the cost of obtaining professional advice in determining whether there is a requirement to withhold RLWT and the amount of RLWT that must be withheld, if any; and

(3) any payments payable by the purchaser on account of the purchase price shall be deemed to have been paid to the extent that:

(a) RLWT has been withheld from those payments by the purchaser or the purchaser's conveyancer as required by the RLWT rules; and

(b) any costs payable by the vendor under subclause 4.1(2) have been deducted from those payments by the purchaser or the purchaser's conveyancer.

4.2 If the vendor does not have a conveyancer or the vendor and the purchaser are associated persons and if the vendor fails to provide the information required under subclause 4.1(1), then the purchaser may:

(1) defer the payment of the first residential land purchase amount payable under this agreement (and any residential land purchase amount that may subsequently fall due for payment) until such time as the vendor supplies that information; or

(2) on the due date for payment of that residential land purchase amount, or at any time thereafter if payment has been deferred by the purchaser pursuant to this subclause and the vendor has still not provided that information, treat the sale of the property as if it is being made by an offshore RLWT person where there is a requirement to pay RLWT.

4.3 If pursuant to subclause 4.2 the purchaser treats the sale of the property as if it is being made by an offshore RLWT person where there is a requirement to pay RLWT, the purchaser or the purchaser's conveyancer may:

(1) make a reasonable assessment of the amount of RLWT that the purchaser or the purchaser's conveyancer would be required by the RLWT rules to withhold from any residential land purchase amount if the sale is treated in that manner; and

(2) withhold that amount from any residential land purchase amount and pay it to the Commissioner as RLWT.

4.4 Any amount withheld by the purchaser or the purchaser's conveyancer pursuant to subclause 4.3 shall be treated as RLWT that the purchaser or the purchaser's conveyancer is required by the RLWT rules to withhold.

4.5 The purchaser or the purchaser's conveyancer shall give notice to the vendor a reasonable time before payment of any sum due to be paid on account of the purchase price of:

(1) the costs payable by the vendor under subclause 4.1(2) that the purchaser or the purchaser's conveyancer intends to deduct; and

(2) the amount of RLWT that the purchaser or the purchaser's conveyancer intends to withhold.

Copyright Society of the Real Estate Institute of New Zealand Inc • Auckland Law Society Inc • 2020

5.0 Risk and insurance

5.1 The property and chattels shall remain at the risk of the vendor until possession is given and taken.

5.2 If, prior to the giving and taking of possession, the property is destroyed or damaged, and such destruction or damage has not been made good by the settlement date, then the following provisions shall apply:

(1) if the destruction or damage has been sufficient to render the property untenantable and it is untenantable on the settlement date, the purchaser may:

(a) complete the purchase at the purchase price, less a sum equal to any insurance moneys received or receivable by or on behalf of the vendor in respect of such destruction or damage, provided that no reduction shall be made to the purchase price if the vendor's insurance company has agreed to reinstate for the benefit of the purchaser to the extent of the vendor's insurance cover; or

(b) cancel this agreement by serving notice on the vendor in which case the vendor shall return to the purchaser immediately the deposit and any other moneys paid by the purchaser, and neither party shall have any right or claim against the other arising from this agreement or its cancellation;

(2) if the property is not untenantable on the settlement date, the purchaser shall complete the purchase at the purchase price less a sum equal to the amount of the diminution in value of the property which, to the extent that the destruction or damage to the property can be made good, shall be deemed to be equivalent to the reasonable cost of reinstatement or repair;

(3) in the case of a property zoned for rural purposes under an operative District Plan, damage to the property shall be deemed to have rendered the property untenantable where the diminution in value exceeds an amount equal to 20% of the purchase price; and

(4) if the amount of the diminution in value is disputed, the parties shall follow the same procedure as that set out in subclause 10.8 for when an amount of compensation is disputed.

5.3 The purchaser shall not be required to take over any insurance policies held by the vendor.

6.0 Title, boundaries and requisitions

6.1 The vendor shall not be bound to point out the boundaries of the property ~~except that on the sale of a vacant residential lot which is not limited as to parcels the vendor shall ensure that all boundary markers required by the Cadastral Survey Act 2002 and any related rules and regulations to identify the boundaries of the property are present in their correct positions at the settlement date~~.

6.2 (1) The purchaser is deemed to have accepted the vendor's title ~~except as to objections or requisitions which the purchaser is entitled to make and notice of which the purchaser serves on the vendor on or before the earlier of:~~

~~(a) the tenth working day after the date of this agreement; or~~

~~(b) the settlement date.~~

© ADLS & REINZ. All Rights Reserved.

ma

(2) Where the transfer of the property is to be registered against a new title yet to be issued, the purchaser is deemed to have accepted the title except as to such objections or requisitions which the purchaser is entitled to make and notice of which the purchaser serves on the vendor on or before the fifth working day following the date the vendor has given the purchaser notice that the title has been issued and a search copy of it as defined in section 60 of the Land Transfer Act 2017 is obtainable.

(3) If the vendor is unable or unwilling to remove or comply with any objection or requisition as to title, notice of which has been served on the vendor by the purchaser, then the following provisions will apply:

(a) the vendor shall notify the purchaser ("a vendor's notice") of such inability or unwillingness on or before the fifth working day after the date of service of the purchaser's notice;

(b) if the vendor does not give a vendor's notice the vendor shall be deemed to have accepted the objection or requisition and it shall be a requirement of settlement that such objection or requisition shall be complied with before settlement;

(c) if the purchaser does not on or before the fifth working day after service of a vendor's notice notify the vendor that the purchaser waives the objection or requisition, either the vendor or the purchaser may (notwithstanding any intermediate negotiations) by notice to the other, cancel this agreement.

6.3 In the event of cancellation under subclause 6.2(3), the purchaser shall be entitled to the immediate return of the deposit and any other moneys paid under this agreement by the purchaser and neither party shall have any right or claim against the other arising from this agreement or its cancellation. In particular, the purchaser shall not be entitled to any interest or to the expense of investigating the title or to any compensation whatsoever.

6.4 (1) If the title to the property being sold is a cross-lease title or a unit title and there are:

(a) in the case of a cross-lease title:

(i) alterations to the external dimensions of any leased structure; or

(ii) buildings or structures not intended for common use which are situated on any part of the land that is not subject to a restricted use covenant;

(b) in the case of a unit title, encroachments out of the principal unit or accessory unit title space (as the case may be).

then the purchaser may requisition the title under subclause 6.2 requiring the vendor:

(c) in the case of a cross-lease title, to deposit a new plan depicting the buildings or structures and register a new cross-lease or cross-leases (as the case may be) and any other ancillary dealings in order to convey good title; or

(d) in the case of a unit title, to deposit an amendment to the unit plan, a redevelopment plan or new unit plan (as the case may be) depicting the principal and/or accessory units and register such transfers and any other ancillary dealings in order to convey good title.

(2) The words "alterations to the external dimensions of any leased structure" shall only mean alterations which are attached to the leased structure and enclosed.

6.5 The vendor shall not be liable to pay for or contribute towards the expense of erection or maintenance of any fence between the property and any contiguous land of the vendor but this proviso shall not enure for the benefit of any subsequent purchaser of the contiguous land; and the vendor shall be entitled to require the inclusion of a fencing covenant to this effect in any transfer of the property.

7.0 Vendor's warranties and undertakings

7.1 The vendor warrants and undertakes that at the date of this agreement the vendor has not:

(1) received any notice or demand and has no knowledge of any requisition or outstanding requirement:

(a) from any local or government authority or other statutory body; or

(b) under the Resource Management Act 1991; or

(c) from any tenant of the property; or

(d) from any other party; or

(2) given any consent or waiver,

which directly or indirectly affects the property and which has not been disclosed in writing to the purchaser.

7.2 The vendor warrants and undertakes that at the date of this agreement the vendor has no knowledge or notice of any fact which might result in proceedings being instituted by or against the vendor or the purchaser in respect of the property.

7.3 The vendor warrants and undertakes that at settlement:

(1) The chattels included in the sale listed in Schedule 2 and all plant, equipment, systems or devices which provide any services or amenities to the property, including, without limitation, security, heating, cooling, or air-conditioning, are delivered to the purchaser in reasonable working order, but in all other respects in their state of repair as at the date of this agreement (fair wear and tear excepted) but failure to do so shall only create a right of compensation.

(2) All electrical and other installations on the property are free of any charge whatsoever and all chattels included in the sale are the unencumbered property of the vendor.

(3) There are no arrears of rates, water rates or charges outstanding on the property and where the property is subject to a targeted rate that has been imposed as a means of repayment of any loan, subsidy or other financial assistance made available by or through the local authority, the amount required to remove the imposition of that targeted rate has been paid.

(4) Where an allowance has been made by the vendor in the settlement statement for incomings receivable, the settlement statement correctly records those allowances including, in particular, the dates up to which the allowances have been made.

(5) Where the vendor has done or caused or permitted to be done on the property any works:

(a) any permit, resource consent, or building consent required by law was obtained; and

(b) to the vendor's knowledge, the works were completed in compliance with those permits or consents; and

(c) where appropriate, a code compliance certificate was issued for those works.

(6) Where under the Building Act, any building on the property sold requires a compliance schedule:

(a) the vendor has fully complied with any requirements specified in any compliance schedule issued by a territorial authority under the Building Act in respect of the building;

(b) the building has a current building warrant of fitness; and

© ADLS & REINZ. All Rights Reserved.

ma

(c) the vendor is not aware of any reason, that the vendor has not disclosed in writing to the purchaser, which would prevent a building warrant of fitness from being supplied to the territorial authority when the building warrant of fitness is next due.

~~(7) Since the date of this agreement, the vendor has not given any consent or waiver which directly or indirectly affects the property.~~

~~(8) Any notice or demand received by the vendor, which directly or indirectly affects the property, after the date of this agreement:~~

~~(a) from any local or government authority or other statutory body; or~~

~~(b) under the Resource Management Act 1991; or~~

~~(c) from any tenant of the property; or~~

~~(d) from any other party,~~

~~has been delivered forthwith by the vendor to either the purchaser or the purchaser's lawyer, unless the vendor has paid or complied with such notice or demand. If the vendor fails to so deliver or pay the notice or demand, the vendor shall be liable for any penalty incurred.~~

7.4 If the property is or includes part only of a building, the warranty and undertaking in subclause 7.3(6) does not apply. Instead the vendor warrants and undertakes at the date of this agreement that, where under the Building Act the building of which the property forms part requires a compliance schedule:

(1) to the vendor's knowledge, there has been full compliance with any requirements specified in any compliance schedule issued by a territorial authority under the Building Act in respect of the building;

(2) the building has a current building warrant of fitness; and

(3) the vendor is not aware of any reason, that the vendor has not disclosed in writing to the purchaser, which would prevent a building warrant of fitness from being supplied to the territorial authority when the building warrant of fitness is next due.

7.5 The vendor warrants and undertakes that on or immediately after settlement:

(1) If the water and wastewater charges are determined by meter, the vendor will have the water meter read and will pay the amount of the charge payable pursuant to that reading; but if the water supplier will not make special readings, the water and wastewater charges shall be apportioned.

(2) Any outgoings included in the settlement statement are paid in accordance with the settlement statement and, where applicable, to the dates shown in the settlement statement, or will be so paid immediately after settlement.

(3) The vendor will give notice of sale in accordance with the Local Government (Rating) Act 2002 to the territorial authority and regional council in whose district the land is situated and will also give notice of the sale to every other authority that makes and levies rates or charges on the land and to the supplier of water.

(4) Where the property is a unit title, the vendor will notify the body corporate in writing of the transfer of the property and the name and address of the purchaser.

8.0 Unit title and cross-lease provisions

Unit Titles

8.1 If the property is a unit title, sections 144 to 153 of the Unit Titles Act require the vendor to provide to the purchaser a pre-contract disclosure statement, a pre-settlement disclosure statement and, if so requested by the purchaser, an additional disclosure statement.

8.2 If the property is a unit title, the vendor warrants and undertakes as follows:

(1) The information in the pre-contract disclosure statement provided to the purchaser was complete and correct.

(2) Apart from regular periodic contributions, no contributions have been levied or proposed by the body corporate that have not been disclosed in writing to the purchaser.

(3) Not less than five working days before the settlement date, the vendor will provide:

(a) a certificate of insurance for all insurances effected by the body corporate under the provisions of section 135 of the Unit Titles Act; and

(b) a pre-settlement disclosure statement from the vendor, certified correct by the body corporate, under section 147 of the Unit Titles Act. Any periodic contributions to the operating account shown in that pre-settlement disclosure statement shall be apportioned. There shall be no apportionment of contributions to any long-term maintenance fund, contingency fund or capital improvement fund.

(4) There are no other amounts owing by the owner under any provision of the Unit Titles Act.

(5) There are no unsatisfied judgments against the body corporate and no proceedings have been instituted against or by the body corporate.

(6) No order or declaration has been made by any Court against the body corporate or the owner under any provision of the Unit Titles Act.

(7) The vendor has no knowledge or notice of any fact which might result in:

(a) the owner or the purchaser incurring any other liability under any provision of the Unit Titles Act; or

(b) any proceedings being instituted by or against the body corporate; or

(c) any order or declaration being sought against the body corporate or the owner under any provision of the Unit Titles Act.

(8) The vendor is not aware of proposals to pass any body corporate resolution relating to its rules nor are there any unregistered changes to the body corporate rules which have not been disclosed in writing to the purchaser.

(9) No lease, licence, easement, or special privilege has been granted by the body corporate in respect of any part of the common property which has not been disclosed in writing to the purchaser.

(10) No resolution has been passed and no application has been made and the vendor has no knowledge of any proposal for:

(a) the transfer of the whole or any part of the common property;

(b) the addition of any land to the common property;

(c) the cancellation of the unit plan; or

Copyright
June 2020
District Law Society | Auckland District Law Society | Institute of New Zealand Inc | Real Estate

ma

(d) the deposit of an amendment to the unit plan, a redevelopment plan, or a new unit plan in substitution for the existing unit plan,

which has not been disclosed in writing to the purchaser.

(11) As at settlement, all contributions and other moneys payable by the vendor to the body corporate have been paid in full.

8.3 If the property is a unit title and if the vendor does not provide the certificates of insurance and the pre-settlement disclosure statement under section 147 of the Unit Titles Act in accordance with the requirements of subclause 8.2(3), then in addition to the purchaser's rights under sections 149 and 150 of the Unit Titles Act, the purchaser may:

(1) postpone the settlement date until the fifth working day following the date on which that information is provided to the purchaser; or

(2) elect that settlement shall still take place on the settlement date.

8.4 If the property is a unit title, each party specifies that:

(1) any email address of that party's lawyer provided on the back page of this agreement, or notified subsequently in writing by that party's lawyer shall be an address for service for that party for the purposes of section 205(1)(d) of the Unit Titles Act; and

(2) if that party is absent from New Zealand, that party's lawyer shall be that party's agent in New Zealand for the purposes of section 205(2) of the Unit Titles Act.

8.5 If the property is a unit title, any costs owing by the purchaser to the vendor pursuant to section 148(5) of the Unit Titles Act for providing an additional disclosure statement shall be included in the moneys payable by the purchaser on settlement pursuant to subclause 3.8(1). Such costs may be deducted from the deposit if the purchaser becomes entitled to a refund of the deposit upon cancellation or avoidance of this agreement.

8.6 Unauthorised Structures – Cross-Leases and Unit Titles

(1) Where structures (not stated in clause 6.0 to be requisitionable) have been erected on the property without:

(a) in the case of a cross-lease title, any required lessors' consent; or

(b) in the case of a unit title, any required body corporate consent,

the purchaser may demand within the period expiring on the earlier of:

(i) the tenth working day after the date of this agreement; or

(ii) the settlement date,

that the vendor obtain the written consent of the current lessors or the body corporate (as the case may be) to such improvements ("a current consent") and provide the purchaser with a copy of such consent on or before the settlement date.

(2) Should the vendor be unwilling or unable to obtain a current consent, then the procedure set out in subclauses 6.2(3) and 6.3 shall apply, with the purchaser's demand under subclause 8.6(1) being deemed to be an objection and requisition.

9.0 Conditions and mortgage terms

9.1 Finance condition

(1) If the purchaser has identified that finance is required on the front page of this agreement, this agreement is conditional upon the purchaser arranging finance for such amount as the purchaser may require from a bank or other lending institution of the purchaser's choice on terms and conditions satisfactory to the purchaser in all respects on or before the finance date.

(2) If the purchaser avoids this agreement for failing to arrange finance in terms of subclause 9.1(1), the purchaser must provide a satisfactory explanation of the grounds relied upon by the purchaser, together with supporting evidence, immediately upon request by the vendor.

9.2 Mortgage terms

(1) Any mortgage to be arranged pursuant to a finance condition shall be upon and subject to the terms and conditions currently being required by the lender in respect of loans of a similar nature.

9.3 LIM condition

(1) If the purchaser has indicated on the front page of this agreement that a LIM is required:

(a) that LIM is to be obtained by the purchaser at the purchaser's cost;

(b) the purchaser is to request the LIM on or before the fifth working day after the date of this agreement; and

(c) this agreement is conditional upon the purchaser approving that LIM, provided that such approval must not be unreasonably or arbitrarily withheld.

(2) If, on reasonable grounds, the purchaser does not approve the LIM, the purchaser shall give notice to the vendor ("the purchaser's notice") on or before the fifteenth working day after the date of this agreement stating the particular matters in respect of which approval is withheld and, if those matters are capable of remedy, what the purchaser reasonably requires to be done to remedy those matters. If the purchaser does not give a purchaser's notice the purchaser shall be deemed to have approved the LIM. If through no fault of the purchaser, the LIM is not available on or before the fifteenth working day after the date of this agreement and the vendor does not give an extension when requested, this condition shall not have been fulfilled and the provisions of subclause 9.10(5) shall apply.

(3) The vendor shall give notice to the purchaser ("the vendor's notice") on or before the fifth working day after receipt of the purchaser's notice advising whether or not the vendor is able and willing to comply with the purchaser's notice by the settlement date.

(4) If the vendor does not give a vendor's notice, or if the vendor's notice advises that the vendor is unable or unwilling to comply with the purchaser's notice, and if the purchaser does not, on or before the tenth working day after the date on which the purchaser's notice is given, give notice to the vendor that the purchaser waives the objection to the LIM, this condition shall not have been fulfilled and the provisions of subclause 9.10(5) shall apply.

(5) If the vendor gives a vendor's notice advising that the vendor is able and willing to comply with the purchaser's notice, this condition is deemed to have been fulfilled, and it shall be a requirement of settlement that the purchaser's notice shall be complied with, and also, if the vendor must carry out work on the property, that the vendor shall obtain the approval of the territorial authority to the work done, both before settlement.

Copyright
Auckland Law Society Inc & Real Estate Institute of New Zealand Inc • Auckle • June 2020

© ADLS & REINZ. All Rights Reserved.

ma

9.4 Building report condition

(1) If the purchaser has indicated on the front page of this agreement that a building report is required, this agreement is conditional upon the purchaser obtaining at the purchaser's cost on or before the fifteenth working day after the date of this agreement a report on the condition of the buildings and any other improvements on the property that is satisfactory to the purchaser, on the basis of an objective assessment.

(2) The report must be prepared in good faith by a suitably-qualified building inspector in accordance with accepted principles and methods and it must be in writing.

(3) Subject to the rights of any tenants of the property, the vendor shall allow the building inspector to inspect the property at all reasonable times upon reasonable notice for the purposes of preparation of the report.

(4) The building inspector may not carry out any invasive testing in the course of inspection without the vendor's prior written consent.

(5) If the purchaser avoids this agreement for non-fulfilment of this condition pursuant to subclause 9.10(5), the purchaser must provide the vendor immediately upon request with a copy of the building inspector's report.

9.5 Toxicology report condition

(1) If the purchaser has indicated on the front page of this agreement that a toxicology report is required, this agreement is conditional upon the purchaser obtaining at the purchaser's cost on or before the fifteenth working day after the date of this agreement, a toxicology report on the property that is satisfactory to the purchaser, on the basis of an objective assessment.

(2) The purpose of the toxicology report shall be to detect whether the property has been contaminated by the preparation, manufacture or use of drugs including, but not limited to, methamphetamine.

(3) The report must be prepared in good faith by a suitably-qualified inspector using accepted principles and methods and it must be in writing.

(4) Subject to the rights of any tenants of the property, the vendor shall allow the inspector to inspect the property at all reasonable times upon reasonable notice for the purposes of carrying out the testing and preparation of the report.

(5) The inspector may not carry out any invasive testing in the course of the inspection without the vendor's prior written consent.

(6) If the purchaser avoids this agreement for non-fulfilment of this condition pursuant to subclause 9.10(5), the purchaser must provide the vendor immediately upon request with a copy of the inspector's report.

9.6 OIA consent condition

(1) If the purchaser has indicated on the front page of this agreement that OIA consent is required, this agreement is conditional upon OIA consent being obtained on or before the OIA date shown on the front page of this agreement on terms and conditions that are satisfactory to the purchaser, acting reasonably, the purchaser being responsible for payment of the application fee.

(2) If the purchaser has indicated on the front page of this agreement that OIA consent is not required, or has failed to indicate whether it is required, then the purchaser warrants that the purchaser does not require OIA consent.

9.7 If this agreement relates to a transaction to which the Land Act 1948 applies, this agreement is conditional upon the vendor obtaining the necessary consent by the Land Act date shown on the front page of this agreement.

9.8 If the Land Act date or OIA date is not shown on the front page of this agreement that date shall be the settlement date or a date 65 working days from the date of this agreement whichever is the sooner, except where the property comprises residential (but not otherwise sensitive) land in which case that date shall be the settlement date or a date 20 working days from the date of this agreement, whichever is the sooner.

9.9 Resource Management Act condition

(1) If this agreement relates to a transaction to which section 225 of the Resource Management Act 1991 applies then this agreement is subject to the appropriate condition(s) imposed by that section.

9.10 Operation of conditions

If this agreement is expressed to be subject either to the above or to any other condition(s), then in relation to each such condition the following shall apply unless otherwise expressly provided:

(1) The condition shall be a condition subsequent.

(2) The party or parties for whose benefit the condition has been included shall do all things which may reasonably be necessary to enable the condition to be fulfilled by the date for fulfilment.

(3) Time for fulfilment of any condition and any extended time for fulfilment to a fixed date shall be of the essence.

(4) The condition shall be deemed to be not fulfilled until notice of fulfilment has been served by one party on the other party.

(5) If the condition is not fulfilled by the date for fulfilment, either party may at any time before the condition is fulfilled or waived avoid this agreement by giving notice to the other. Upon avoidance of this agreement, the purchaser shall be entitled to the immediate return of the deposit and any other moneys paid by the purchaser under this agreement and neither party shall have any right or claim against the other arising from this agreement or its termination.

(6) At any time before this agreement is avoided, the purchaser may waive any finance condition and either party may waive any other condition which is for the sole benefit of that party. Any waiver shall be by notice.

10.0 Claims for compensation

10.1 If the purchaser has not purported to cancel this agreement, the breach by the vendor of any term of this agreement does not defer the purchaser's obligation to settle, but that obligation is subject to the provisions of this clause 10.0.

10.2 The provisions of this clause apply if:

(1) the purchaser claims a right to compensation for:

(a) a breach of any term of this agreement; or

(b) a misrepresentation; or

(c) a breach of section 9 or section 14 of the Fair Trading Act 1986; or

(d) an equitable set-off, or

Copyright Auckland Law Society & Real Estate Institute of New Zealand Inc • Auckland District Law Society & Real Estate Institute of New Zealand Inc June 2020

ma

(2) there is a dispute between the parties regarding any amounts payable:
  (a) under subclause 3.12 or subclause 3.13; or
  (b) under subclause 5.2.

10.3 To make a claim under this clause 10.0:
(1) the claimant must serve notice of the claim on the other party on or before the last working day prior to the settlement date (except for claims made after the settlement date for amounts payable under subclause 3.12 or subclause 3.13, in respect of which the claimant may serve notice of the claim on the other party at any time after a dispute arises over those amounts); and
(2) the notice must:
  (a) state the particular breach of the terms of the agreement, or the claim under subclause 3.12, subclause 3.13 or subclause 5.2, or for misrepresentation, or for breach of section 9 or section 14 of the Fair Trading Act 1986, or for an equitable set-off; and
  (b) state a genuine pre-estimate of the loss suffered by the claimant; and
  (c) be particularised and quantified to the extent reasonably possible as at the date of the notice.

10.4 If the claimant is unable to give notice under subclause 10.3 in respect of claims under subclause 10.2(1) or subclause 10.2(2)(b) by the settlement date by reason of the conduct or omission of the other party, the notice may be served on or before the working day immediately preceding the last working day on which settlement must take place under a settlement notice served by either party under subclause 11.1.

10.5 If the amount of compensation is agreed, it shall be deducted from or added to the amount to be paid by the purchaser on settlement.

10.6 If the purchaser makes a claim for compensation under subclause 10.2(1) but the vendor disputes the purchaser's right to make that claim, then:
(1) the vendor must give notice to the purchaser within three working days after service of the purchaser's notice under subclause 10.3, time being of the essence; and
(2) the purchaser's right to make the claim shall be determined by an experienced property lawyer or an experienced litigator appointed by the parties. If the parties cannot agree on the appointee, the appointment shall be made on the application of either party by the president for the time being of the New Zealand Law Society. The appointee's costs shall be met by the party against whom the determination is made.

10.7 If the purchaser makes a claim for compensation under subclause 10.2(1) and the vendor fails to give notice to the purchaser pursuant to clause 10.6, the vendor is deemed to have accepted that the purchaser has a right to make that claim.

10.8 If it is accepted, or determined under subclause 10.6, that the purchaser has a right to claim compensation under subclause 10.2(1) but the amount of compensation claimed is disputed, or if the claim is made under subclause 10.2(2) and the amount of compensation claimed is disputed, then:
(1) an interim amount shall be paid on settlement by the party required to a stakeholder until the amount of the claim is determined;
(2) if the parties cannot agree on a stakeholder, the interim amount shall be paid to a stakeholder nominated on the application of either party by the president for the time being of the New Zealand Law Society;
(3) the interim amount must be a reasonable sum having regard to all of the circumstances, except that where the claim is under subclause 3.13 the interim amount shall be the lower of the amount claimed, or an amount equivalent to interest at the interest rate for late settlement for the relevant default period on such portion of the purchase price (including any deposit) as is payable under this agreement on or by the settlement date;
(4) if the parties cannot agree on the interim amount, the interim amount shall be determined by an experienced property lawyer, an experienced litigator, or, where the claim for compensation is made under subclause 5.2, an experienced registered valuer or quantity surveyor appointed by the parties. The appointee's costs shall be met equally by the parties. If the parties cannot agree on the appointee, the appointment shall be made on the application of either party by the president for the time being of the New Zealand Law Society;
(5) the amount of the claim determined to be payable shall not be limited by the interim amount;
(6) the stakeholder shall lodge the interim amount on an interest-bearing call deposit with a bank registered under the Reserve Bank of New Zealand Act 1989 in the joint names of the vendor and the purchaser;
(7) the interest earned on the interim amount net of any withholding tax and any bank or legal administration fees and commission charges shall follow the destination of the interim amount;
(8) apart from the net interest earned on the interim amount, no interest shall be payable by either party to the other in respect of the claim for compensation once the amount of the claim has been determined, provided that if the amount determined is in excess of the interim amount, the party liable to make payment of that excess shall pay interest to the other party at the interest rate for late settlement on the amount of that excess if it is not paid on or before the third working day after the date of notification of the determination, computed from the date of such notification until payment.

10.9 Where a determination has to be made under subclause 10.6(2) or subclause 10.8(4) and the settlement date will have passed before the determination is made, the settlement date shall be deferred to the second working day following the date of notification to both parties of the determination. Where a determination has to be made under both of these subclauses, the settlement date shall be deferred to the second working day following the date on which notification to both parties has been made of both determinations.

10.10 The procedures prescribed in subclauses 10.1 to 10.9 shall not prevent either party from taking proceedings for specific performance of the contract.

10.11 A determination under subclause 10.6 that the purchaser does not have a right to claim compensation under subclause 10.2(1) shall not prevent the purchaser from pursuing that claim following settlement.

10.12 Where a determination is made by a person appointed under either subclause 10.6 or subclause 10.8, that person shall not be liable to either party for any costs or losses that either party may claim to have suffered in respect of the determination.

Copyright Property Law Act 2019 Real Estate Institute of New Zealand Incorporated June 2020

© ADLS & REINZ. All Rights Reserved.

ma

11.0 Notice to complete and remedies on default

11.1 (1) If the sale is not settled on the settlement date, either party may at any time thereafter serve on the other party a settlement notice.

(2) The settlement notice shall be effective only if the party serving it is at the time of service either in all material respects ready, able, and willing to proceed to settle in accordance with clauses 3.0 and 10.0 or is not so ready, able, and willing to settle only by reason of the default or omission of the other party.

(3) If the purchaser is in possession, the vendor's right to cancel this agreement will be subject to sections 28 to 36 of the Property Law Act 2007 and the settlement notice may incorporate or be given with a notice under section 28 of that Act complying with section 29 of that Act.

11.2 Subject to subclause 11.1(3), upon service of the settlement notice the party on whom the notice is served shall settle:

(1) on or before the twelfth working day after the date of service of the notice; or

(2) on the first working day after the 13th day of January if the period of twelve working days expires during the period commencing on the 6th day of January and ending on the 13th day of January, both days inclusive,

time being of the essence, but without prejudice to any intermediate right of cancellation by either party.

11.3 (1) If this agreement provides for the payment of the purchase price by instalments and the purchaser fails duly and punctually to pay any instalment on or within one month from the date on which it fell due for payment then, whether or not the purchaser is in possession, the vendor may immediately give notice to the purchaser calling up the unpaid balance of the purchase price, which shall upon service of the notice fall immediately due and payable.

(2) The date of service of the notice under this subclause shall be deemed the settlement date for the purposes of subclause 11.1.

(3) The vendor may give a settlement notice with a notice under this subclause.

(4) For the purpose of this subclause a deposit is not an instalment.

11.4 If the purchaser does not comply with the terms of the settlement notice served by the vendor then, subject to subclause 11.1(3):

(1) Without prejudice to any other rights or remedies available to the vendor at law or in equity, the vendor may:

(a) sue the purchaser for specific performance; or

(b) cancel this agreement by notice and pursue either or both of the following remedies, namely:

(i) forfeit and retain for the vendor's own benefit the deposit paid by the purchaser, but not exceeding in all 10% of the purchase price; and/or

(ii) sue the purchaser for damages.

(2) Where the vendor is entitled to cancel this agreement, the entry by the vendor into a conditional or unconditional agreement for the resale of the property or any part thereof shall take effect as a cancellation of this agreement by the vendor if this agreement has not previously been cancelled and such resale shall be deemed to have occurred after cancellation.

(3) The damages claimable by the vendor under subclause 11.4(1)(b)(ii) shall include all damages claimable at common law or in equity and shall also include (but shall not be limited to) any loss incurred by the vendor on any bona fide resale contracted within one year from the date by which the purchaser should have settled in compliance with the settlement notice. The amount of that loss may include:

(a) interest on the unpaid portion of the purchase price at the interest rate for late settlement from the settlement date to the settlement of such resale; and

(b) all costs and expenses reasonably incurred in any resale or attempted resale; and

(c) all outgoings (other than interest) on or maintenance expenses in respect of the property from the settlement date to the settlement of such resale.

(4) Any surplus money arising from a resale shall be retained by the vendor.

11.5 If the vendor does not comply with the terms of a settlement notice served by the purchaser, then, without prejudice to any other rights or remedies available to the purchaser at law or in equity the purchaser may:

(1) sue the vendor for specific performance; or

(2) cancel this agreement by notice and require the vendor forthwith to repay to the purchaser any deposit and any other money paid on account of the purchase price and interest on such sum(s) at the interest rate for late settlement from the date or dates of payment by the purchaser until repayment.

11.6 The party serving a settlement notice may extend the term of the notice for one or more specifically stated periods of time and thereupon the term of the settlement notice shall be deemed to expire on the last day of the extended period or periods and it shall operate as though this clause stipulated the extended period(s) of notice in lieu of the period otherwise applicable; and time shall be of the essence accordingly. An extension may be given either before or after the expiry of the period of the notice.

11.7 Nothing in this clause shall preclude a party from suing for specific performance without serving a settlement notice.

11.8 A party who serves a settlement notice under this clause shall not be in breach of an essential term by reason only of that party's failure to be ready and able to settle upon the expiry of that notice.

12.0 Non-merger

12.1 The obligations and warranties of the parties in this agreement shall not merge with:

(1) the giving and taking of possession;

(2) settlement;

(3) the transfer of title to the property;

(4) delivery of the chattels (if any); or

(5) registration of the transfer of title to the property.

Copyright June 2020

ma

13.0 Goods and Services Tax

13.1 If this agreement provides for the purchaser to pay (in addition to the purchase price stated without GST) any GST which is payable in respect of the supply made under this agreement, then:

(1) the purchaser shall pay to the vendor the GST which is so payable in one sum on the GST date;

(2) where the GST date has not been inserted on the front page of this agreement the GST date shall be the settlement date;

(3) where any GST is not so paid to the vendor, the purchaser shall pay to the vendor:

(a) interest at the interest rate for late settlement on the amount of GST unpaid from the GST date until payment; and

(b) any default GST;

(4) it shall not be a defence to a claim against the purchaser for payment to the vendor of any default GST that the vendor has failed to mitigate the vendor's damages by paying an amount of GST when it fell due under the GST Act; and

(5) any sum referred to in this clause is included in the moneys payable by the purchaser on settlement pursuant to subclause 3.8(1).

13.2 If the supply under this agreement is a taxable supply, the vendor will deliver a tax invoice to the purchaser on or before the GST date or such earlier date as the purchaser is entitled to delivery of an invoice under the GST Act.

13.3 (1) Without prejudice to the vendor's rights and remedies under subclause 13.1, where any GST is not paid to the vendor on or within one month of the GST date, then whether or not the purchaser is in possession, the vendor may immediately give notice to the purchaser calling up any unpaid balance of the purchase price, which shall upon service of the notice fall immediately due and payable.

(2) The date of service of the notice under this subclause shall be deemed the settlement date for the purposes of subclause 11.1.

(3) The vendor may give a settlement notice under subclause 11.1 with a notice under this subclause.

14.0 Zero-rating

14.1 The vendor warrants that the statement on the front page regarding the vendor's GST registration status in respect of the supply under this agreement and any particulars stated by the vendor in Schedule 1 are correct at the date of this agreement and will remain correct at settlement.

14.2 The purchaser warrants that any particulars stated by the purchaser in Schedule 1 are correct at the date of this agreement.

14.3 Where the particulars stated on the front page and in Schedule 1 indicate that:

(1) the vendor is and/or will be at settlement a registered person in respect of the supply under this agreement;

(2) the recipient is and/or will be at settlement a registered person;

(3) the recipient intends at settlement to use the property for making taxable supplies; and

(4) the recipient does not intend at settlement to use the property as a principal place of residence by the recipient or a person associated with the recipient under section 2A(1)(c) of the GST Act,

GST will be chargeable on the supply under this agreement at 0% pursuant to section 11(1)(mb) of the GST Act.

14.4 If GST is chargeable on the supply under this agreement at 0% pursuant to section 11(1)(mb) of the GST Act, then on or before settlement the purchaser will provide the vendor with the recipient's name, address, and registration number if any of those details are not included in Schedule 1 or they have altered.

14.5 (1) If any of the particulars stated by the purchaser in Schedule 1:

(a) are incomplete; or

(b) alter between the date of this agreement and settlement,

the purchaser shall notify the vendor of the particulars which have not been completed and the altered particulars as soon as practicable before settlement.

(2) The purchaser warrants that any added or altered particulars will be correct as at the date of the purchaser's notification.

(3) If the GST treatment of the supply under this agreement should be altered as a result of the added or altered particulars, the vendor shall prepare and deliver to the purchaser or the purchaser's lawyer an amended settlement statement, if the vendor has already tendered a settlement statement, and a credit note or a debit note, as the case may be, if the vendor has already issued a tax invoice.

14.6 If

(1) the particulars in Schedule 1 state that part of the property is being used as a principal place of residence at the date of this agreement; and

(2) that part is still being so used at the time of the supply under this agreement,

then, the supply of that part will be a separate supply in accordance with section 5(15)(a) of the GST Act.

14.7 If

(1) the particulars stated in Schedule 1 indicate that the recipient intends to use part of the property as a principal place of residence by the recipient or a person associated with the recipient under section 2A(1)(c) of the GST Act; and

(2) that part is the same part as that being used as a principal place of residence at the time of the supply under this agreement,

then the references in subclauses 14.3 and 14.4 to "the property" shall be deemed to mean the remainder of the property excluding that part and the references to "the supply under this agreement" shall be deemed to mean the supply under this agreement of that remainder.

14.8 If the particulars stated on the front page and in Schedule 1 indicate in terms of subclause 14.3 that GST will be chargeable on the supply under this agreement at 0% pursuant to section 11(1)(mb) of the GST Act, but any of the particulars stated by the purchaser in Schedule 1 should alter between the date of this agreement and settlement, such that GST no longer becomes chargeable on the supply at 0%, then:

(1) the purchase price shall be plus GST (if any), even if it has been expressed as being inclusive of GST (if any) on the front page of this agreement; and

Copyright June 2020 Auckland District Law Society & Real Estate Institute of New Zealand Inc

© ADLS & REINZ. All Rights Reserved.

ma

(2) if the vendor has already had to account to the Inland Revenue Department for the GST which is payable in respect of the supply under this agreement and did so on the basis that in accordance with subclause 14.3 the GST would be chargeable at 0%, the purchaser shall pay GST and any default GST to the vendor immediately upon demand served on the purchaser by the vendor (and where any GST or default GST is not so paid to the vendor, the purchaser shall pay to the vendor interest at the interest for late settlement on the amount unpaid from the date of service of the vendor's demand until payment).

15.0 Supply of a Going Concern

15.1 If there is a supply under this agreement to which section 11(1)(mb) of the GST Act does not apply but which comprises the supply of a taxable activity that is a going concern at the time of the supply, then, unless otherwise expressly stated in this agreement:

(1) each party warrants that it is a registered person or will be so by the date of the supply;

(2) each party agrees to provide the other party by the date of the supply with proof of its registration for GST purposes;

(3) the parties agree that they intend that the supply is of a taxable activity that is capable of being carried on as a going concern by the purchaser; and

(4) the parties agree that the supply made pursuant to this agreement is the supply of a going concern on which GST is chargeable at 0%.

15.2 If it subsequently transpires that GST is payable in respect of the supply and if this agreement provides for the purchaser to pay (in addition to the purchase price without GST) any GST which is payable in respect of the supply made under this agreement, then the provisions of clause 13.0 of this agreement shall apply.

16.0 Limitation of Liability

16.1 If any person enters into this agreement as trustee of a trust and if that person has no right to or interest in any assets of the trust, except in that person's capacity as a trustee of the trust, then that person's liability under this agreement will not be personal and unlimited but will be limited to the actual amount recoverable from the assets of the trust from time to time ("the limited amount").

16.2 If the right of that person to be indemnified from the trust assets has been lost or impaired, that person's liability will become personal but limited to the extent of that part of the limited amount which cannot be recovered from any other person.

17.0 Counterparts

17.1 This agreement may be executed and delivered in any number of counterparts (including scanned and emailed PDF counterparts).

17.2 Each executed counterpart will be deemed an original and all executed counterparts together will constitute one (and the same) instrument.

17.3 This agreement shall not come into effect until each person required to sign has signed at least one counterpart and both vendor and purchaser have received a counterpart signed by each person required to sign.

17.4 If the parties cannot agree on the date of this agreement, and counterparts are signed on separate dates, the date of the agreement is the date on which the last counterpart was signed and delivered to all parties.

18.0 Agency

18.1 If the name of a licensed real estate agent is recorded on this agreement, it is acknowledged that the sale evidenced by this agreement has been made through that agent whom the vendor has appointed as the vendor's agent according to an executed agency agreement.

18.2 The scope of the authority of the agent under subclause 18.1 does not extend to making an offer, counteroffer, or acceptance of a purchaser's offer or counteroffer on the vendor's behalf without the express authority of the vendor for that purpose. That authority, if given, should be recorded in the executed agency agreement.

18.3 The vendor shall be liable to pay the agent's charges including GST in accordance with the executed agency agreement.

19.0 Collection of Sales Information

19.1 Once this agreement has become unconditional in all respects, the agent may provide certain information relating to the sale to the Real Estate Institute of New Zealand Incorporated (REINZ).

19.2 This information will be stored on a secure password protected network under REINZ's control and may include (amongst other things) the sale price and the address of the property, but will not include the parties' names or other personal information under the Privacy Act 1993.

19.3 This information is collected, used and published for statistical, property appraisal and market analysis purposes, by REINZ, REINZ member agents and others.

19.4 Despite the above, if REINZ does come to hold any of the vendor or purchaser's personal information, that party has a right to access and correct that personal information by contacting REINZ at info@reinz.co.nz or by post or telephone.

Copyright
June 2020
Property Law Society Inc & Real Estate Institute of New Zealand Digital Property Solutions Ltd

© ADLS & REINZ. All Rights Reserved.

ma

FURTHER TERMS OF SALE

See attached Further Terms of Sale.

Auckland District Law Society Inc & Real Estate Institute of New Zealand Inc
© Copyright
June 2020

ma

Further Terms of Sale

20. Definitions

20.1 In this agreement, unless the context otherwise requires:

Building Covenants means the building covenants set out in Annexure 4 and any additions, alterations or deletions from those building covenants required to meet any of the conditions contained in the Stage 4E Consents.

Development means the vendor's development known as "Ravenswood" that is being developed and constructed by the vendor.

Head Titles means the land comprised in record of title 876490 (as at 26 March 2021).

Land Covenant means the land covenants set out in Annexure 3 and any additions, alterations or deletions from those land covenants required to meet any of the conditions contained in the Stage 4E Consents.

Masterplan means the draft masterplan for the Development (which is subject to variation) as attached at Annexure 2.

Scheme Plan means the draft scheme plan for Stage 4E (which is subject to variation and the provisions of clause 23.3 and 24.1) as attached at Annexure 1.

Stage 4E means the fifth tranche of the fourth residential stage of the vendor's Development which contains the property and which is generally shown on the Scheme Plan.

Stage 4E Consents means all resource consents and other consents (including subdivision consents), permits and authorities reasonably required to:

(a) subdivide the Head Titles in order to create separate records of titles for the lots in Stage 4E of the Development, including a separate record of title for the property;

(b) to construct any infrastructure and other improvements that form part of or service Stage 4E of the Development; and

(c) complete Stage 4E in the manner determined by the vendor.

Subdivision Plan means the survey plan which will be based on the Scheme Plan (subject to variation under clause 23.3 and 24.1), to be lodged at LINZ which will result in the issue of a separate record of title for the property.

21. Vendor's conditions

21.1 This agreement is conditional upon the vendor completing a subdivision of the Head Titles and obtaining the issue of a separate record of title for the property in accordance with this agreement, and notifying the purchaser that this condition has been satisfied before 5pm on the date that is three years after the date of this agreement.

21.2 This agreement is further conditional upon the vendor:

(a) obtaining the Stage 4E Consents on terms and conditions acceptable to the vendor in all respects (at the vendor's sole discretion); and

(b) being satisfied with all corporate, engineering, planning and subdivision aspects of Stage 4E of the Development,

by 5pm on the date that is one year after the date of this agreement.

21.3 The conditions contained in clauses 21.1 and 21.2 have been inserted for the sole benefit of the vendor and may at any time, prior to this agreement being avoided, be waived by the vendor giving written notice of such waiver to the purchaser.

21.4 The satisfaction of the conditions contained in clause 21.1 and 21.2 will be at the sole and absolute discretion of the vendor and the vendor will not be obliged to provide the purchaser with any reason for the non-satisfaction of the conditions.

21.5 If any of the conditions in clause 21.1 or 21.2 are not satisfied (or waived) by 5pm on the relevant date for satisfaction, the vendor (but not the purchaser) may cancel this agreement by notice in writing to the purchaser. In the event of such cancellation, the Net Deposit will be returned to the purchaser, and neither party will have any claim against the other in respect of any matter arising from this agreement.

22. Deposit

22.1 The purchaser will pay the deposit (being the amount shown on the front page of this agreement) to the vendor's solicitors' trust account on the date that the conditions in clause 43 have been confirmed by the purchaser or, where there have been no conditions inserted at clause 43, on the date of this agreement.

22.2 If the deposit, or any part of the deposit, is not paid on the due date for payment, the vendor may at any time thereafter serve on the purchaser notice requiring payment. If the purchaser fails to pay the deposit, or any part of the deposit that remains unpaid, on or before the third working day after service of the notice, time being of the essence, the vendor may cancel this agreement by serving notice of cancellation on the purchaser. No notice of cancellation shall be effective if the deposit is paid before the notice of cancellation is served.

22.3 The deposit will be held by the vendor's solicitors, as stakeholder, in an interest bearing trust account in the name of the vendor and the purchaser, and

(a) contemporaneous with a new record of title being issued for the property, the deposit plus net interest (if any) less any applicable withholding tax and commission (**Net Deposit**) will be released to the vendor; or

(b) in the event that this agreement is cancelled:

(i) as a result of any default attributable to the purchaser, the Net Deposit will be released to the vendor; and

(ii) for any other reason save the default of the purchaser, the Net Deposit will be refunded to the purchaser's New Zealand solicitor and after completion of any requirements of the Foreign Account Tax Compliance (US) and the Anti-Money Laundering and Countering Financial Terrorism Act 2009 (if any).

22.4 The deposit shall be in part payment of the purchase price.

22.5 The vendor's solicitors, acting as stakeholder, will not be liable to any person by reason of any delay in investing the deposit or any part of it or failure on the part of the bank, or any costs deducted by the bank for handling the deposit or any interest thereon.

ma

23. Vendor's development

23.1 The vendor shall, with all due diligence and at the vendor's expense, seek the Stage 4E Consents to lodge for deposit with LINZ the Subdivision Plan to enable a separate fee simple record of title to issue for the property in accordance with this agreement.

23.2 The vendor will at its cost supply roading, water, sewage, electricity and telecommunication services to the boundary of the property in accordance with Waimakariri District Council subdivision consent requirements.

23.3 The vendor reserves the right to alter or vary the Scheme Plan, the Masterplan, the Subdivision Plan and the Development (or any of them), including the right to add, alter, vary or cancel any easements and/or covenants, in such a manner as the vendor considers necessary to allow the Development to proceed in accordance with conventional residential subdivision practices. The purchaser shall not be entitled to delay settlement, withhold any part of the purchase price, make any objection, requisition or claim for compensation because of such alterations, provided that the amendments do not substantively alter the property.

23.4 The vendor reserves the right to develop the vendor's land (including all land which forms part of the Development and any other land which is subsequently purchased by the vendor to progress the Development) and the Development as it deems necessary or desirable for the purposes of progressing and completing the Development. The vendor may do and maintain all such works and things as the vendor may require for such purposes, including clearing and excavation, storage, filling of soil and substrate, landscaping, re-contouring of lots and provision of services for roading, access ways, storm water, sewerage, telephone, electric power, gas and water.

24. Measurements and areas

24.1 The area, dimensions, and description of the property and the Development, and all measurements thereof, are approximate only and are subject to:

(a) any variation arising from the creation of the final Subdivision Plan;

(b) any alteration required by LINZ or the territorial authority; and

(c) any variation permitted to be made by the vendor under this agreement.

24.2 Neither party shall be entitled to any variation of the purchase price nor any compensation for such variation unless the final area of the property (as shown on the deposited Subdivision Plan) differs by more than 5% to that shown on the front page of this agreement. If such variation in the area of the property exceeds 5%, the purchase price will be adjusted pro rata to reflect the final area of the property (as shown on the deposited Subdivision Plan).

24.3 Except as set out in clause 24.2, the purchaser is not entitled to delay settlement, withhold any part of the purchase price, make any objection, requisition or claim for compensation, based on such replacement, alteration, variation or cancellation under clause 24.1.

25. The property, easements and encumbrances

25.1 The property is sold subject to all existing interests shown on the current records of title to the Head Titles, excluding mortgages and caveats (if any), however the vendor may, at its sole discretion, elect to surrender, discharge, withdraw or cancel any such interests registered on the records of title to the Head Titles prior to settlement.

25.2 The vendor shall have the right to register (prior to settlement of this agreement) against the record of title to the property:

(a) the Land Covenant; and

(b) any easements, consents notices, or other encumbrances or interests that may be required to meet the conditions of the Stage 4E Consents, provided that any such easements, consent notices or other encumbrances or interests are in accordance with conventional residential subdivision practice and that the amenity of the purchaser's property is not negatively impacted to any material degree.

25.3 The purchaser agrees to take title to the property with the benefit or burden of such interests referred to in clauses 25.1 and 25.2 and will have no right to requisition the record of title to the property in respect of such interests.

26. Non-objection

26.1 The purchaser covenants with the vendor (including any subsidiary or related company of the vendor and any successor or assign of the vendor) that it will not oppose, object to, frustrate or take any action, or encourage or cause others to oppose, object to, frustrate or take any action, that might in any way prevent or hinder the vendor from progressing and completing the Development and/or obtaining or effecting any zone change and/or subdivision and/or resource consents needed to generally give effect to the Development.

26.2 This clause applies (without limitation) to any resource consent application, Environment Court application or territorial authority building consent application or other necessary consent process involving the Development, and the benefit of this covenant also applies to any adjoining or neighbouring property that the Vendor may own or subsequently purchase to progress any part of the Development.

26.3 The obligations of the purchaser under this clause 26 shall bind the purchaser and all successors in title to the property, and the purchaser acknowledges and agrees that such obligations will be secured by the Land Covenant to be registered against the record of title of the property on or prior to settlement.

27. Purchaser not to caveat

27.1 The purchaser must not in any circumstances lodge a caveat against the records of title to the Head Titles, the record of title to any other land in the Development, or the record of title to the property, unless:

(a) a separate record of title has issued for the property; and

(b) the vendor is in default of its obligations under this agreement,

in which case the purchaser may only lodge a caveat against the separate record of title for the property to be purchased under this agreement.

27.2 In consideration of the vendor entering into this agreement, the purchaser irrevocably nominates, constitutes and appoints the vendor or any nominee of the vendor to be the true and lawful attorney of the purchaser for the purposes of executing all documents and plans and performing all acts, matters and things as may be necessary (without limitation) to discharge any caveat lodged in breach of clause 27.1.

27.3 Production of this power of attorney to LINZ, the purchaser's solicitor, agent or mortgagee from time to time shall without further requirement or reference to the purchaser comprise an irrevocable and unconditional authorisation and instruction to the person involved or the purchaser's mortgagee to execute any instrument sought by the vendor (or its nominee) to discharge any caveat lodged in breach of clause 27.1.

al.

ma

27.4 The purchaser shall also, if called upon to do so, enter into and execute a deed of appointment of power of attorney in favour of the vendor or any nominee of the vendor on the terms and for the purposes set out in clause 27.

28. Covenants apply

28.1 The purchaser acknowledges that the covenants contained in the Land Covenant are intended to establish and maintain a high quality residential amenity for the property and the Development. The vendor shall have the right to register the Land Covenant against the record of title to the property as a covenant instrument at or prior to settlement.

28.2 The purchaser acknowledges and agrees that the Building Covenants will apply to the purchaser's building on the property, and the purchaser agrees to comply (and procure that its builders and agents comply) with the Building Covenants.

29. No on-sale prior to construction of dwelling

29.1 The purchaser must commence the construction of a dwelling on the property within two years from the date of settlement of this agreement. The purchaser shall not on-sell or otherwise dispose of its interest in the property until a dwelling has been constructed on it.

30. Vendor approval of site works

30.1 No development or site works may be commenced on the property prior to settlement unless all necessary consents and approvals required under the Land Covenant have been obtained and the vendor has approved and agreed in writing to the work commencing.

31. Maintenance of bare lots

31.1 In the event that a dwelling has not yet been constructed on the property and the grass cover is over 150mm in length, the vendor may, after having given the purchaser at least 5 working days prior written notice, enter onto the property and carry out any mowing of grass needed to ensure the property is kept tidy and to recover the cost from the purchaser.

32. Goods and services tax

32.1 The purchaser will not request a tax invoice or any other invoice (within the meaning of section 2 of the Goods and Services Tax Act 1985) from the vendor prior to the issue of a separate record of title for the property as required by this agreement.

32.2 In the event that the vendor is required to pay GST in respect of this sale of the property prior to settlement, the obligations of the vendor's solicitors to hold the deposit as stakeholder in accordance with clause 22.3 shall terminate and the Net Deposit will be paid to the vendor.

33. Guarantee

33.1 If there is a guarantor named on the front page of this agreement, then in consideration of the vendor entering into this agreement at the guarantor's request, the guarantor:

(a) guarantees to the vendor the due and punctual payment by the purchaser of the purchase price and all other money, and the due and punctual compliance by the purchaser with all obligations of the purchaser under this agreement; and

(b) indemnifies the vendor from and against any costs or liability which the vendor may incur or suffer if the purchaser defaults in compliance with any of the obligations of the purchaser under this agreement.

al.

ma

33.2 No release, delay or other indulgence given by the vendor to the purchaser or other alteration to the terms of this agreement or any other thing by which the guarantor would have been released if the guarantor had been a surety shall release, prejudice or affect the guarantor's liability as guarantor or indemnifier. The guarantor acknowledges and confirms that this guarantee shall remain in full force and effect despite any nomination under clause 41.1.

33.3 As between the guarantor and the vendor, the guarantor may for all purposes be treated as the purchaser, and the vendor shall be under no obligation to take proceedings against the purchaser before taking proceedings against the guarantor.

33.4 If there is more than one guarantor named on the front page of this agreement, then the liability of those guarantors shall be joint and several.

34. Entire agreement

34.1 This agreement contains the entire agreement between the parties and is not binding on the vendor until signed by the vendor or its authorised representative. No variation, representation or undertaking by the vendor or any person purporting to be acting on behalf of the vendor in relation to this agreement or matters supplemental to it shall be binding on the vendor unless in writing and signed by an authorised director of the vendor company.

35. Purchaser to provide information

35.1 The purchaser shall provide the vendor with any information and documents (including the purchaser's GST status, New Zealand residency status and a signed Residential Land Statement as required under section 51A of the Overseas Investment Act 2005) reasonably requested by the vendor for the purposes of progressing or financing the Development. The purchaser shall provide such information to the vendor within 3 working days of receiving a written request from the vendor.

36. Governing law and jurisdiction

36.1 This agreement and the transaction contemplated by it are governed by the laws of New Zealand. The parties submit to the exclusive jurisdiction of the New Zealand courts in respect of any dispute or proceeding arising out of this agreement.

37. Lowest price – accruals

37.1 The parties agree that the purchase price is the "lowest price" the parties would have agreed upon (at the date of this agreement) for the sale and purchase of the property under the rules relating to the accrual treatment of income and expenditure under the Income Tax Act 2007, and on that basis no income and expenditure arises under those rules.

38. Purchaser's acknowledgements

38.1 The purchaser acknowledges and agrees that:

(a) it purchases the property solely in reliance upon the purchaser's own judgement and not upon any representation or warranty made by the vendor or any agent of the vendor other than as contained in this agreement;

(b) it has placed no reliance on any plan (including the Scheme Plan and the Masterplan), marketing material, any term of this agreement or any other documentation or information whatsoever, that all or part of the Development will be completed in full or in part (other than the property);

(c) any landscape plan, marketing material, website, Development plan, resource consent or proposed facility or aspect within the Development (whether provided by the vendor

or otherwise) is indicative only. The extent, detail and timing of such matters shall be at the vendor's absolute discretion in all respects;

(d) if there is any conflict between the terms of this agreement and the vendor's marketing material, website and other materials, then the terms of this agreement will prevail;

(e) the vendor gives no warranty as to when:

(i) the record of title will issue for the property;

(ii) certain facilities or aspects of the Development will be completed;

(iii) the Stage 4E consents will be obtained; and

(iv) the Development will be completed or if it will be completed.

39. Sunset clause

39.1 Either party shall be entitled to cancel this agreement where a separate record of title has not issued for the property within three years of the date of this agreement. In the event of such cancellation, the purchaser shall be entitled to a refund of the Net Deposit and neither party shall have any claim in respect of this agreement or any associated matter.

40. Force majeure

40.1 In this clause "**Force Majeure Event**" means an event or circumstance which:

(a) is beyond the reasonable control of the vendor; and

(b) is not due to any breach or negligence of the vendor; and

(c) prevents the vendor from performing any or all of its obligations under this agreement.

40.2 In addition, a Force Majeure Event will include:

(a) an epidemic or pandemic (including COVID-19);

(b) war, hostilities (whether war be declared or not), invasion, act of foreign enemies;

(c) rebellion, terrorism, revolution, insurrection, military usurped power, or civil war;

(d) strike or lockout (other than the employees or contractors of the vendor); and

(e) natural catastrophes such as earthquake, cyclone or volcanic activity,

provided that in no circumstances will a Force Majeure Event include lack of monies or other funding related issues on the part of the vendor.

40.3 If the vendor is wholly or partially precluded from complying with any of its obligations under this agreement by reason of a Force Majeure Event, then the vendor's rights and obligations directly affected by the Force Majeure Event will be suspended for the duration of the delay arising out of the Force Majeure Event (**Period of Delay**), and the sunset date in clause 39.1 which provides each party with the ability to cancel this agreement shall be adjusted by the Period of Delay.

40.4 As soon as possible after a Force Majeure Event arises, the vendor must notify the purchaser of the nature of the Force Majeure Event and the extent to which the vendor is unable to perform its obligations under this agreement. The vendor must use its best endeavours to

ma

work around or overcome the Force Majeure Event and must recommence the performance of its obligations as soon as possible after the Force Majeure Event has ceased to exist.

41. Nomination

41.1 Where this agreement provides the purchaser with the ability to nominate another party to complete settlement of the purchase under this agreement, the purchaser shall, upon exercising such right of nomination, enter into a deed of nomination (in such a form reasonably required by the vendor) recording such nomination. The compliance by the purchaser with this clause shall be a condition of the purchaser exercising its right of nomination (if any).

42. Fencing information

42.1 The purchaser agrees that the vendor may provide the purchaser's contact information to the purchasers of any lots adjacent to the property for the purposes of arranging the installation of boundary fences between those properties.

43. Purchaser's conditions (if any)

43.1 The conditions in this clause (if any) have been inserted for the sole benefit of the purchaser, and may be waived by the purchaser at any time prior to avoidance of this agreement:

(a) **Due Diligence**: This agreement is subject to and conditional upon the purchaser, following the purchaser carrying out a due diligence investigation and verification of all aspects of this agreement and the property, being satisfied that the property is in all respects suitable for the purchaser's requirements and advising the vendor in writing within 10 working days from the date of this agreement that this condition is satisfied.

ma

Builders Further Terms of Sale

44. Settlement date

44.1 Notwithstanding the settlement date specified on the front page of this agreement, the purchaser shall only be required to complete settlement on the earlier of the following dates:

(a) the date that is 3 months following the date that a separate record of title has issued for the property in accordance with this agreement; and

(b) the date of settlement of the on-sale of the property by the purchaser to a third party as part of a house and land package or otherwise.

44.2 In the event that settlement is to be completed in accordance with clause 44.1(b), the purchaser shall provide the vendor with reasonable notice of the settlement date.

45. Warranty on land condition

45.1 The vendor warrants that the property will be suitable for TC1 (Technical Category 1) or TC2 (Technical Category 2) equivalent foundations.

46. On-sale of property

46.1 The purchaser must not on-sell or otherwise dispose of its interest in the property without having entered into an agreement with the on-sale purchaser which includes the construction of a dwelling on the property as part of a house and land package.

47. Construction Bond

47.1 The purchaser agrees to pay a construction bond of $2,000 (**Construction Bond**) to the vendor to cover any damage to the Development or costs incurred by the vendor as a result of actions of the purchaser and/or its subcontractors.

47.2 The Construction Bond must be paid by the purchaser to the vendor's solicitors' trust account prior to the commencement of any construction on the property. The vendor shall be entitled to deduct from the Construction Bond any costs of remedying any damage caused by the purchaser and/or its subcontractors.

47.3 Upon completion of the dwelling on the property, and the vendor being satisfied that no further deductions are required to be made from the Construction Bond under clause 47.2, the Construction Bond (less any deductions) shall be returned to the purchaser within five working days after the vendor receives a written request from the purchaser.

48. Conflict

48.1 In the event of conflict or inconsistency between the provisions of these Builders Further Terms of Sale and any other provision of this agreement, including the General Terms of Sale, the Further Terms of Sale, the Land Covenant and the Building Covenants, then the provisions of these Builders Further Terms of Sale shall take precedence and prevail.

49. Marketing and Publicity

49.1 The vendor will allow the purchaser to utilise the vendor's "Ravenswood" name and branding and their derivatives in the purchaser's marketing and publicity material for the purchaser's promotion and on-sale of the property on the following basis:

ma

(a) such use is limited to promotion and marketing directly connected to sales of property in the vendor's Development;

(b) all material and use of such material (whether written or verbal) must be approved by the vendor prior to use, public release, or public distribution or publication to ensure the quality, timeliness, and co-ordination with the vendor's marketing and publicity campaigns and activities relating to the Development;

(c) any terms and conditions of use specified by the vendor must be strictly observed; and

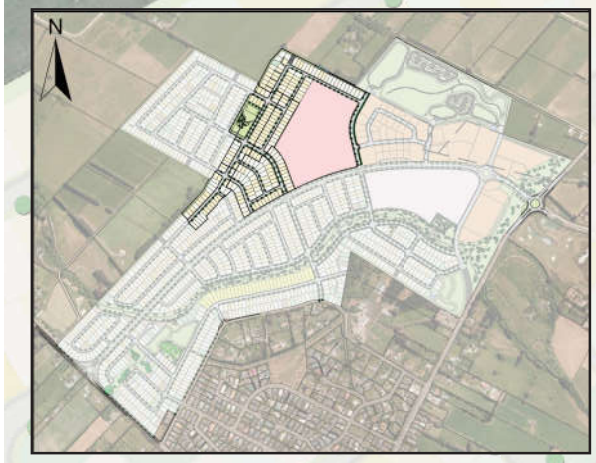
(d) notwithstanding this clause, all intellectual property rights in the name "Ravenswood" are reserved to the vendor absolutely.

al.

ma

Annexure 1 – Scheme Plan

ma



Stage 4

Printed January 2021

RAVENSWOOD
NORTH CANTERBURY

Phone 03 375 0010 | **Email** live@ravenswood.co.nz
www.ravenswood.co.nz

Subject to final approval of the Waimakariri District Council and the developer, subject to survey. Dimensions, details and timing of the development are all subject to change. Prices and availability are subject to change at any time. Prices include GST.

Engineering and Landscape detail is conceptual and subject to final design

- Existing Trees (approximate only)
- Proposed Trees (conceptual only and subject to final design)
- Future road provision
- Stage Development Area

0m 50m 100m

ALLOTMENT SIZE	NO. LOTS
310m² - 349m²	-
350m² - 399m²	-
400m² - 449m²	124
450m² - 499m²	57
500m² - 599m²	43
600m² - 699m²	1
700m² +	-
Retirement Vill.	1
Total Lots	226

STAGE 4B

STAGE 4D

STAGE 4C

Retirement Village
8.7025ha

STAGE 4E
Coming Soon

STAGE 4A

CONSENT ISSUED BC221264 - Page 59 of 359

Annexure 2 – Ravenswood Masterplan

ma

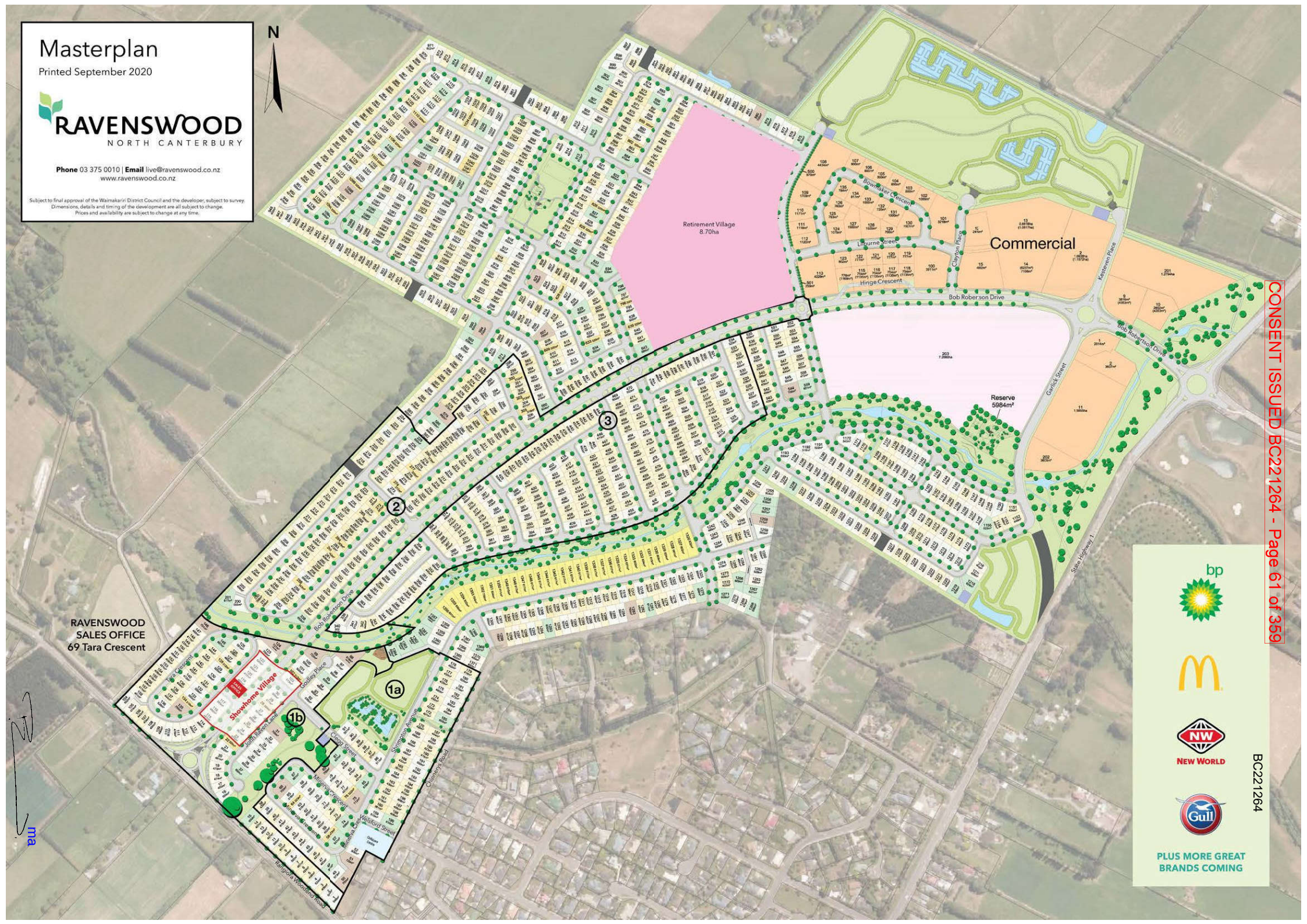
Masterplan

Printed September 2020

RAVENSWOOD
NORTH CANTERBURY

Phone 03 375 0010 | **Email** live@ravenswood.co.nz
www.ravenswood.co.nz

Subject to final approval of the Waimakariri District Council and the developer, subject to survey. Dimensions, details and timing of the development are all subject to change. Prices and availability are subject to change at any time.



CONSENT ISSUED BC221264 - Page 61 of 359

BC221264

Annexure 3 – Land Covenants

ma

RAVENSWOOD
NORTH CANTERBURY

Land Covenants.

1. PURPOSE

1.1 The purpose of these covenants is to protect the market and aesthetic value of the Dominant Lots, the privacy, peace and security of the occupants of the Dominant Lots, and the quality of the environment affecting the Dominant Lots for the benefit of the Dominant Lots, Ravenswood, and its associated Community in general.

2. DEFINITIONS

In the following covenants:

2.1 Headings are for ease of reference only and do not form part of any covenant nor affect the meaning of any covenant.

2.2 Words imputing the singular include the plural and vice versa.

"Approved" means approved by Ravenswood either in accordance with clause 4.1 or as may otherwise be required by any of the covenants.

"Building" comprises a building as defined by the Building Act 2004 (or latest version).

"Dwelling or Dwellinghouse" means and includes a residential dwelling house, or family residence.

"Landscape Feature" means any visible structural or landscape design or enhancement feature or utility to be provided on any Lot.

"Lot" means any Lot that is subject to these covenants.

"Lot Owner" means the owner of any Lot.

"Ravenswood" means Ravenswood Developments Limited and any successor party or organisation nominated by it or by any successor party or organisation to deal with applications required for approvals by Ravenswood under any of these covenants.

"Ravenswood Design Guidelines" means the Ravenswood Design Guidelines document published and maintained by Ravenswood.

3. COVENANTS

Building Construction and Lot Development

3.1 No more than one Dwellinghouse may be constructed on any Lot.

3.2 All Buildings to be used as a Dwellinghouse must have a ground floor area of not less than 90m^2 (inclusive of any garage under the same roof structure).

3.3 No re-locatable Buildings may be brought onto any Lot nor any other previously used Building be transported to or re-erected on any Lot unless previously agreed in writing by a duly authorised representative of Ravenswood.

3.4 All Buildings must be constructed on-site from new or high quality recycled materials unless previously agreed in writing by a duly authorised representative of Ravenswood.

3.5 Exterior cladding for all Buildings on any Lot (except for the cladding of soffits or gable ends) shall be of the following materials:

a. Brick, or

b. Natural stone, or

c. River rock, or

d. Textured plaster over brick, or polystyrene or other suitable sub-base for plaster, or

e. Stained or painted timber weather-board, wooden shingles, timber board & batten, or

f. Surface coated concrete block, or

g. Solid plaster or glazing or

h. Such other materials as may be approved by Ravenswood.

3.6 All roofing material on any Building shall be either:

a. Tiles, (including clay, ceramic, concrete, decramastic, pre-coated or pressed steel), or

b. Steel (comprising pre-painted, longrun pressed or rolled steel), or

c. Shingle, or

d. Slate, or

e. Membrane roofing, or

f. Such other roofing material as may be approved by Ravenswood.

3.7 No reflective or visually obtrusive roof, wall or joinery materials, colours or mirror glass may be used for any Building.

3.8 There shall be no copper, galvanised, unpainted zincalume or any other unpainted metal on roof material, gutters, down pipes or external cladding of any Building.

3.9 No Buildings shall be erected on any Lot using concrete or treated wooden piles without providing a solid and durable skirting board or other enclosure around the exterior of the Building(s) from ground height to the underside of the wall cladding.

3.10 No garages or subsidiary Buildings shall be erected on any Lot except in conjunction with or following construction of the main Building and all such Buildings shall be constructed with permanent materials comprising timber, stone or other permanent materials in character with the main Building on each Lot.

3.11 A Dwellinghouse must be constructed on the Lot in compliance with these Covenants, the Ravenswood Building Covenants, the Ravenswood Design Guidelines document and all relevant regulatory requirements and in accordance with the Building Plans approved in accordance with Clause 4. Construction of the Dwellinghouse must commence within two (2) years of settlement of purchase by the Lot Owner. The Lot Owner acknowledges and Ravenswood gives no warranty or undertaking that similar conditions or requirements will be imposed in respect of other Lots within Ravenswood.

3.12 No Lot (or any part of the Lot) may be sold or otherwise disposed of until a Dwellinghouse has been constructed on the Lot in compliance with Clause 3.11. In exceptional circumstances Ravenswood may grant a dispensation to this requirement. Any dispensation must be confirmed in writing by an authorised representative of Ravenswood. If Ravenswood consents to the sale or transfer of the Lot to a third party prior to the construction of a Dwellinghouse on the Lot, on-sale purchasers of the Lot will be bound by this covenant and Clause 3.11.

3.13 All construction works required to complete a dwelling on any Lot including any required painting or staining of exterior surfaces shall be completed within a period of twelve (12) months from the date of commencement of construction work. Earthworks and landscaping works associated with such development (including lawns, drives, paths and fencing) visible from the street similarly shall be completed within three (3) months of receipt of Code Compliance Certificate for the dwelling.

ma

3.14 No Building on any Lot may be occupied as a residence in any way until:

a. The Code Compliance Certificate(s) has been issued by either the Waimakariri District Council or an approved Building Certifier; and

b. The Buildings have been completed in accordance with all the terms of these Covenants; and

c. All exterior work, decoration and final interior window coverings are completely installed; and

d. All areas viewable from the street are in a tidy state. These areas must be completed in accordance with your approved landscape plan within three (3) months of receipt of Code of Compliance.

3.15 Any external air conditioning units must be properly screened and noise proofed to ensure they are not a nuisance to neighbours.

3.16 Diesel, petrol, oil or gas tanks which have a capacity of over 100 litres are prohibited on any Lot or within any Building unless approved by Ravenswood.

3.17 Driveways, driveway crossings and entranceway locations and plans and specifications must be approved by Ravenswood prior to construction.

3.18 Lots that have rear vehicular access available from a lane or right of way may not have vehicular access to the Lot from the street frontage. Parking is prohibited on any access lane or right of way unless approved by Ravenswood.

3.19 No Building shall be erected, altered, placed or permitted to remain on any Lot other than Buildings designed for residential use and associated garage(s) and outbuildings. Ravenswood and its designated representative(s) and/or builders approved by Ravenswood may use residential Buildings as show homes or offices, provided such use is in furtherance of the primary purpose of construction and sale of Lots and dwellings within the Ravenswood development.

3.20 No Lot Owner shall oppose, object to, frustrate, or take any action, or encourage or cause others to oppose, object to, frustrate or take any action that might in any way prevent or hinder Ravenswood from progressing or completing the present Ravenswood development or any future development of Ravenswood. Such covenant extends to and includes (without limitation) development planning, zone changes, resource consents for land uses and subdivisions, Consent Authority or Environment Court applications, Territorial Authority Building Consent matters, or any other necessary consent process involving Ravenswood and/or the parent company. The benefit of this covenant also applies to Ravenswood and for any adjoining or neighbouring properties now or hereafter owned by Ravenswood and/or the parent company.

Landscape Features

3.21 Construction of any Landscape Features on any Lot shall not be commenced until the plans and specifications have been approved by Ravenswood.

3.22 No Landscape Feature may exceed a height of 2m above the original sub-division ground level of a Lot without the express written approval of Ravenswood.

3.23 Clotheslines and letterboxes must be unobtrusive and of good quality in terms of design and location. The positioning of any clothesline shall be on the rear half of each Lot with appropriate screening to ensure it will not be highly visible from the street. The positioning of any letterbox shall be adjacent to but not on the road reserve.

3.24 All attachments to any Buildings or structures on any Lot (including television antenna, solar hot water panels, satellite dish, mast, garden statues, fountains or any other exterior ornamental decoration or similar garden or Landscape Feature) must not be of a nature that would devalue the neighbouring properties in the opinion of Ravenswood. Any such offending item must be removed or screened to Ravenswood's satisfaction.

3.25 The location of and construction of swimming pools (including fencing and screening on any Lot), must be approved by Ravenswood.

ma

Building & Lot Maintenance

3.26 No Lot Owner shall display or permit to be displayed on any Lot or Building any advertisement, sign or hoarding (except for compulsory statutory signage, real estate signage pending sale and builder's signage during construction and pending sale). All such signage (including its construction and location) must comply with relevant Waimakariri District Council requirements and first be approved by Ravenswood.

3.27 No livestock, poultry or animals which may be likely to cause a nuisance to any other Ravenswood resident shall be raised, bred or kept on any Lot or in any Buildings; provided, however, that dogs and cats, or other common domesticated household pets that are not dangerous or annoying may be raised and kept. Such permitted pets shall be kept on the owner's Lot and if a dog it shall not be allowed off the owner's Lot except under controlled supervision. Any dog which in whole or in part, resembles any of the Pit Bull Terrier, the Japanese Tosa, the Dogo Argentino or the Fila Brasileiro breeds and any other potentially aggressive or noisy breed of animal is prohibited if it causes a nuisance in any way. No permitted pet shall be allowed to make noise in a manner or of such volume as to annoy or disturb other Lot Owners. Any Lot Owner who allows or keeps a pet on their Lot is responsible for any loss or liability of any kind arising from the keeping of such pet. The keeping of pets by a Lot Owner shall be subject to any other restrictions required by Ravenswood from time to time in the interests of maintaining a good residential environment.

3.28 Buildings and Landscape Features must be maintained and not be allowed to deteriorate to a point where the standard of presentation is either:

a. Less than that represented in the rest of the Ravenswood developed residential area, or

b. Inadequate, taking into account fair wear and tear and the original condition at the time that the residential Building on the Lot was occupied as a residence and the condition of its neighbourhood properties.

3.29 Lots must otherwise be kept and maintained in a neat and tidy condition at all times, including the grounds, lawns, gardens and the Local Authority owned road frontage to each of the Servient Lots. Grass and other ground cover must not exceed a height of 120mm.

3.30 Lot Owners must not alter the original subdivision contour and levels of the Lots without prior approval from Ravenswood.

3.31 No tree shrub or other vegetation shall:

a. Protrude beyond 3m in height within 2m of any Lot boundary.

b. Protrude beyond 5m in height within the area of any Lot between 2m and 5m on the easternmost and southernmost boundary of any Lot.

c. Protrude beyond an absolute height of 7m elsewhere on the Lot.

"height" is to be taken from original subdivision ground level of a Lot.

To ensure reasonable amenity to each Lot, if any tree shrub or other vegetation on any Lot is very substantially shading or very materially affecting the outlook or view from any neighbouring Lot or is creating any significant nuisance and that Lot Owner neglects or refuses for a period of thirty (30) days following notice in writing to them from the affected Lot Owner(s) requesting reduction to the height and/or the canopy area or remedying of the nuisance involved with such tree, shrub or other vegetation, then the parties involved shall be bound to resolve the same by arbitration in accordance with Clause 5 (Dispute Resolution).

Fencing Provisions

3.32 The Lot Owner shall be bound by a Fencing Covenant within the meaning of Section 2 of the Fencing Act 1978 in that neither Ravenswood nor the Waimakariri District Council shall be liable to pay for or contribute towards the cost of the construction or maintenance of any fence between any Lot and any adjoining land owned by Ravenswood or the Waimakariri District Council.

3.33 A Lot Owner who takes title to a Lot having a boundary fence already constructed on a Lot boundary which has been paid for in full by an adjoining Lot Owner(s) shall be liable to reimburse each such Lot Owner for one half of the actual cost of that boundary fence (if not already

ma

reimbursed by any other party). Such cost shall not exceed $90.00 (plus GST) per linear metre for the fence. The cost shall be annually adjusted based on the all groups Consumer Price Index effective from 1st January 2016.

3.34 All fences on the side and rear Lot boundaries shall be constructed and maintained in accordance with the Ravenswood Design Guidelines and:

a. Shall not exceed 1.8m.

b. Side fences and rear fences must be erected prior to any building construction.

c. There shall be no fencing across the street frontage of any Lot unless otherwise approved by Ravenswood.

d. Must be contiguous with neighbouring fencing.

e. Any Lot which abounds a reserve must be fenced to a maximum height of 1.2m and have a minimum visual permeability/openness of 50% (eg. Warner fence) – except where required to screen a bin storage area as detailed in the Design Guidelines, or unless otherwise approved by Ravenswood. No exceptions can be granted by Ravenswood for Lots bordering reserves that are less than 400m² or greater than 35% site coverage (WDC requirement).

3.35 Fencing requirements may be varied by Ravenswood where desirable to ensure a high standard of appearance or where fencing is undesirable or unnecessary in the view of Ravenswood.

Land Use Restrictions

3.36 No Lot shall be used for any form of temporary residential purposes either by the construction of temporary Buildings or by the placement of caravans, modular homes, mobile homes, motor homes, house trailers, buses, tractors, huts, tents and/or vehicles able to be used for human habitation except for a builder's shed at the commencement of, and for the duration of construction, of any dwelling being erected on the Lot.

3.37 Lot Owners must not use any Lot for any primary purpose other than for residential occupation unless previously agreed in writing by a duly authorised representative of Ravenswood. Ancillary purposes are governed by the planning provisions under any regulatory land use controls applicable from time to time.

3.38 No Lot shall be sold, leased, transferred, assigned or otherwise disposed of to any Governmental agency or Territorial Authority for the purposes of public or institutional housing without the prior approval of Ravenswood.

3.39 No inflammable, explosive or noxious materials are to be stored or used on any Lot or in any Building. The Lot Owner must not allow any offensive activity to be conducted or permitted to exist upon any Lot, or in any Building, nor shall anything be done or permitted to exist on any Lot or in any Building that may be or may become an annoyance or private or public nuisance. An annoyance or private or public nuisance includes loud sounds or noises or offensive smells.

3.40 No Lot, driveway or common area shall be used for the purpose of long term vehicle parking, repair or maintenance. No unregistered, non-licensed or expired license or inoperable vehicles of any kind shall be permitted to remain on any Lot (unless parked inside the garage).

3.41 No recreational or commercial vehicles boats or trailers are to be regularly located on the road or in front of the Building line of the main Building constructed or to be constructed on the Lot.

3.42 No Lot may be further subdivided nor shall any further easements be agreed to, granted or registered on any Lot, including rights of way.

Enforcement

3.43 Ravenswood may enforce these covenants in the same manner as a Lot Owner and in Particular, where a Lot Owner does not comply with any covenant Ravenswood may request such owner in writing to remedy such non-compliance within a specified time (not to be less than fourteen (14) days from the date of such request). At the end of the specified time and where the Lot Owner remains in default in remedying such non-compliance, Ravenswood may employ a suitably qualified or experienced person to enter such Lot and carry out work necessary to achieve compliance with the covenant(s) involved, and may recover as a debt due from the

ma

defaulting Lot Owner all costs incurred by Ravenswood in such remedial work.

3.44 Ravenswood will use its best endeavours to ensure observance of these covenants but shall not have any legal responsibility or liability for any lack of enforcement or enforceability or application of any of these Covenants. The Lot Owners agree to keep Ravenswood fully indemnified from any claim, liability, loss or action arising against it or its agents in respect of these covenants having regard to their intent to provide for the interests of Lot Owners inter se and their individual obligations of observance and rights of enforcement of the covenants.

4. APPROVAL PROCESS FOR BUILDINGS AND SITE DEVELOPMENT

4.1 Prior to submitting Building plans and Building consent applications to any Consent Authority for any necessary approvals and prior to the commencement of building construction the Lot Owner of each Lot shall obtain the written approval of Ravenswood (such approval to be considered in an impartial and reasonable manner) in respect of:

a. Site plan (location of building on the lot showing proposed access from the streets or rights of way and off-street parking);

b. Floor plan (with dimensions and elevations);

c. Completed exterior finishes checklist;

d. A landscape plan for the Lot;

e. Proposed fencing (shown either on the site plan or landscape plan).

Ravenswood undertakes to use its best endeavours to respond to each application submitted no later than four (4) working days after receipt of items (a) to (c) above.

4.2 All building construction work must be carried out in accordance with and comply with the Ravenswood Building Covenants and each Lot Owner is required to enter into and agree to comply with such Covenants (intended to ensure all on site works are undertaken in a safe and competent manner) as a requirement for approval of Ravenswood to all building works.

4.3 Each Lot Owner agrees to execute and comply with the Ravenswood Design Guidelines and Ravenswood Building Covenants which are provided and maintained by Ravenswood. It is the responsibility of each Lot Owner to ensure that builders, sub-contractors, workmen and suppliers fully comply with these covenants.

4.4 Ravenswood may delegate such approval process to a nominated and suitably qualified party.

5. DISPUTE RESOLUTION

5.1 Should any dispute arise concerning any aspects of these covenants that cannot be resolved by agreement between the parties involved, the Lot Owners are bound to resolve the same by arbitration in accordance with the Arbitration Act 1996 ("the Act"), and the following provisions shall apply:

a. There shall be a single arbitrator who shall be appointed by the President for the time being of the Canterbury District Law Society (or any successor organisation) as a sole arbitrator.

b. The arbitrator shall determine all questions in issue between the parties including questions as to the scope of the dispute and as to procedure.

c. The arbitrator's award shall be binding on all parties to the dispute.

d. Any party to a dispute may initiate arbitration in accordance with the provisions of the Act.

ma

Annexure 4 – Building Covenants

RAVENSWOOD
NORTH CANTERBURY

Building Covenants.

1. PURPOSE

To ensure that all on-site building construction work is undertaken in a safe and competent manner. All infrastructure services and facilities of the subdivision are fully protected and remain operational, and that the peace, privacy and security of each property owner is not adversely affected.

2. HEALTH & SAFETY

It is a requirement that the Lot Owner ensures that the Builder (including all Builders' sub-contractors) maintains an effective Health & Safety Policy for work carried out within Ravenswood.

3. NOISE RESTRICTIONS AND ON-SITE HOURS OF WORK

3.1 Allowable Hours of Normal Construction Noise

The allowed hours of work in clause 3.3 are subject to the following. Normal construction activity and associated noise is only allowable between the hours of:

Monday to Friday	8.00am to 6.30pm
Saturday	9.00am to 5.30pm
Sunday	9.00am to 1.00pm
Statutory Holidays	9.00am to 3.00pm

Particularly noisy work activity must be scheduled to avoid the earlier and latter part of the day. All unavoidable noise in the earlier and latter part of the day must be very carefully controlled and monitored.

3.2 Unacceptable Noise Levels

Ravenswood reserves the right to enter onto the lot and require the immediate cessation of building activity that in Ravenswood's sole determination is causing unacceptable noise or nuisance. The Builder shall immediately comply with any Ravenswood requirement to cease the building activity causing unacceptable noise or nuisance.

3.3 On-Site Work Hours

Subject to restrictions on the creation of construction noise or nuisance above, the allowable hours of onsite work are as follows:

Monday to Friday	7.00am to 8.00pm
Saturday	8.00am to 8.00pm
Sunday	8.00am to 8.00pm
Statutory Holidays	8.00am to 8.00pm

It should be noted that the on-site work hours are longer than the allowable hours of normal construction activity and noise under clause 3.1. On-site work outside of the times in clause 3.1 must be quiet. All these times may be varied by written agreement with Ravenswood, in particular a specific work activity that requires a longer than usual working day, such as a concrete slab pour.

4. FENCING

The side fences and rear fences must be erected prior to any building construction. There shall be no fencing across the street frontage of any Lot unless approved by Ravenswood. All fencing must comply with the locations, design criteria, and materials specified in the Ravenswood Design Guidelines (as appropriate). (Refer to the Land Covenants.)

5. LOT ACCESS

No use may be made of adjacent land, footpaths or recreation areas abutting any Lot for access (other than the access approved by Ravenswood) or for dumping of rubbish. Lot Owners shall be responsible to Ravenswood for all costs arising from damage to any landscaping, swales, roads, footpaths, kerbing, berms, concrete or other structures arising directly or indirectly from any access or use by the Lot Owner or their contractors and invitees.

6. VEHICLE CROSSINGS

When a vehicle crossing from the road to any residential Lot at Ravenswood is constructed, any irrigation line in this location is to be protected and shall not be damaged, removed nor be modified in any way. To ensure this condition is met the Lot Owner or Builder shall:

a. When the crossing is excavated and before back-filling, make a thorough examination of the irrigation pipe network. Any signs of damage must be reported immediately to Ravenswood and no repairs are to be made by the Builder or Lot Owner.

b. If repairs are required, ensure there are no joins under the vehicle crossing. New sections of pipe must be installed with joiners fitted at least 500mm either side of the concrete nib for easy access. The Lot Owner is liable for the cost of any repairs.

c. Before back-filling arrange with Ravenswood for the irrigation system to be tested to ascertain if there is unseen damage. Lot Owners or Builders shall contact the Ravenswood office and notify them of the Lot number, upon which the system will be tested prior to back-fill. If the Lot Owner or Builder fails to notify the Ravenswood office as required above and damage to the irrigation line becomes apparent, the Lot Owner and Builder shall be liable for repairs to the irrigation system. If the vehicle crossing has been backfilled and/or sealed the area may require re-excavation. In this case, the Lot Owner and Builder are each responsible for the cost of reinstatement by Ravenswood Developments Limited or its contractor undertaking such works.

7. BUILDERS' SITE SHEDS

All Builders' site sheds shall be placed on the respective building Lot no earlier than the commencement of the building works. All sheds and other structures necessary for storage shall be painted in a consistent colour. The sheds and other structures must be immediately removed from the building Lot upon completion of the building works.

8. LOADING, UNLOADING & STORAGE OF MATERIALS DURING CONSTRUCTION

All loading, unloading delivery and storage of materials shall take place within the bounds of the Lot. No unloading delivery and storage of materials is permitted on any swale, footpath, verges, berm areas or adjacent lots.

ma

9. PARKING OF TRADES AND DELIVERY VEHICLES DURING CONSTRUCTION

All vehicles whether they are contractors, tradesmen or a delivery must not park on the swale, footpath, verges, berm areas or adjacent lots. Any vehicle that deposits oils or other damaging material must be removed from the area and the damage made good.

10. TOILET FACILITIES

No toilets other than porta-loo style toilets will be allowed on a Lot during the building construction period. They should be located as far from the lot entrance as practical and screened from neighbouring Lots and roadways.

11. EROSION CONTROL

All exposed earth and disturbed areas of the Lot must be protected from wind and water erosion during and after construction. Exposed areas should be covered with matting and/or replanted as soon as possible. Special attention should be given to preventing any material being deposited, or run off of silt and other debris into waste water pipes, lakes and waterways.

12. NO ANIMALS

During the building construction period no animals of any kind are permitted on the building Lots or within the confines of the Ravenswood development.

13. RUBBISH, RUBBISH REMOVAL & STREET CLEANING

Appropriate rubbish skips shall be kept within the Lot (or in a designated area as approved by Ravenswood) for all rubbish and shall be cleared at regular intervals. At no time shall rubbish be permitted to escape outside of the building Lot, or be permitted to cause an unsightly mess within the Lot. The Builder shall ensure that all employees, contractors, sub-contractors or sub-trades conduct a daily clean up of the Lot, including a sweep up of any excess material in the road, gutters and on the footpath. Burning of rubbish or any other material on the Lot is expressly prohibited. If Ravenswood provides a dedicated rubbish skip set down and disposal facility and/or dedicated rubbish disposal and collection facility, then the Lot Owner and/or Builder must, if requested by Ravenswood Limited, use that dedicated facility.

14. WASHING DOWN & CLEANING OF VEHICLE SPILLAGE

The washing down of any vehicle used during the building construction period in respect of any Lot is not permitted unless Ravenswood provides a dedicated wash down & cleaning facility. In this case, wash down & cleaning of vehicles is permitted within that facility. All spillages of any material must be removed immediately from swales, footpaths, berms and roads. The cost of repairing any resultant damage including scuffing or road surface damage will be the responsibility of the offending Builder and the Lot Owner.

15. SIGNAGE & STREET OR LOT NUMBERS

No sign shall be constructed or displayed on the Lot unless it is a standard Builder's sign, in which case such sign or signs must be removed upon completion of the construction works. Each sign must be kept in good condition.

16. REMEDIAL CLAUSE

Ravenswood reserves the right to request the immediate correction of any or all of the above items and if need be, to instruct other parties to correct any infringement at the expense of the Builder and/or Lot Owner and to claim recovery of all costs associated with the correction of any infringements to the above items from the Builder and/or Lot Owner, or offset any incurred cost against the Construction Bond.

ma

17. LAND COVENANTS

The Lot Owner confirms that they have read and understand the requirements of the Land Covenants and the Building Covenants, and confirms that they will fully acquaint their Builder of the Builders obligations and responsibilities in respect of these covenants.

18. CONSTRUCTION BOND

The parties agree to execute the Construction Bond as part of these Covenants.

19. BUILDING COVENANTS, LAND COVENANTS AND DESIGN GUIDELINES

Ravenswood reserves the right to adopt, promulgate, amend, revoke and enforce the Building Covenants, Land Covenants and Design Guidelines for the purposes of:

a. governing the form and content of plans and specifications to be submitted to Ravenswood for approval pursuant to the provisions of the Construction Bond Agreement;

b. governing the procedure for such submission of plans and specifications;

c. establishing guidelines with respect to the approval and disapproval of design features, architectural styles, exterior colours and materials, details of construction, location and size of structures and all other matters that require approval by the Vendor pursuant to this Agreement; and

d. assuring the conformity and harmony of external design and general quality of the Ravenswood Development.

Neither Ravenswood nor its representatives shall be liable for any structural, functional or safety aspects in respect of any dwelling design as the Design Guidelines relate to aesthetic compatibility. The Builder and Lot Owner shall ensure that the Building work fully complies in all respects of the Land Covenants and the Building Covenants, and with all applicable New Zealand standards and regulations and local authority ordinances and bylaws, the New Zealand Building Code and all applicable statutes.

20. ENFORCEMENT

Notwithstanding the provisions of the dispute resolution clause, if there is any breach or non-observance of any of the Building Covenants then Ravenswood (or its agent) has the right to give written notice to the party or parties in breach. If Ravenswood (or its agent) gives written notice to the party or parties in breach then the party or parties in breach agrees to and shall at their cost:

a. Forthwith upon receipt of the Ravenswood (or its agent's) notice make every endeavour and take all reasonable steps to remedy the breach or non-observance of any of the Building Covenants; and

b. Carry out such other remedial work specified in the Ravenswood (or its agent's) notice and any other work required to remedy the breach or non-observance of any of the Building Covenants; and

c. Pay liquidated damages of $200 per day for every day that such breach or non-observance of any of the Building Covenants continues beyond 10 days after the date upon written notice is given by Ravenswood (or its agent) to the party or parties in breach.

21. DEFINITIONS

The words defined in the Land Covenants have the same meaning as the words in the Ravenswood Building Covenants. The following further expressions have the meanings as set out:

"Builder" means the party undertaking the Building works on the Lot Owner's lot.

"Ravenswood" means Ravenswood Developments Limited and/or its appointed agent.

"Ravenswood" "Builder" and **"Lot Owner"** means where appropriate the executors, administrators, successors and permitted assignees.

ma

"Liability" means the liability of the Lot Owner and the Builder under these covenants shall be joint and several.

22. DISPUTE RESOLUTION

Any dispute arising concerning any aspects of these covenants that cannot be resolved by agreement between the parties shall be resolved in accordance with the Dispute Resolution clause of the Land Covenants.

Lot Number: .....

Lot Owner Name: .....

SIGNED by the Lot Owner: .....

Date: .....

Signed by Ravenswood Developments Limited: .....

SCHEDULE 1

(GST Information – see clause 14.0)

This Schedule must be completed if the vendor has stated on the front page that the vendor is registered under the GST Act in respect of the transaction evidenced by this agreement and/or will be so registered at settlement. Otherwise there is no need to complete it.

Section 1 Vendor		
1(a)	The vendor's registration number (if already registered): 97-780-242	
1(b)	(i) Part of the property is being used as a principal place of residence at the date of this agreement.	~~Yes~~/No
	~~(ii) That part is:~~	
	~~(e.g. "the main farmhouse" or "the apartment above the shop".)~~	~~Yes/No~~
	~~(iii) The supply of that part will be a taxable supply.~~	~~Yes/No~~
Section 2 Purchaser		
2(a)	The purchaser is registered under the GST Act and/or will be so registered at settlement.	Yes/~~No~~
2(b)	The purchaser intends at settlement to use the property for making taxable supplies.	Yes/~~No~~
If the answer to either or both of questions 2(a) and 2(b) is "No", go to question 2(e)		
2(c)	The purchaser's details are as follows: (i) Full name:	
	(ii) Address:	
	(iii) Registration number (if already registered): 107-971-122	
2(d)	The purchaser intends at settlement to use the property as a principal place of residence by the purchaser or by a person associated with the purchaser under section 2A(1)(c) of the GST Act (connected by blood relationship, marriage, civil union, de facto relationship or adoption). **OR** The purchaser intends at settlement to use part of the property (and no other part) as a principal place of residence by the purchaser or by a person associated with the purchaser under section 2A(1)(c) of the GST Act. That part is: (e.g. "the main farmhouse" or "the apartment above the shop")	~~Yes~~/No ~~Yes~~/No
2(e)	The purchaser intends to direct the vendor to transfer title to the property to another party ("nominee").	Yes/No
If the answer to question 2(e) is "Yes", then please continue. Otherwise, there is no need to complete this Schedule any further.		
Section 3 Nominee		
3(a)	The nominee is registered under the GST Act and/or is expected by the purchaser to be so registered at settlement.	Yes/No
3(b)	The purchaser expects the nominee at settlement to use the property for making taxable supplies.	Yes/No
If the answer to either or both of questions 3(a) and 3(b) is "No", there is no need to complete this Schedule any further.		
3(c)	The nominee's details (if known to the purchaser) are as follows: (i) Full name:	
	(ii) Address:	
	(iii) Registration number (if already registered):	
3(d)	The purchaser expects the nominee to intend at settlement to use the property as a principal place of residence by the nominee or by a person associated with the nominee under section 2A(1)(c) of the GST Act (connected by blood relationship, marriage, civil union, de facto relationship or adoption). **OR** The purchaser expects the nominee to intend at settlement to use part of the property (and no other part) as a principal place of residence by the nominee or by a person associated with the nominee under section 2A(1)(c) of the GST Act. That part is: (e.g. "the main farmhouse" or "the apartment above the shop".)	Yes/No Yes/No

Copyright © New Zealand Law Society Inc & Real Estate Institute of New Zealand Inc. June 2020

ma

~~SCHEDULE 2~~

~~List all chattels included in the sale~~
~~(strike out or add as applicable)~~

~~Stove~~	~~Rangehood~~	~~Wall oven~~	~~Cooktop~~
~~Dishwasher~~	~~Kitchen waste disposal~~	~~Light fittings~~	~~Smoke detector(s)~~
~~Burglar alarm~~	~~Heated towel rail(s)~~	~~Heat pump(s)~~	~~Garage door remote control(s)~~
~~Blinds~~	~~Curtains~~	~~Fixed floor coverings~~	

~~SCHEDULE 3~~

~~Residential Tenancies~~

~~Name of Tenant(s):~~

~~Rent:~~ ~~Term:~~ ~~Bond:~~

~~Commercial/Industrial Tenancies~~
~~(If necessary complete on a separate schedule)~~

~~1. Name of Tenant(s):~~
~~Rent:~~ ~~Term:~~ ~~Right of Renewal:~~ ~~Other:~~

~~2. Name of Tenant(s):~~
~~Rent:~~ ~~Term:~~ ~~Right of Renewal:~~ ~~Other:~~

© Copyright
June 2020
Auckland District Law Society Inc • Real Estate Institute of New Zealand Inc

WARNING *(This warning does not form part of this agreement)*
This is a binding contract. Read the information set out on the back page before signing.

Acknowledgements

Where this agreement relates to the sale of a residential property and this agreement was provided to the parties by a real estate agent, or by a licensee on behalf of the agent, the parties acknowledge that they have been given the guide about the sale of residential property approved by the Real Estate Authority.

Where this agreement relates to the sale of a unit title property, the purchaser acknowledges that the purchaser has been provided with a pre-contract disclosure statement under section 146 of the Unit Titles Act.

~~Signature of Purchaser(s):~~ ~~Signature of Vendor(s):~~

_____ _____

~~Director / Trustee / Authorised Signatory / Agent / Attorney*~~
~~*Delete the options that do not apply*~~
~~*If no option is deleted, the signatory is signing in their personal capacity*~~

~~Director / Trustee / Authorised Signatory / Agent / Attorney*~~
~~*Delete the options that do not apply*~~
~~*If no option is deleted, the signatory is signing in their personal capacity*~~

_____ _____

~~Director / Trustee / Authorised Signatory / Agent / Attorney*~~
~~*Delete the options that do not apply*~~
~~*If no option is deleted, the signatory is signing in their personal capacity*~~

~~Director / Trustee / Authorised Signatory / Agent / Attorney*~~
~~*Delete the options that do not apply*~~
~~*If no option is deleted, the signatory is signing in their personal capacity*~~

*If this agreement is signed under:

(i) a Power of Attorney – please attach a **Certificate of non-revocation** (available from ADLS: 4098WFP or REINZ); or
(ii) an Enduring Power of Attorney – please attach a **Certificate of non-revocation and non-suspension of the enduring power of attorney** (available from ADLS: 4997WFP or REINZ); or
(iii) where the attorney signs for a trustee, a Certificate in the relevant form in Schedule 4 to the Trustee Act 1956.

Also insert the following wording for the Attorney's Signature above:
Signed for [full name of the donor] by his or her Attorney [attorney's signature].

© ADLS & REINZ. All Rights Reserved.

Execution

Signed by the **Vendor** by:

Signature	Signature
Patrick Waser	
Full Name	Full Name

Signed by the **Purchaser** by:

Signature	Signature
Mike Allan	
Full Name	Full Name

Signed by the **Guarantor(s)** by:

Signature	Signature
Mike Allan	
Full Name	Full Name

BEFORE SIGNING THE AGREEMENT

- Note: the purchaser is entitled to a copy of any signed offer at the time it is made.
- It is recommended both parties seek professional advice before signing. This is especially so if:
  - there are any doubts. Once signed, this will be a binding contract with only restricted rights of termination.
  - the purchaser is not a New Zealand citizen. There are strict controls on the purchase of a property in New Zealand by persons who are not New Zealand citizens.
  - property such as a hotel or a farm is being sold. The agreement is designed primarily for the sale of residential and commercial property.
  - the property is vacant land in the process of being subdivided or there is a new unit title or cross-lease to be issued. In these cases additional clauses may need to be inserted.
  - there is any doubt as to the position of the boundaries.
  - the purchaser wishes to check the weathertightness and soundness of construction of any dwellings or other buildings on the land.
- Both parties may need to have customer due diligence performed on them by their lawyer or conveyancer in accordance with the Anti-Money Laundering and Countering Financing of Terrorism Act 2009 which is best done prior to the signing of this agreement.
- The purchaser should investigate the status of the property under the Council's District Plan. The property and those around it are affected by zoning and other planning provisions regulating their use and future development.
- The purchaser should investigate whether necessary permits, consents and code compliance certificates have been obtained from the Council where building works have been carried out. This investigation can be assisted by obtaining a LIM from the Council.
- The purchaser should compare the title plans against the physical location of existing structures where the property is a unit title or cross-lease. Structures or alterations to structures not shown on the plans may result in the title being defective.
- In the case of a unit title, before the purchaser enters into the agreement:
  - the vendor **must** provide to the purchaser a pre-contract disclosure statement under section 146 of the Unit Titles Act;
  - the purchaser should check the minutes of the past meetings of the body corporate, enquire whether there are any issues affecting the units and/or the common property, check the body corporate's long-term maintenance plan and enquire whether the body corporate has imposed or proposed levies for a long-term maintenance fund or any other fund for the maintenance of, or remedial or other work to, the common property.
- The vendor should ensure the warranties and undertakings in clauses 7.0 and 8.0:
  - are able to be complied with; and if not
  - the applicable warranty is deleted from the agreement and any appropriate disclosure is made to the purchaser.
- Both parties should ensure the chattels' list in Schedule 2 is accurate.
- Both parties should seek professional advice regarding the GST treatment of the transaction. This depends upon the GST information supplied by the parties and could change before settlement if that information changes.

THE ABOVE NOTES ARE NOT PART OF THIS AGREEMENT AND ARE NOT A COMPLETE LIST OF MATTERS WHICH ARE IMPORTANT IN CONSIDERING THE LEGAL CONSEQUENCES OF THIS AGREEMENT.

PROFESSIONAL ADVICE SHOULD BE SOUGHT REGARDING THE EFFECT AND CONSEQUENCES OF ANY AGREEMENT ENTERED INTO BETWEEN THE PARTIES.

© Auckland District Law Society Inc. (ADLS) & Real Estate Institute of New Zealand Inc. (REINZ)
IMPORTANT WARNING: All copyright in and associated with this form and its contents is owned by ADLS & REINZ. A user of this form only acquires a limited non-exclusive licence to use it *once within a single transaction only*. The standard ADLS & REINZ contract terms apply, which also prohibit any form of distribution, on-selling, or reproduction, including copying, digitising or recreating the form by any means whatsoever.
ADLS & REINZ monitor the use of this form and may take enforcement action against any person acting in breach of these obligations. Copying or digitising this form and altering its standard text, without clearly identifying the alterations, is prohibited, and, in addition to copyright infringement, may also be a breach of the Fair Trading Act 1986 and misrepresentation.

AGREEMENT FOR SALE AND PURCHASE OF REAL ESTATE

© The copyright to the form is owned by the Real Estate Institute of New Zealand Incorporated and Auckland District Law Society Incorporated.

DATE: 01/04/21

VENDOR:
Ravenswood Davelopments Limited
Contact Details:

VENDOR'S LAWYERS:
Firm: Anderson Lloyd
Individual Acting: Mike Kerr / Leilliane Phillips
Email: Mike.Kerr@al.nz / Leilliane.Phillips@al.nz
Contact Details:
Level 3, Anderson Lloyd House
70 Gloucester Street
Christchurch Central
Christchurch 8013

Email Address for Service of Notices:
(subclause 1.4)
Mike.Kerr@al.nz / Leilliane.Phillips@al.nz

PURCHASER: GJEK Properties Ltd
Mike Allan

Contact Details:
15 Dormer St, Papanui, Christchurch 8053
M. 027-255 0115
E. mikeallan4@gmail.com

PURCHASER'S LAWYERS:
Firm: Saunders & Co Lawyers
Individual Acting: Deborah Magee
Email: deborah.magee@saunders.co.nz
Contact Details: 027 893 2308

Email Address for Service of Notices:
(subclause 1.4)

LICENSED REAL ESTATE AGENT:
Agent's Name:
Manager:
Salesperson:
Contact Details:

Copyright June 2020 Auckland District Law Society Inc. & Real Estate Institute of New Zealand Inc.

ma

GJEK PROPERTIES LIMITED

(Nominator)

and

WENDELBORN PROPERYT LIMITED

(Nominee)

DEED OF NOMINATION

SAUNDERS & CO
LAWYERS

654451/395 - 5260831

THIS DEED dated the 29th day of August 2022

BETWEEN **GJEK PROPERTIES LIMITED** ("the Nominator")

AND **WENDELBORN PROPERTY LIMITED** ("the Nominee")

WHEREAS:

A. Pursuant to an Agreement for Sale and Purchase between Ravenswood Developments Limited as Vendor and GJEK Properties Limited as Purchaser ("the Agreement") the Nominee has agreed to purchase the property situated at Lot 647, 754 and 755 Ravenswood, Woodend consisting of land.

B. The Nominator wishes to nominate the Nominee as the purchaser pursuant to the Agreement.

C. The Nominee wishes to accept the nomination as purchaser under the Agreement.

Covenants

1. Nomination: The Nominator nominates the Nominee as the purchaser under the Agreement and acknowledges that all the rights, interest and benefits of the purchaser pursuant to the Agreement shall pass to the Nominee.

2. Acceptance: The Nominee accepts the nomination specified in clause 1.

3. Date of Nomination: The obligations of the purchaser under the Agreement shall be complied with by the Nominator to the date of this deed (Nomination Date) and after the nomination date shall be complied with by the Nominee.

4. Nominator's Warranties: The Nominator warrants that all the obligations of the purchaser under the Agreement to be complied with up to and including the nomination date shall be duly complied with by the Nominator.

5. Nominee's Warranties: The Nominee warrants that all the obligations of the purchaser under the Agreement to be complied with from the nomination date shall be complied with by the Nominee.

6. Notice of Provisions for the Agreement: The Nominee acknowledges that the Nominee has

executed this deed with full force all the provisions contained or implied in the Agreement.

7. Deposit: The Nominee agrees to immediately pay the deposit of $50,869.56 ($16,956.52 per Lot) to Saunders & Co, Lawyers to reimburse the Nominator for the deposit already paid under the Agreements.

EXECUTED as a Deed

SIGNED by the said)
GJEK PROPERTIES LIMITED)
in the presence of:)

Signature of Witness

Carol Brown

Full name of Witness

Snr Administrator

Occupation

99 Clarence Street

Address Chch

SIGNED by the said)
WENDELBORN PROPERTY LIMITED)
in the presence of:)

Signature of Witness

Carol Brown

Full name of Witness

Snr Administrator

Occupation

99 Clarence Street

Address Chch

CHRISTCHURCH

Form 2A

Memorandum from licensed building practitioner: Certificate of design work

Section 30C or 45, 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: 38 Crossley Avenue (Lot 755)	
Suburb: Ravenswood	
Town/City: Woodend	Postcode:

THE OWNER(S)	
Name(s): Wendelborn Property Ltd	
Mailing address:	
Suburb: Tower Junction	PO Box/Private Bag: PO Box 9315
Town/City: Christchurch	Postcode: 8149
Phone number: 027 431 0635	Email address: info@wendelbornproperty.co.nz

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 work 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 memorandum relating to their specific RBW design
☐	**specialist** designer who carried out 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 __Min (Tuan Main) Goh_ carried out / supervised the following design work that is restricted building work

PRIMARY STRUCTURE: B1

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ⊗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
All RBW design work relating to B1 ☐		☐ Carried out ☐ Supervised	
Foundations and subfloor framing ☑	SED Ribraft Foundation	☐ Carried out ☑ Supervised	Architectural Plan Engineer's Documentation

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Walls ☑	Timber framed wall NZS3604 & SED Lintel	☑ Carried out ☑ Supervised	Architectural Plan Truss Design
Roof ☑	Engineer trussed roof	☐ Carried out ☑ Supervised	Truss Design
Columns and beams ☐		☐ Carried out ☐ Supervised	
Bracing ☑	Bracing to NZS3604	☑ Carried out ☐ Supervised	Architectural Plan Bracing Calculation
Other ☐		☐ Carried out ☐ Supervised	

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2			
All RBW design work relating to E2 ☐		☐ Carried out ☐ Supervised	
Damp proofing ☑	DPM under foundation & slab DPM under bottom plates	☑ Carried out ☐ Supervised	Architectural Plan Specification
Roof cladding or roof cladding system ☑	Pressed Metal Tiles over self-supporting roof underlay on roof framing	☑ Carried out ☐ Supervised	Architectural Plan Specification Appendix
Ventilation system (for example, subfloor or cavity) ☑	Drained cavities to wall claddings	☑ Carried out ☐ Supervised	Architectural Plan Specification Appendix
Wall cladding or wall cladding system ☑	70 series brick on cavity & James Hardie Oblique vertical WB on cavity	☑ Carried out ☐ Supervised	Architectural Plan Specification Appendix
Waterproofing ☐		☐ Carried out ☐ Supervised	
Other ☐		☐ Carried out ☐ Supervised	

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
FIRE SAFETY SYSTEMS: C1 - C6			
Emergency warning systems Evacuation and fire service operation systems ☐ Suppression or control systems Other		☐ Carried out ☐ 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	Waiver/modification required
List relevant clause numbers of building code	Specify nature of waiver or modification of building code required

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: Min (Tuan Main) Goh	LBP or Registration number: BP129011
The practitioner is a: ☑ Design LBP ○ Registered architect ○ Chartered professional engineer	
Design Entity or Company (optional): Archiplus Ltd	
Mailing address (if different from below):	
Street address/Registered office: 17 Goh Street	
Suburb:	Town/City: Lincoln
PO Box/Private Bag:	Postcode:
Phone number: 03 356 3582	Mobile: 02102381905
After hours:	Fax:
Email address: mg.archiplus@gmail.com	Website:

DECLARATION

I Min (Tuan Main) Goh 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: 28 September 2022

BC221264

CERTIFICATE OF DESIGN WORK
MEMORANDUM FROM LICENSED BUILDING PRACTITIONER

engineering new zealand

Section 30C and Section 45, Building Act 2004

The Building

Street address	38 Crossley Avenue, Woodend, Canterbury		
Suburb		**Town/city**	Woodend
Postcode		**Building consent no.**	

The Owner

Name(s)	Wendelborn Property Limited c/o Reliable Foundations South Island Ltd		
Email	adminsouth@rfl.co.nz	**Phone**	04 2971345
Address			

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	✓	SED Foundations as per S0-S2, Sheet 1.03, D1-D2	Supervised
Retaining walls	✗		
Beams	✗		
Portal	✗		
Bracing	✗		
Other (primary)	✗		

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

Initial _____ **Date** 27/09/2022

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** 27/09/2022

Building Consent BC221264
Received 20/1/2023

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

/ issue	/ date	/ reason	/ approved
F1-4F	14/11/22	Council Issue	

AS BUILT

Note: Data outside of 4F boundary shown for information only

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

The Information contained within this drawing is a true and accurate record.

Certified by:

Russell Thomas Benge

BSurv, PCApplSc, MNZIS, RPSurv, Assoc.NZPI, Licensed Cadastral Surveyor

LEGEND:

- Stage Boundary
- Construction Phase Boundary
- As-built sewer pipe with diameter, material and gradient shown.
- Existing sewer pipe.
- As-built sewer manhole with diameter, cover level and invert level shown.
- Existing sewer manhole

CAD ref: 40893.DwgSet4.Sewer & Stormwater

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Limited
Level 1, 24 Moorhouse Avenue, Addington, Christchurch 8140
Office 0800 999 333 Email hello@do.nz
www.do.nz

RAVENSWOOD
NORTH CANTERBURY

RAVENSWOOD - BOB ROBERTSON DRIVE, PROPOSED SUBDIVISION

ASBUILTS
SEWER - STAGE 4F

design	drawn	QA check	dwg
JA/DB	JA	DB	AB1
scale @ A1	date	file	issue
1 in 500	11/22	40893	C1

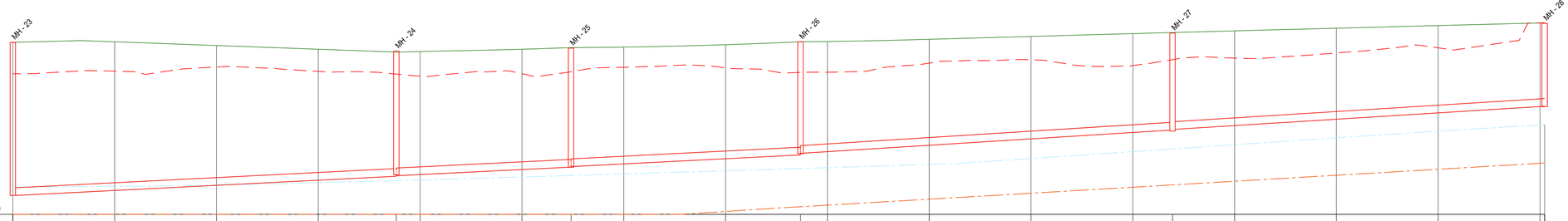
Building Consent BC221264
Received 20/1/2023

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

/ issue	/ date	/ reason	/ approved
F1-4F	14/11/22	Council Issue	

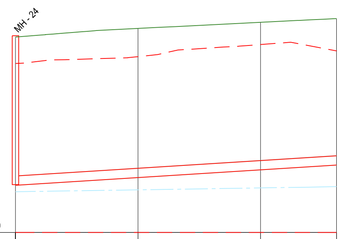
AS BUILT



Existing ground at CL	12.76	12.81	12.90	12.81	12.76	12.72	12.76	12.80	12.89	12.88	12.79	12.79	12.97	13.04	12.92	13.04	13.07	13.17	13.27	13.76	
Manhole Cover	13.38	13.21						13.27				13.39				13.56				13.75	
Sewer Pipe Invert	10.37	10.75	10.76					10.93	10.94			11.17	11.20			11.66	11.67			12.12	
Sewer Pipe Data		150Ø uPVC sew pipe 1:198				150Ø uPVC sew pipe 1:202			150Ø uPVC sew pipe 1:196				150Ø uPVC sew pipe 1:159				150Ø uPVC sew pipe 1:161				
Distance	0.00	75.33				75.33	34.33		109.66	45.05		154.71	73.10			227.80	73.10			300.90	

SEWER LONG SECTION - MH 23 - MH 28

Scale: 1:500 Horizontally., 1:50 Vertically. *All sewer pipes are SN16*



Existing ground at CL	12.76	12.87	13.07	12.96
Manhole Cover	13.21			
Sewer Pipe Invert	10.77			11.10
Sewer Pipe Data		150Ø uPVC sew pipe 1:158		
Distance	0.00	52.41		

SEWER LONG SECTION - MH 24 - End Cap

Scale: 1:500 Horizontally., 1:50 Vertically. *All sewer pipes are SN16*

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

The Information contained within this drawing is a true and accurate record.

Certified by:

Russell Thomas Benge

BSurv, PCApplSc, MNZIS, RPSurv, Assoc.NZPI, Licensed Cadastral Surveyor

CAD ref: 40893.DwgSet4.Sewer & Stormwater

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Limited
Level 1, 24 Moorhouse Avenue, Addington, Christchurch 8140
Office 0800 999 333 Email hello@do.nz
www.do.nz

RAVENSWOOD
NORTH CANTERBURY

RAVENSWOOD - BOB ROBERTSON DRIVE, PROPOSED SUBDIVISION

ASBUILTS
SEWER - STAGE 4F

design	drawn	QA check	dwg
JA/DB	JA	DB	AB2
scale @ A1	date	file	issue
1 in 500	11/22	40893	C1

Building Consent BC221264
Received 20/1/2023

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

/ issue	/ date	/ reason	/ approved
F1-4F	14/11/22	Council Issue	

AS BUILT

Note: Data outside of 4F boundary shown for information only

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

The Information contained within this drawing is a true and accurate record.

Certified by:

Russell Thomas Benge

BSurv, PCApplSc, MNZIS, RPSurv, Assoc.NZPI,
Licensed Cadastral Surveyor

LEGEND:

- Stage Boundary
- Construction Phase Boundary
- Asbuilt stormwater pipe with diameter, material and gradient shown.
- Existing stormwater pipe.
- Asbuilt stormwater manhole with diameter, cover level and invert level shown.
- Existing stormwater manhole.
- SS-48 Asbuilt single sump.
- DS-48 Asbuilt double sump.
- BS-48 Asbuilt bubble up sump.

CAD ref: 40893.DwgSet4.Sewer & Stormwater

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Limited
Level 1, 24 Moorhouse Avenue, Addington, Christchurch 8140
Office 0800 999 333 Email hello@do.nz
www.do.nz

RAVENSWOOD
NORTH CANTERBURY

RAVENSWOOD - BOB ROBERTSON DRIVE, PROPOSED SUBDIVISION

ASBUILTS
STORMWATER - STAGE 4F

design	drawn	QA check	dwg
JA/DB	JA	DB	AB3
scale @ A1	date	file	issue
1 in 500	11/22	40893	C1

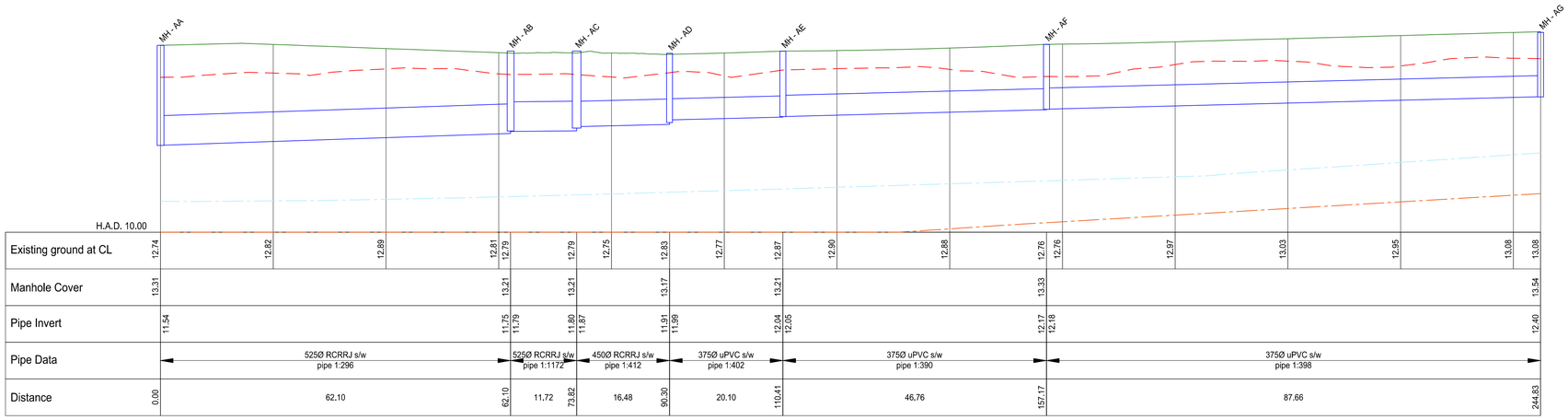
Building Consent BC221264
Received 20/1/2023

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

/ issue	/ date	/ reason	/ approved
F1-4F	14/11/22	Council Issue	

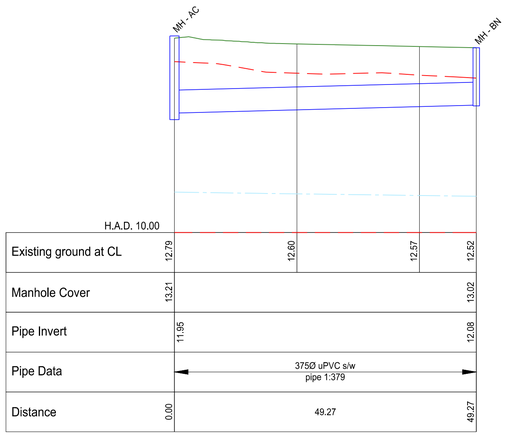
AS BUILT



STORMWATER LONG SECTION - MH AA - MH AG

Scale: 1:500 Horizontally., 1:50 Vertically.

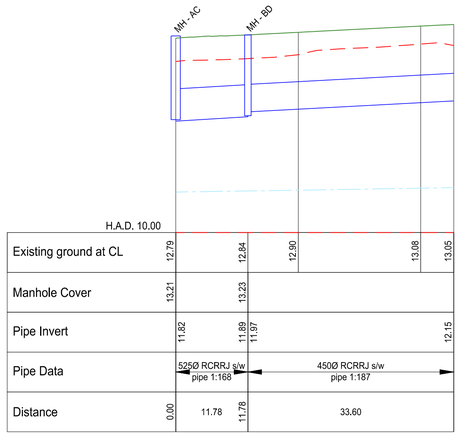
All uPVC pipes to be SN16 & RCRRJ pipes to be Class 4



STORMWATER LONG SECTION - MH AC - MH BN

Scale: 1:500 Horizontally., 1:50 Vertically.

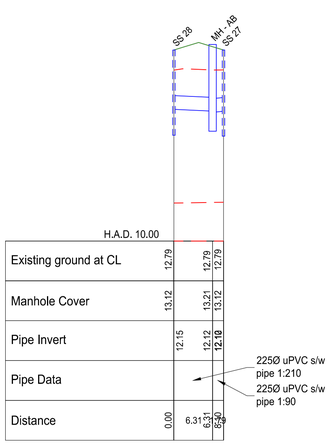
All uPVC pipes to be SN16 & RCRRJ pipes to be Class 4



STORMWATER LONG SECTION - MH AC - End Cap

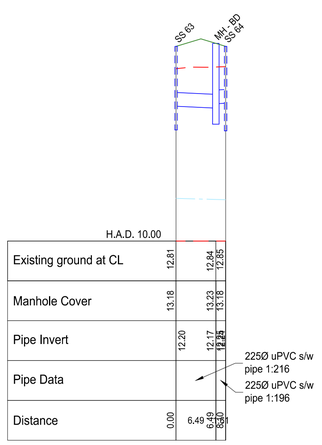
Scale: 1:500 Horizontally., 1:50 Vertically.

All uPVC pipes to be SN16 & RCRRJ pipes to be Class 4



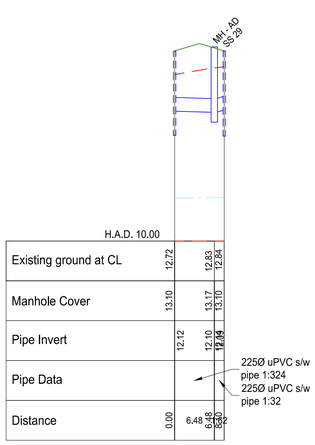
SUMP TO SUMP - 27 to 28

SCALE 1:500 horiz
SCALE 1:50 vert



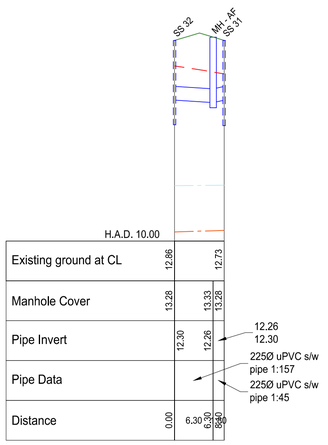
SUMP TO SUMP - 63 to 64

SCALE 1:500 horiz
SCALE 1:50 vert



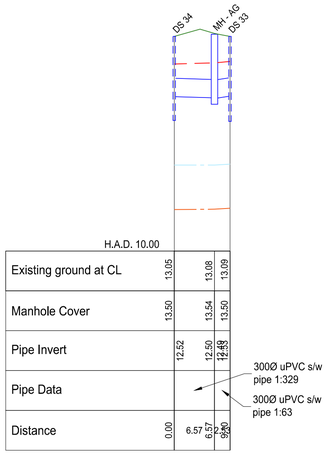
SUMP TO SUMP - 29 to 30

SCALE 1:500 horiz
SCALE 1:50 vert



SUMP TO SUMP - 31 to 32

SCALE 1:500 horiz
SCALE 1:50 vert



SUMP TO SUMP - 33 to 34

SCALE 1:500 horiz
SCALE 1:50 vert

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

The Information contained within this drawing is a true and accurate record.

Certified by:

Russell Thomas Benge

BSurv, PCApplSc, MNZIS, RPSurv, Assoc.NZPI, Licensed Cadastral Surveyor

CAD ref: 40893.DwgSet4.Sewer & Stormwater

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Limited
Level 1, 24 Moorhouse Avenue, Addington, Christchurch 8140
Office 0800 999 333 Email hello@do.nz
www.do.nz

RAVENSWOOD
NORTH CANTERBURY

RAVENSWOOD - BOB ROBERTSON DRIVE, PROPOSED SUBDIVISION

ASBUILTS
STORMWATER - STAGE 4F

design	drawn	QA check	dwg
JA/DB	JA	DB	AB4
scale @ A1	date	file	issue
1 in 500	11/22	40893	C1

Building Consent BC221264
Received 20/1/2023

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

/ issue	/ date	/ reason	/ approved
F1-4F	14/11/22	Council Issue	

AS BUILT

Note: Data outside of 4F boundary shown for information only

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

The Information contained within this drawing is a true and accurate record.

Certified by:

Russell Thomas Benge

BSurv, PCApplSc, MNZIS, RPSurv, Assoc.NZPI,
Licensed Cadastral Surveyor

LEGEND:

- Site boundary
- Construction phase boundary
- Asbuilt water pipe
- Asbuilt Fire Hydrant
- Ex. FH — Asbuilt Sluice Valve with diameter shown.
- FH G.V. — Asbuilt 50 mm Hawle gate valve on 63 PE 80B
- S.V. — Asbuilt 20 mm OD section connection with double check valve. To be located in the road reserve.
- G.V.15° — Asbuilt Thrust Block. If located on pipe bend, angle of pipe bend shown on plans.
- Asbuilt Blank End with thrust block

CAD ref: 40893.DwgSet4.Sewer & Stormwater

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Limited
Level 1, 24 Moorhouse Avenue, Addington, Christchurch 8140
Office 0800 999 333 Email hello@do.nz
www.do.nz

RAVENSWOOD
NORTH CANTERBURY

RAVENSWOOD - BOB ROBERTSON DRIVE, PROPOSED SUBDIVISION

ASBUILTS
WATER - STAGE 4F

design	drawn	QA check	dwg
JA/DB	JA	DB	AB5
scale @ A1	date	file	issue
1 in 500	11/22	40893	C1

Building Consent BC221264
Received 20/1/2023

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

LIGHTING SCHEDULE

L1 Philips Roadgrace 20w LED luminaire (BRP711 LED23/WW 20W, 3000K PSDD I DWP) c/w an integral TMS compatible dimmable DALI Driver and a pre-wired 7 pin NEMA socket and shorting cap, mounted on Spunlite ground planted 7.4m MH Frangible Sub-divisional pole and 1.5m curved outreach arm.
Paint pole and arm Black. Luminaires to be factory grey.

L2 Philips Roadgrace 26w LED luminaire (BRP711 LED30/WW 26W, 3000K PSDD I DWP) c/w an integral TMS compatible dimmable DALI Driver and a pre-wired 7 pin NEMA socket and shorting cap, mounted on Spunlite ground planted 7.4m MH Frangible Sub-divisional pole and 1.5m curved outreach arm.
Paint pole and arm Black. Luminaires to be factory grey.

L3 Philips Roadgrace 76w LED luminaire (BRP712 LED95NW 76W PSU DW1), c/w an integral TMS compatible dimmable DALI Driver and a pre-wired 7 pin NEMA socket and shorting cap, mounted on Spunlite Octagonal ground planted, sectional steel 10.3m mounting height lighting pole with a 3.0m curved outreach arm and 5° to the horizontal spigot.
Paint pole and arm Black. Luminaires to be factory grey.

CAD ref: 40893.DwgSet4.Sewer & Stormwater

/ issue	/ date	/ reason	/ approved
F1-4F	14/11/22	Council Issue	

AS BUILT

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

The Information contained within this drawing is a true and accurate record.

Certified by:

Russell Thomas Benge

BSurv, PCApplSc, MNZIS, RPSurv, Assoc.NZPI, Licensed Cadastral Surveyor

LEGEND:

- Site boundary
- Construction phase boundary
- Street Tree

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Limited
Level 1, 24 Moorhouse Avenue, Addington, Christchurch 8140
Office 0800 999 333 Email hello@do.nz
www.do.nz

RAVENSWOOD
NORTH CANTERBURY

RAVENSWOOD - BOB ROBERTSON DRIVE, PROPOSED SUBDIVISION

ASBUILTS
TREES AND STREETLIGHTS - STAGE 4F

design	drawn	QA check	dwg
JA/DB	JA	DB	AB7
scale @ A1	date	file	issue
1 in 500	11/22	40893	C1

Building Consent BC221264
Received 20/1/2023

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

/ issue	/ date	/ reason	/ approved
F1-4F	14/11/22	Council Issue	

AS BUILT

CAD ref: 40893.DwgSet4.Sewer & Stormwater

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

Davis Ogilvie & Partners Limited
Level 1, 24 Moorhouse Avenue, Addington, Christchurch 8140
Office 0800 999 333 Email hello@do.nz
www.do.nz

RAVENSWOOD
NORTH CANTERBURY

RAVENSWOOD - BOB ROBERTSON DRIVE, PROPOSED SUBDIVISION

ASBUILTS
KERBS AND CENTRELINES - STAGE 4F

design	drawn	QA check	dwg
JA/DB	JA	DB	AB8
scale @ A1	date	file	issue
1 in 500	11/22	40893	C1

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

The Information contained within this drawing is a true and accurate record.

Certified by:

Russell Thomas Benge

BSurv, PCApplSc, MNZIS, RPSurv, Assoc.NZPI, Licensed Cadastral Surveyor

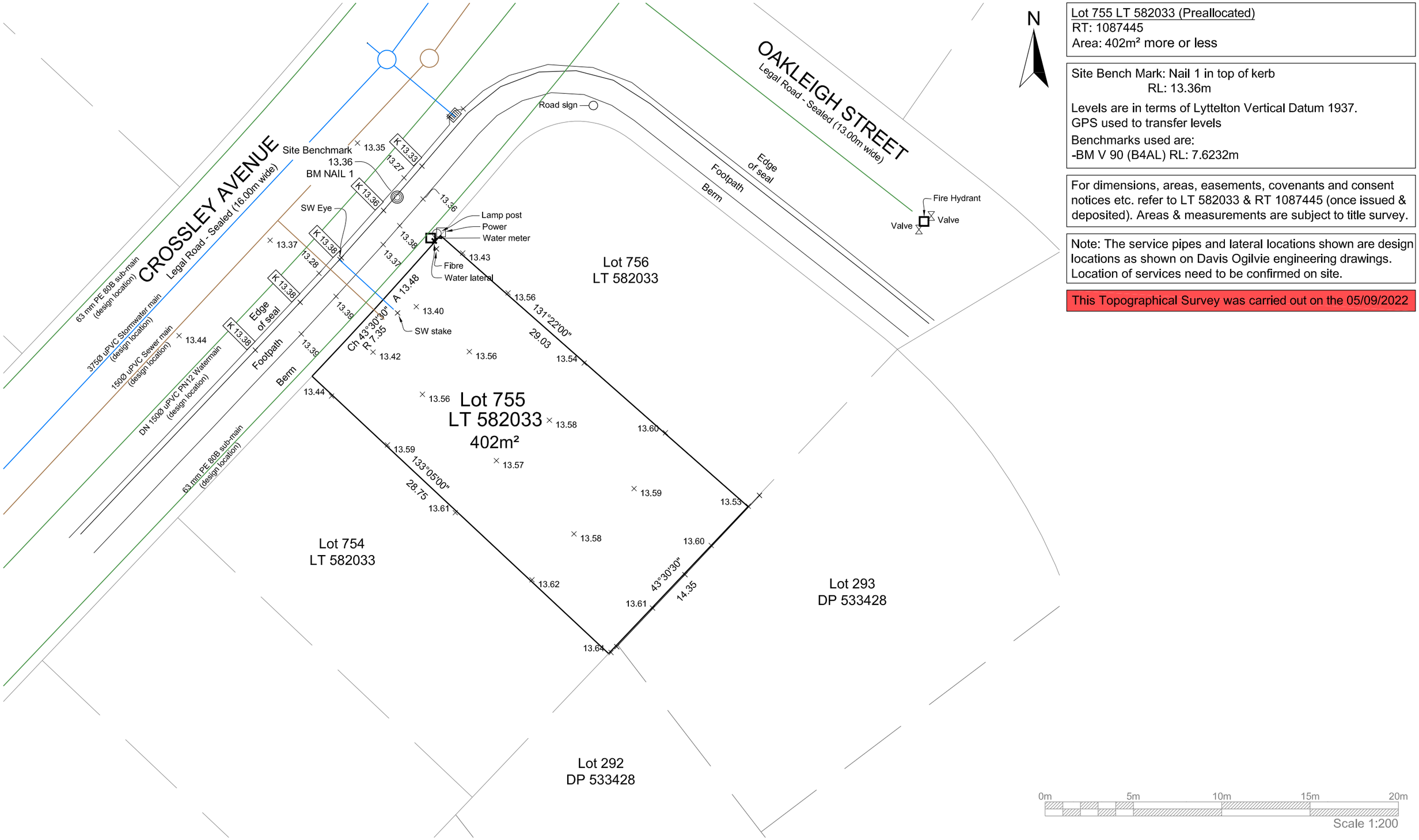
LEGEND:

Site boundary

Construction phase boundary

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

Building Consent BC221264
Received 18/1/2023



Lot 755 LT 582033 (Preallocated)
RT: 1087445
Area: 402m² more or less

Site Bench Mark: Nail 1 in top of kerb
RL: 13.36m

Levels are in terms of Lyttelton Vertical Datum 1937.
GPS used to transfer levels

Benchmarks used are:
-BM V 90 (B4AL) RL: 7.6232m

For dimensions, areas, easements, covenants and consent notices etc. refer to LT 582033 & RT 1087445 (once issued & deposited). Areas & measurements are subject to title survey.

Note: The service pipes and lateral locations shown are design locations as shown on Davis Ogilvie engineering drawings. Location of services need to be confirmed on site.

This Topographical Survey was carried out on the 05/09/2022

0m 5m 10m 15m 20m
Scale 1:200

A	09/22	Topographical Survey	RB
/ issue	/ date	/ reason	/ approved

CAD ref: 42361 topo plan 306a

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Limited
Level 1, 24 Moorhouse Avenue, Addington, Christchurch 8140
Office 0800 999 333 Email hello@do.nz
www.do.nz

Topographical Survey over Lot 755 LT 582033
Crossley Avenue - Stage 4F, Ravenswood

/ design	/ drawn	/ QA check	/ dwg
GN	RG	CH	306
/ scale @ A3	/ date	/ file	/ issue
1:200	09/22	42361	A

Section 2
Geotech, Engineer Reports & Conditions PS1 & 2s

- Calculations
- A4 Details

File No.: 42361

8 September 2022

SHC Limited T/A Stonewood Homes Christchurch
PO Box 16499
Hornby
CHRISTCHURCH 8441

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

Attention: James Parker

Email: James.Parker@stonewood.co.nz

Dear James,

GEOTECHNICAL INVESTIGATION AND FOUNDATION RECOMMENDATIONS: LOT 755, STAGE 4F, RAVENSWOOD SUBDIVISION, WOODEND, CANTERBURY

Davis Ogilvie & Partners Ltd. (Davis Ogilvie) has been commissioned by SHC Limited T/A Stonewood Homes Christchurch to undertake a shallow geotechnical investigation on the aforementioned lot. The aim of the investigation was to confirm the underlying geology, ground bearing capacity and to provide foundation recommendations for a new residential house on the lot.

1.0 SITE DESCRIPTION

The lot is located on the eastern side of Crossley Avenue within Stage 4F of Ravenswood Subdivision, Woodend. Ravenswood Subdivision is situated 5.5 km southeast of Rangiora, approximately 25 km north of Christchurch. The site is flat and currently undeveloped. Building plans were not provided by the client at the time of issuing this report.

2.0 PUBLISHED INFORMATION

The published geology of the site has been identified as *"Grey river alluvium, comprising gravel, sand and silt beneath plains of low level terraces"* (Q1a)[1].

[1] Forsyth, P.J., Barrell, D.J.A., Jongens, R. (2008) (compilers), Geology of the Christchurch Area, Institute of Geological and Nuclear Sciences 1:250 000 geological map 16. 1 sheet. Lower Hutt, New Zealand. GNS Science. ISBN 987-0-478-19649-8

This report may not be read or reproduced except in its entirety.

CONSENT ISSUED BC221264 - Page 101 of 359

The underlying geotechnical report written by Tonkin & Taylor (T+T)[2] in August 2021 states "*Our assessment indicates that Stage 4 is expected to be equivalent to TC2 without the need for any ground improvement works"*. The future expected performance for a TC2 site, in accordance with Ministry of Business, Innovation & Employment (MBIE), is that *"Minor to moderate land damage from liquefaction is possible in future large earthquakes"*.

URS carried out a shallow groundwater assessment for the Ravenswood Development[3] in 2011. The report indicates that ground water in the area ranges seasonally from 1.0 m to 2.5 m below ground level. T+T encountered groundwater at approx. 1.6 – 2.9 m during their geotechnical investigation for the stage.

Davis Ogilvie has undertaken engineering design and supervision throughout the subdivision construction. Based on cut and fill plans for the stage[4], and construction observation records, Lot 755 is underlain by a minimum of 0.6 m of certified engineered fill consisting of imported well graded sandy gravel, placed in accordance with NZS 4431 (Code of practice for earth fill for residential development).

3.0 TESTING COMPLETED ONSITE

A shallow geotechnical investigation was undertaken by Davis Ogilvie on 5 September 2022. The site investigation comprised a site walkover and shallow testing to a maximum depth of 0.6 m below Existing Ground Level (EGL). Testing locations are shown on the Geotechnical Site Plan (DWG G755A) attached to this report.

3.1 Soil Testing Results

The general shallow soil profile, indicated by the shallow site investigation, consisted of 0.45 m of topsoil overlying engineered fill consisting of very dense sandy gravel which limited the advancement of testing. Based on construction observations during earthworks, the fill platform is underlain by natural interbedded deposits of sand and silt.

Logs and DCP test results are attached to this report.

3.2 Groundwater

Groundwater was not encountered during the Davis Ogilvie shallow investigations. Groundwater levels will vary spatially and seasonally and may be deeper than the testing undertaken, as discussed in Section 2.

[2] Tonkin & Taylor – Ravenswood Subdivision – Stage 4 Geotechnical Report. – August 2021, Job Number 1013924.v2
[3] URS – Ravenswood – Shallow Groundwater Assessment, October 2011.
[4] Davis Ogilvie Earthworks Plan – DWG C101 C4

This report may not be read or reproduced except in its entirety.
\\dop5\jobdata\projects\42s\42361 - Stonewood Stage 4 Ravenswood\Geotech\003 Report\Lot 755\220907.kl.42361.geotechnical report Lot 755 FMM.trackbr.MS Changes made.docx

CONSENT ISSUED BC221264 - Page 102 of 359

4.0 DISCUSSION AND RECOMMENDATIONS

Due to the TC2 categorisation of the site, specific engineering design, observation and certification will be required for the foundation onsite.

Based on in-situ soil testing, a static geotechnical ultimate bearing capacity of 200 kPa[5], as defined by MBIE, was encountered below the topsoil from 0.45 m below EGL.

Davis Ogilvie anticipates a concrete slab is the preferred founding solution for the site. In this regard, enhanced TC2 slab options as outlined in Section 5.3 of the MBIE 2012 guidance document, or equivalent foundations, are considered suitable for this site.

Site preparation should ensure that all grass, topsoil, and any other unsuitable material is removed before the placement of foundations or gravel fill. Noting that the thickness of topsoil requiring removal can vary across the site, away from the test locations. Engineered fill placed within the building envelope should be compacted and tested to specifications detailed in NZS 4431.

5.0 GEOTECHNICAL INSPECTIONS REQUIRED DURING CONSTRUCTION

Prior to any fill placement or foundation construction, all excavations on site should be examined by a suitably qualified and experienced Engineer or Engineering Geologist. The Engineer must be competent to judge whether the exposed subsoils are compatible with the inferred conditions on which the report has been based. Should soft, suspect, or unsuitable conditions differing to those outlined in this report be encountered, the builder should contact Davis Ogilvie or a suitably qualified and experienced Engineer to confirm foundation requirements.

Please allow 24 hours' notice prior to inspections being required.

[5] The bearing capacities presented in this report are static geotechnical ultimate bearing capacities. The "structural" Ultimate Limit State (ULS) bearing capacity to be used in conjunction with fully factored loads as per AS/NZS 1170.0:2002, should be derived for shallow footings using a strength reduction factor (Φ_g) of 0.5 in accordance the Earthquake geotechnical engineering practice Module 4. Earthquake resistant foundation design (November 2021).

This report may not be read or reproduced except in its entirety.
\\dop5\jobdata\projects\42s\42361 - Stonewood Stage 4 Ravenswood\Geotech\003 Report\Lot 755\220907.kl.42361.geotechnical report Lot 755 FMM.trackbr.MS Changes made.docx

CONSENT ISSUED BC221264 - Page 103 of 359

6.0 CLOSURE

Should you have any queries regarding this report or wish to arrange a subgrade inspection at the time of construction, please contact the undersigned.

Yours faithfully
DAVIS OGILVIE & PARTNERS LTD.

Prepared By:
MARK SELLARS
Senior Engineering Geologist
BSc, PGDip, BCom

Email: mark@do.nz

Reviewed By:
BJORN RAASCH
Principal Engineering Geologist
BSc (Hons), CMEngNZ (PEngGeol)

Email: bjorn@do.nz

Enclosed:
1 x Geotechnical Site Plan (DWG G755A)
2 x DCPs and 1 x HA Log

Limitations
Davis Ogilvie did not complete an assessment of all possible conditions or circumstances that may exist at the site. The report and findings are based on the information provided. Conditions may exist which were undetectable given the limited investigation of the site. Variations in conditions may occur, and there may be conditions onsite which have not been revealed by the investigation, which have not been taken into account in the report. No warranty is included—either expressed or implied—that the actual conditions will conform to the assessments contained in this report. If any unexpected suspect soils are encountered during earthworks onsite, Davis Ogilvie should be notified to confirm or reassess the foundation recommendations.

This report has been prepared solely for the purposes of SHC Limited T/A Stonewood Homes Christchurch. The information contained herein is confidential, and shall not be passed on to any third party without prior written permission of Davis Ogilvie & Partners Ltd. No responsibility is accepted for any use outside the scope of this report. This report does not cover suitability of the site (e.g., flooding), or potential future liquefaction.

This report may not be read or reproduced except in its entirety.

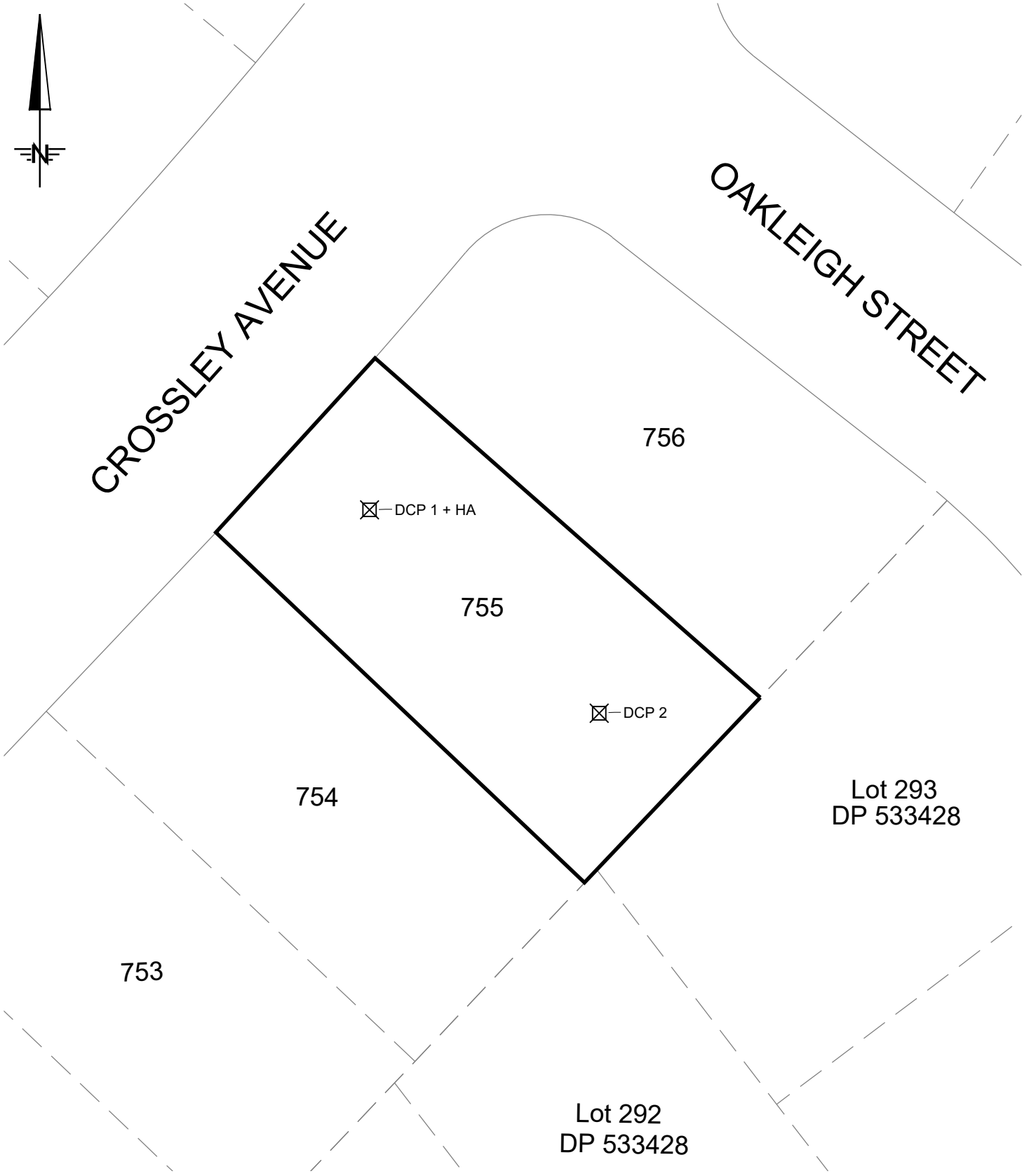
CONSENT ISSUED BC221264 - Page 104 of 359

Important Notice:

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 / or 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.

This report may not be read or reproduced except in its entirety.

CONSENT ISSUED BC221264 - Page 105 of 359
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
BC221264



Test locations are approximate (scaled and aligned using boundaries).
Boundaries are indicative only, obtained from DO Scheme Plan for Stage 4(D400)

0m 5m 10m 15m 20m 25m 30m
Scale 1:300

CAD ref: 40893.Stage 4.Master Site Plan

DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Ltd - Ph. 0800 999 333

Geotechnical Site Plan
Lot 755, Stage 4F
Ravenswood
Woodend

/ design	/ drawn	/ QA check	/ dwg
KL	TM	KL	G755
/ scale @ A4	/ date	/ file	/ issue
1:300	08/22	42361	A

DAVIS OGILVIE
Davis Ogilvie & Partners Limited
Level 1, 24 Moorhouse Avenue,Addington, Christchurch 8140
Office 0800 999 333 Email hello@do.nz
www.do.nz

BC221264

SHALLOW INVESTIGATION RESULTS

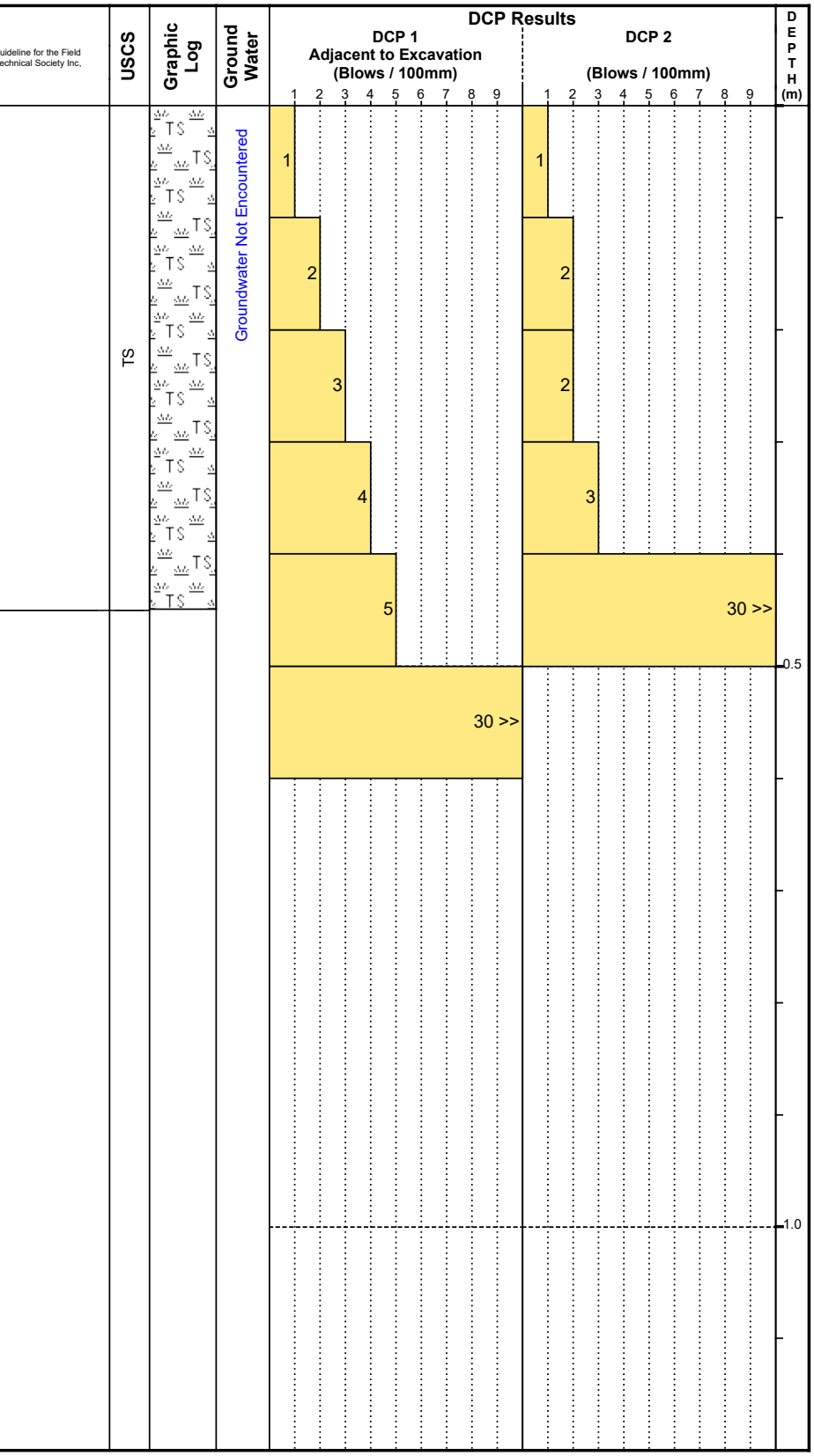
Job Nº / **42361**
Test Nº / **Lot 755**

Project: Stage 4B, Ravenswood, Woodend. **Date:** 05/09/22

Client: Stonewood Homes **Time:** 1:00 pm

Test Location: Refer to attached geotechnical site plan (G755A). **Excavation Method:** HA + DCP

DEPTH (m)	STRATA DESCRIPTION Strata description in general accordance with Field Description of Soil and Rock. Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes. NZ Geotechnical Society Inc, December 2005 **Auger at Lot 755**	USCS	Graphic Log	Ground Water
	0.00 - 0.45m: SILT; dark brown. Moist (TOPSOIL).	TS	TS	Groundwater Not Encountered
0.5	Auger terminated at 0.45m - Refusal on gravel.			
1.0				



Logged By: IZ

Plotted By: KL

Checked By: IZ

Notes:

Dynamic Cone Penetrometer (DCP) tests and logs give an indication of the ground conditions at the location of the tests only. While they may be 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.

Dynamic Cone Penetrometer tests are performed in accordance with NZS 4402 Test 6.5.2 (Procedure 1 and 2)

Produced with Core-GS by Geroc

BC221264

WILTON JOUBERT
Consulting Engineers

NORTHLAND
Po Box 8130
Kensington
Whangarei 0145
T: +64 9 945 4188

AUCKLAND
WAIKATO
Po Box 11381
Ellerslie
Auckland 1542
T: +64 9 527 0196

SOUTHERN LAKES
Po Box 169
Wanaka 9343
T: +64 3 443 6209

CANTERBURY
T: +64 21 824 063

Structural Design Calculations for:

Lot 755

38 Crossley Avenue, Ravenswood Subdivision

Woodend

Canterbury

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

Job #: 121032

September 2022

Date : 27/09/2022
Designer : RA
Checker : FV
Job Number : 121032

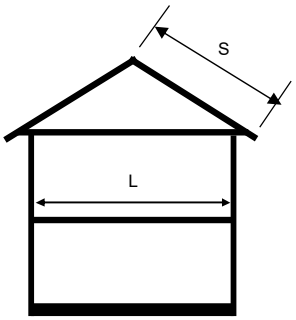
Earthquake Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address : Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description : EDGE BEAM

Loadings

Upper Wall must be Timber



Tributary Roof and Floor Lengths

WALLS

Lower:	Timber			
		=	38	kg/m²
		=	0.37	kPa
	Height	=		m
	Load/m	=		kN/m
Upper:	Timber			N/A
		=	38	kg/m²
		=	0.37	kPa
	Height	=		m
	Load/m	=		kN/m
Other (Specify Wall Weight)				
	Weight	=	170	kg/m²
		=	1.67	kPa
	Height	=	2.42	m
	Load	=	4	kN/m

SUSPENDED MID-FLOOR Tributary Length L/2 **N/A**

	Unit/Floor	=	Timber	
	Topping	=	N/A	
		=	0.38	kPa
	Live Loading	=	1.50	kPa
	Super Imposed Dead	=		kPa
	Tributary Span	=		m
	Dead Load/m	=		kN/m
	Live Load/m	=		kN/m

ROOF Tributary Length = S

	Light	=	0.46	kPa
	Live Loading		0.25	kPa
	Tributary Span	=	4.85	m
	Dead Load/m	=	2.23	kN/m
	Live Load/m	=	1.21	kN/m

Loadings Summary

Walls	4.04	kN/m	Dead
Mid Floors		kN/m	Dead
		kN/m	Live
Slab*	4.15	kN/m	Dead+SDL
	0.90	kN/m	Live
Roof	2.23	kN/m	Dead
	1.21	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

Date : 27/09/2022
Designer : RA
Checker : FV
Job Number : 121032

Earthquake Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address : Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description : EDGE BEAM

Working Loads

	Dead	10.42	kN/m
	Live	2.11	kN/m
Ultimate Loads (1.2G + 1.5Q)	Dead	12.51	kN/m
	Live	3.17	kN/m
Total Ultimate Load on Edge	w =	15.68	kN/m

Edge Beam Details

Wall Construction Type: Timber Clad Frame min beam width 200mm

Beam Width =	400	mm	
Pod Depth =	220	mm	OK!
Top slab Depth =	85	mm	
Self Weight =	2.93	kN/m	
Construction Type =	Standard Raft		

Standard Raft Construction

Dependable bearing capacity: 100 kPa

Bearing Check =	39	kPa	OK!
Working Pressure =	31	kPa	OK!

Steel Requirements - As Per Std Drg's

Top Steel: 2HD12
Btm Steel: 3HD12

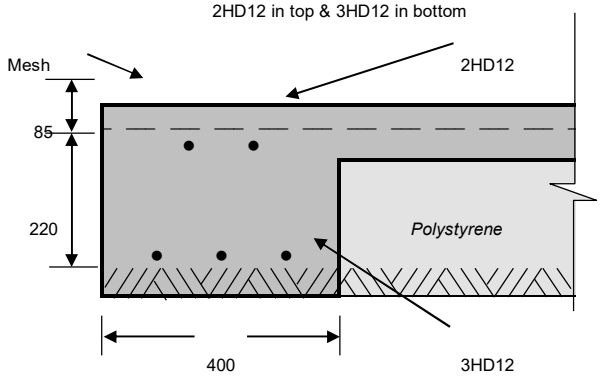
Prescribed Edge Beam Design

Location (ie: which wall):
EDGE BEAM

Standard Raft Contruction

400 mm wide edge beam with

2HD12 in top & 3HD12 in bottom



BC221264

Date : 27/09/2022
Designer : RA
Checker : FV
Job Number : 121032

Earthquake Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address : Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description : INTERNAL THICKENING

Loadings

WALLS

Lower: HOTBloc — Solid

(North/South Taupo)

Light	=	400	kg/m²
	=	3.92	kPa
Height	=		m
Load/m	=		kN/m

Upper: HOTBloc — Solid

(North/South Taupo)

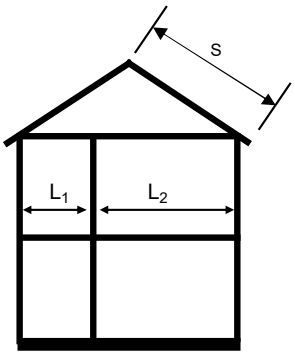
Light	=	400	kg/m²
	=	3.92	kPa
Height	=		m
Load/m	=		kN/m

Other (Specify Wall Weight)

Weight	=	30	kg/m²
	=	0.29	kPa
Height	=	2.42	m
Load	=	0.71	kN/m

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	=		m
Dead Load/m	=		kN/m
Live Load/m	=		kN/m



Tributary Roof and Floor Lengths

ROOF Tributary Length = S (Check if Rafter or Truss)

Light	=	0.46	kPa
Live Loading		0.25	kPa
Tributary Span	=	4.36	m
Dead Load/m	=	2.00	kN/m
Live Load/m	=	1.09	kN/m

Loadings Summary

Walls	0.71	kN/m	Dead
Mid Floors		kN/m	Dead
		kN/m	Live
Slab*	5.38	kN/m	Dead+SDL
	1.80	kN/m	Live
Roof	2.00	kN/m	Dead
	1.09	kN/m	Live^
Extra Dead		kN/m	Dead
Extra Live		kN/m	Live

* Includes Internal Rib Weight, SDL = 0.5 kPa LL = 1.5 kPa

^ Roof LL not added if midfloor exists else LL = 0.25 kPa

Date : 27/09/2022
Designer : RA
Checker : FV
Job Number : 121032

Earthquake Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address : Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description : INTERNAL THICKENING

Working Loads

	Dead		8.09	kN/m
	Live		2.89	kN/m
Ultimate Loads (1.2G + 1.5Q)	Dead		9.71	kN/m
	Live		4.33	kN/m
Total Ultimate Load on Internal		w =	14.05	kN/m

Internal Rib Details

Rib Width =	400	mm	
Pod Depth =	220	mm	OK!
Top slab Depth =	85	mm	
Self Weight =	2.93	kN/m	
Construction Type	Standard Raft		

Standard Raft Construction

Dependable bearing capacity: 100 kPa

Bearing Check =	35	kPa	OK!
Working Pressure =	27	kPa	OK!

Steel Requirements - As Per Std Drg's

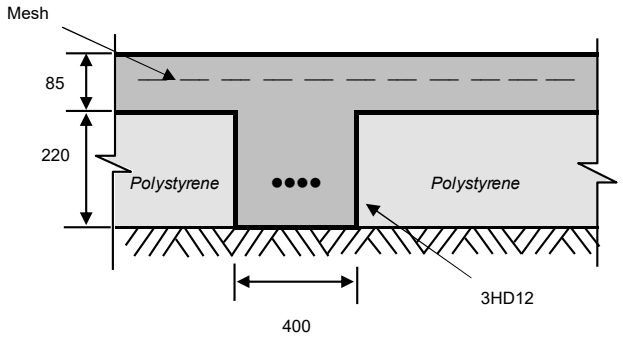
Btm Steel: 3HD12

Prescribed Internal Rib Design

Location (ie: which wall):
INTERNAL THICKENING

Standard Raft Contruction

400 wide Rib required with 3HD12 in bottom



BC221264

Date : 27/09/2022
Designer : RA
Checker : FV
Job Number : 121032

Earthquake Raftfloor Design

WILTON JOUBERT
Consulting Engineers

Site Address : Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description : STANDARD RIB

Loadings

WALLS

Lower: 20 Series — Solid

(North/South Taupo)

Light	=	400	kg/m^2
	=	3.92	kPa
Height	=		m
Load/m	=		kN/m

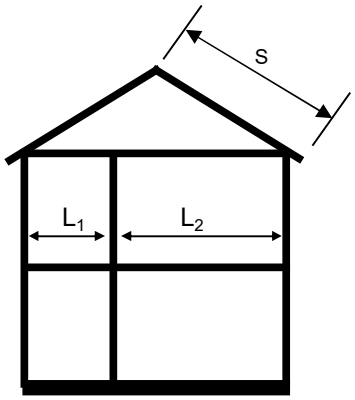
Upper: HOTBloc — Solid

(North/South Taupo)

Light	=	400	kg/m^2
	=	3.92	kPa
Height	=		m
Load/m	=		kN/m

Other (Specify Wall Weight)

Weight	=	30	kg/m^2
	=	0.29	kPa
Height	=	2.42	m
Load	=	1	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	=		m
Dead Load/m	=		kN/m
Live Load/m	=		kN/m

ROOF Tributary Length = S (Check if Rafter or Truss)

Light	=	0.46	kPa
Live Loading		0.25	kPa
Tributary Span	=		m
Dead Load/m	=		kN/m
Live Load/m	=		kN/m

Loadings Summary

Walls	0.71	kN/m	Dead
Mid Floors		kN/m	Dead
		kN/m	Live
Slab*	2.98	kN/m	Dead+SDL
	1.80	kN/m	Live
Roof		kN/m	Dead
		kN/m	Live^
Extra Dead		kN/m	Dead
Extra Live		kN/m	Live

* Includes Internal Rib Weight, SDL = 0.5 kPa LL = 1.5 kPa

^ Roof LL not added if midfloor exists else LL = 0.25 kPa

BC221264

Date : 27/09/2022
Designer : RA
Checker : FV
Job Number : 121032

Earthquake Raftfloor Design

WILTON JOUBERT
Consulting Engineers

Site Address : Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description : STANDARD RIB

Working Loads

	Dead		3.69	kN/m
	Live		1.80	kN/m
Ultimate Loads (1.2G + 1.5Q)	Dead		4.43	kN/m
	Live		2.70	kN/m
Total Ultimate Load on Internal		w =	7.13	kN/m

Internal Rib Details

Rib Width =	100	mm	
Pod Depth =	220	mm	OK!
Top slab Depth =	85	mm	
Self Weight =	0.73	kN/m	
Construction Type	Standard Raft		

Standard Raft Construction

Dependable bearing capacity: 100 kPa

Bearing Check =	71	kPa	OK!
Working Pressure =	55	kPa	OK!

Steel Requirements - As Per Std Drg's

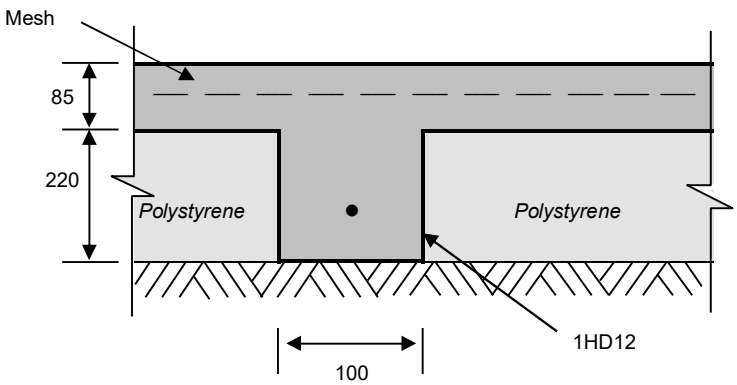
Btm Steel: 1HD12

Prescribed Internal Rib Design

Location (ie: which wall):
STANDARD RIB

Standard Raft Contruction

100 wide Rib required with 1HD12 in bottom



BC221264

Date :	27/09/2022
Designer :	RA
Checker :	FV
Job Number :	121032

Earthquake Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address : Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description : Summary

Brief:

Design a raftfloor to satisfy the criteria set-out by DBH document ' Guidance on house repairs and reconstruction following the Canterbury Earthquake'

House Type:

Walls:

Lower:	Timber			=	38	kg/m²
Height:	0 m		Load/m:	=	0.00	kN/m
Upper:	Timber			=	38	kg/m²
Height:	m		Load/m:	=	0.00	kN/m
Other:			Weight:	=	170	kg/m²
Height:	2.42 m		Load/m:	=	4.04	kN/m

Floor:

Unit/Floor:	Timber	Topping:	N/A	=	0.38	kPa
Tributary span:	0.00 m		Load/m:	=	0	kN/m

Roof:

Roof type:	Light			=	0.46	kPa
Tributary span:	4.85 m		Load/m:	=	2.23323691	kN/m

Design Summary:

Mesh: 500E, 6.1 mm diameter @ 200 spacing on 40mm mesh chairs
concrete f'_c = 20 MPa
Pods: 1100mm square, 220mm deep
Rib 1: 100mm wide rib, with 1 HD12 at top
Rib 2: 100mm wide rib, with 1 HD12 at top
HD10 to bottom of ribs
Generally: 400mm wide edgebeam with 2/ HD12 bars to top and 3/ HD12 bars to bottom
Additional:

BC221264

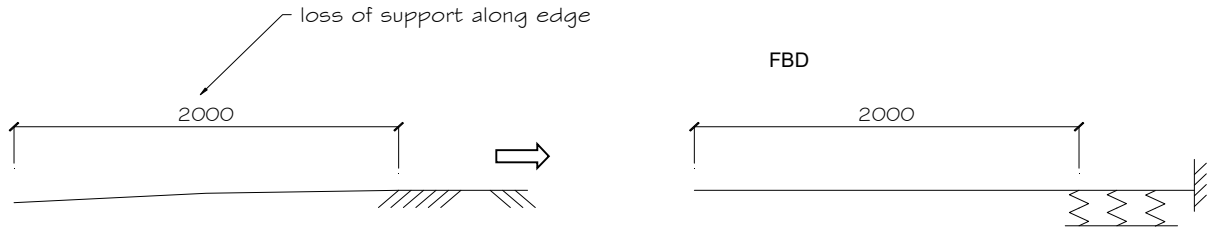
Date :	27/09/2022
Designer :	RA
Checker :	FV
Job Number :	121032

Earthquake Raftfloor Design

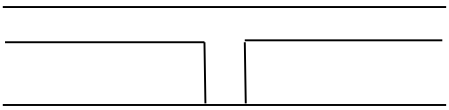
WILTON JOUBERT Consulting Engineers

Site Address :	Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description :	Edge Cantilever

A: Edge Cantilever



Section Parameters along Edge



Rib 1 width:	100
pod depth:	220
pod width:	1100
topping depth:	85

Rib : Section Properties

A=	124000	mm^2
moment area =	8625000	mm^3
centroid =	69.55645161	mm
I_g=	571008938.2	mm^4
I_e=	437041406.1	mm^4

Loads:

load at edge, G:	5.46	kN/m
edge beam:	2.93	kN/m
Rib 1, G:	3.46	kN/m

Load combination to consider:
G, Eu, ΨcQ (Ψc=0.3)

slab live load:	1.5	kPa
load at edge, 0.3Q:	0	kN/m
Rib 1, 0.3Q:	0.54	kN/m

Design Forces and Deflection at critical sections:

M^*_{Rib1} =	**24.08**	**kNm**	
V^*_{Rib1} =	**15.52**	**kN**	
Max. deflection =	**3.0**	**mm**	**OK**

Section Design - Rib

Bending:

mesh:	6.1	mm	200	spacing	500	MPa	87.67	kN
reinforcement:	1	of	12	diameter	500	MPa	56.55	kN

mesh chair:	40	mm	top reinforcement, tied under mesh		
therefore d=	257.1	mm			
try f'_c=	20	MPa	T =	144.22	kN
a =	84.84	mm	c =	99.81	mm
					OK, less than 0.75cb
$\phi M_{Rib\ 1}$ =	**26.32**	**kNm**	**M^*_{Rib1} =**	**24.08**	**kNm**
					OK

Shear:

p_w =	0.011218761		v_c =	0.803	MPa
$\phi V_{Rib\ 1}$ =	**15.48**	**kN**	**V^*_{Rib1} =**	**15.52**	**kN**
					not OK try adding steel fibres

If shear exceeded, try adding 10kg/m3 steel fibres (to section below topping concrete only):

V_{fd} = 0.7 k_f k_1 t_{fd} b_w d

			k_f =	1.843025061	-> 1.5
			k_1 =	1.881973807	
t_{fd} =	0.12	MPa	$f_{RK,4}$ =	1.0	MPa
$\phi V_{Rib\ 1,fd}$ =	4.57	kN			
$\phi V_{Rib\ 1,total}$ =	**20.05**	**kN**	**V^*_{Rib1} =**	**15.52**	**kN**
					OK

BC221264

Date :	27/09/2022
Designer :	RA
Checker :	FV
Job Number :	121032

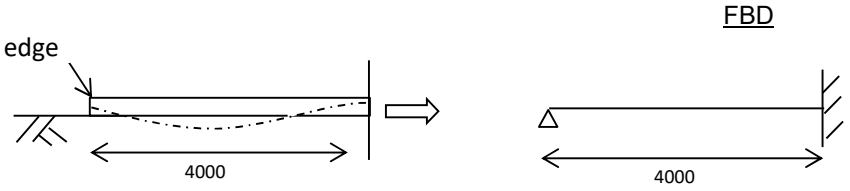
Earthquake Raftfloor Design

WILTON JOUBERT Consulting Engineers

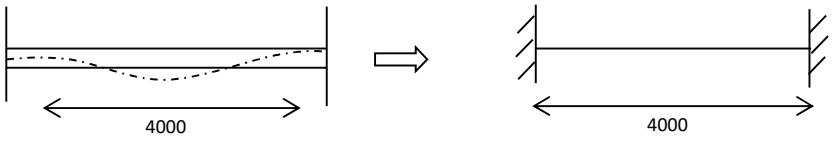
Site Address :	Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description :	Floor

A: Loss of support (4.0m) under slab

Scenario 1 - near edge:



Scenario 2 - within slab:



Comment: Scenario 1 would yield higher forces & deflections compared to scenario 2

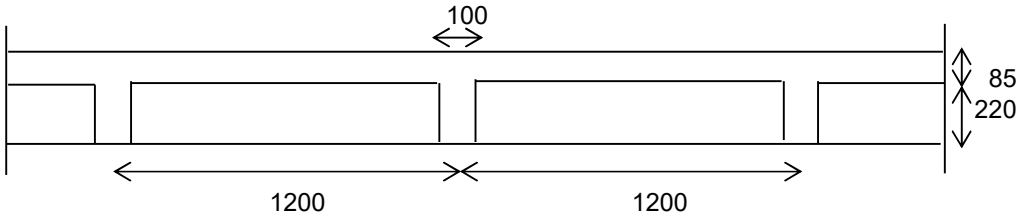
Loadings:

Self weight of raftslab:	3.460	kN/m, per rib
Domestic live load:	1.8	kN/m, per rib

Load combination to consider:

G, Eu, ΨcQ (Ψc=0.3)

Section Parameters: Typical Rib



T ' section per each rib.

A=	124000	mm2
moment area =	8625000	mm3
centroid =	69.55645161	mm

⇒ Ig= 571008938.2 mm4

fr =	2.68	MPa
Mcr+ =	6.51	kNm
Mcr- =	22.03	kNm

BC221264

WILTON JOUBERT
Consulting Engineers

Date : 27/09/2022
Designer : RA
Checker : FV
Job Number : 121032

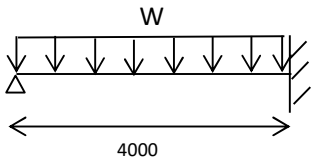
Earthquake Raftfloor Design

Site Address : Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description : Floor

Analysis:

Under loads given previous, UDL (w):

G= 3.46 kN/m
ΨcQ= 0.54 kN/m (Ψc=0.3)



M*+=	**4.50 kNm**	<	Mcr+ =	6.51 kNm	}	Ie =Ig
M*- =	**8.00 kNm**	<	Mcr- =	22.03 kNm	}	

Max. deflection = 0.45 mm OK!

Check strength:

Positive strength - 10 mm diameter 500 MPa
T= 39.27 kN d= 250.00 mm
a= 3.25 mm
⇨ **øMn+= 8.29 kNm > M*+ OK!**

Negative strength - only mesh considered
T= 87.67 kN d= 263.05 mm
a= 51.57 mm
⇨ **øMn-= 17.68 kNm > M*- OK!**

Shear:
Vmax= 10.0 kN
V*= 8.9 kN (263.05mm from support)

p_w= 0.00667
v_b= 0.611 Mpa
v_c= 0.602 Mpa
⇨ **øVc= 11.88 kN > V* OK!**

If shear exceeded, try adding 10kg/m3 steel fibres (to section below topping concrete only):

$V_{fd} = 0.7\ k_f\ k_1\ t_{fd}\ b_w\ d$
k_f = 1.823987835 -> 1.5
k_1 = 1.871958559
t_{fd} = 0.12 MPa
$f_{RK,4}$ = 1.0 MPa
$\phi V_{Rib\ 1,fd}$ = 4.65 kN
$\phi V_{Rib\ 1,total}$ = 16.53 kN
V^*_{Rib1} = 8.95 kN OK

Date :	27/09/2022
Designer :	RA
Checker :	FV
Job Number :	121032

Earthquake Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address :	Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description :	Edge Beam

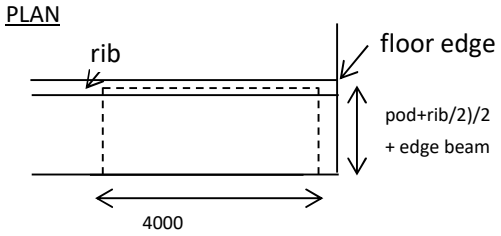
B: Loss of support (4.0m) under edge beam

As per case A, worst case is scenario 1 where happens near the edge.

Loadings:

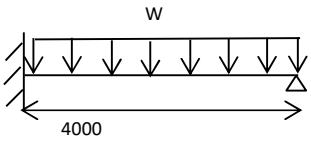
wall load:	3.23 kN/m	
roof load:	2.23 kN/m	
floor load:	0 kN/m	(G only)
Self weight of raftslab:	3.46 kPa	
live load:	1.5 kPa	

Consider failure of support as illustrated:



Hence, edge beam to support 1000mm of floor at worst point.

Edge beam: 400 mm wide



Floor weight

G=	1.90 kN/m
Q=	1.20 kN/m

BC221264

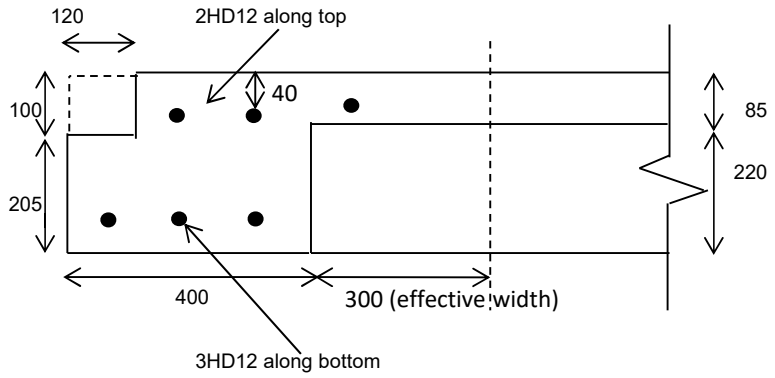
Date : 27/09/2022
Designer : RA
Checker : FV
Job Number : 121032

Earthquake Raftfloor Design

WILTON JOUBERT
Consulting Engineers

Site Address : Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description : Edge Beam

Section properties:



A=	135500	mm2	⇨	Ig=	1115275096 mm4
moment area =	19088750	mm3			
centroid =	140.8763838	mm			

fr =	2.68	Mpa
Mcr+ =	18.23	kNm
Mcr- =	21.24	kNm

Analysis:

M*+=	**12.0 kNm**	<	Mcr+ =	18.23 kNm	*calc Ie
M*- =	**21.3 kNm**	>!	Mcr- =	21.24 kNm	
Max. deflection =	**0.61 mm**	**OK!**		Ie= 1110335865 mm4	

Check strength:

Negative strength

T =	113.10 kN		T mesh =	38.72 kN	
a =	22.33 mm		d =	254.82 mm	
⇨ **øMn-=**	**31.44 kNm**	**>**	**M*-**	**OK!**	

Positive strength

T=	169.65 kN		d=	249 mm	
a=	24.95 mm				
⇨ **øMn+=**	**34.11 kNm**	**>**	**M*+**	**OK!**	

Shear:

Vmax=	**26.6 kN**				
V*=	**24.0 kN**	(254mm from support)			
p_w=	0.00298		v_b=	0.446 Mpa	
			v_c=	0.440 Mpa	
⇨ **øVc=**	**33.60 kN**	**>**	**V***	**OK!**	

If shear exceeded, try adding 10kg/m3 steel fibres (to section below topping concrete only):

V_{fd} = 0.7 k_f k_1 t_{fd} b_w d		k_f =	1.10841055	->	1.10841055
		k_1 =	1.885930447		
t_{fd} =	0.12 MPa	$f_{RK,4}$ =	1.0 MPa		
$\phi V_{Rib\ 1,fd}$ =	13.42 kN				
$\phi V_{Rib\ 1,total}$ =	**47.03 kN**	**V^*_{Rib1} =**	**23.98 kN**		**OK**

BC221264

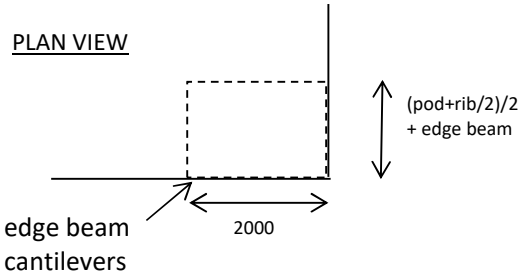
Date : 27/09/2022
Designer : RA
Checker : FV
Job Number : 121032

Earthquake Raftfloor Design

WILTON JOUBERT
Consulting Engineers

Site Address : Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
Description : Edge Beam

C: Loss of support (2.0m) at extreme of floor (outer corners)



Loadings:

wall load:	3.23	kN/m	
roof load:	2.23	kN/m	
floor load:	0	kN/m	(G only)
Self weight of raftslab:	3.46	kPa	
live load:	1.5	kPa	

Model:

G1= 1.903 kN/m
Q1= 1.2 kNm

Section property as per previous

Analysis:

M*- = **21.3 kNm** >! Mcr- = 21.24 kNm *calc Ie

Max. deflection = **0.89 mm** **OK!** Ie= 1105396634 mm4

Check strength:

Negative strength:

T = 113.10 kN T mesh = 38.72 kN
a = 22.33 mm d = 254.82 mm
⇨ **øMn-=** **31.44 kNm** **>** **M*-** **OK!**

Shear:

Vmax= **21.31 kN**
V*= **18.59 kN** (254mm from support)

p_w= 0.00298 v_b= 0.446 Mpa
v_c= 0.440 Mpa
⇨ **øVc=** **33.60 kN** **>** **V*** **OK!**

If shear exceeded, try adding 10kg/m3 steel fibres (to section below topping concrete only):

$V_{fd} = 0.7\ k_f\ k_1\ t_{fd}\ b_w\ d$ k_f = 1.10841055 -> 1.10841055
k_1 = 1.885930447
t_{fd} = 0.12 MPa $f_{RK,4}$ = 1.0 MPa
$\phi V_{Rib\ 1,fd}$ = 13.42 kN
$\phi V_{Rib\ 1,total}$ = 47.03 kN **V^*_{Rib1} = 18.59 kN** **OK**

BC221264

Date : 27/09/2022
Designer : RA
Checker : FV
Job Number : 121032

Earthquake Raftfloor Design

WILTON JOUBERT
Consulting Engineers

Site Address : Lot 755, 38 Crossley Avenue, Ravenswood Subdivision
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:	Rangiora		
C(t) = Ch(t) Z R N(T,D)			
Ch(t)	2.36		
Z	0.33		
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	0.19	ku =	1
C(t) ULS	0.78		

Cd(T1) = C(t) Sp/ku For base sliding Sp = 1.0

SLS Cd(T1) =	0.19	Note for Class D soil SLS Cd(t1) =	0.25
ULS Cd(T1) =	0.68	ULS Cd(t1) =	0.87

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.

BC221264

Building Code Clause(s) B1

PRODUCER STATEMENT – PS1 – DESIGN

ISSUED BY: Wilton Joubert Ltd.
(Design Firm)

TO: Reliable Foundations South Island Ltd
(Owner/Developer)

TO BE SUPPLIED TO: Waimakariri District Council
(Building Consent Authority)

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

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

AT: 38 Crossley Avenue, Woodend, Canterbury
(Address)

Town/City: Woodend **LOT** 755 **DP** ..... **SO** .....
(Address)

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

raftfloor slab

(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 As per MBIE Guidance Document 2012

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

Lot 755, 38 Crossley Avenue, Woodend, Canterbury and numbered S0-S2, Sheet 1.03, D1-D2 ;
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 Soil Report by: Davis Ogilvie & Partners Ltd Ref: 42361 Date: 08/09/2022
(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 27/09/2022
(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

BC221264

WILTON JOUBERT
Consulting Engineers

Recommended Site Inspections / Construction Review

WJ Job #: 121032

Site Address: 38 Crossley Avenue, Woodend, Canterbury

Important Notes:

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

- In order to issue Producer Statement – Construction Review (PS4) for specific item(s) as per the building consent conditions, Wilton Joubert needs to carry out the inspection for the item(s) specified.
  NO INSPECTION = NO PS4.

- It is the building consent applicant's (or authorised agent) responsibility to ensure that Wilton Joubert is notified in advance of the required inspection. Bookings should be made 48 hours prior to the intended time of inspection.

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:

- Site cut (this may be carried out by Wilton Joubert or by the author of the geotechnical report)
- Fill compaction (this may be carried out by Wilton Joubert or by the author of the geotechnical report)
- Raftfloor prepour
- .....
- .....
- .....
- .....
- .....

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

BC221264

WILTON JOUBERT
Consulting Engineers

Site address: 38 Crossley Avenue, Woodend, Canterbury

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: 27/09/2022

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: • Veranda steelwork • Steel carpark structure (beams, columns, braces etc) • Deck and balcony steelwork • Exposed façade steelwork, both primary and secondary structure • 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.

CONSENT ISSUED BC221264 - Page 126 of 359

WILTON JOUBERT
Consulting Engineers

BC221264

NORTHLAND
PO Box 8130
Kensington
Whangarei 0145
T +64 9 945 4188

AUCKLAND
WAIKATO
PO Box 11-381
Ellerslie
Auckland 1524
T +64 9 579 1114
F +64 9 579 7778

CANTERBURY
PO Box 6312
Upper Riccarton
Christchurch 8442
T +64 3 341 1373

SOUTHERN LAKES
PO Box 169
Wanaka 9343
T +64 3 443 5322

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.

Section 3
Truss Details & Bracing Details

- **Manufacturers bracing instruction and construction documentation**
- **Design IT Calcs**
- **Hyspan etc.**

-- AS BUILT TRUSS LAYOUT REQUIRED --
This must be received by the Building Unit AT LEAST 10 WORKING DAYS PRIOR to the Structure Pre-Roof Pre-Wrap inspection.

Truss "As-Build" designs shall be sent to buildinginfo@wmk.govt.nz

MiTek New Zealand Limited

BC221264

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

-- AS BUILT TRUSS LAYOUT REQUIRED --
This must be received by the Building Unit AT LEAST 10 WORKING DAYS PRIOR to the Structure Pre-Roof Pre-Wrap inspection.
Truss "As-Build" designs shall be sent to buildinginfo@wmk.govt.nz

ISSUED BY: **MiTek New Zealand Limited**

TO: **Placemakers National Estimating Unit (NEU)**

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 **219497** 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, 20 January 2022**

In Ling Ng, BE (Hons), CPEng, IntPE, MIPENZ (ID: 146585)
TECHNICAL SERVICES MANAGER, MiTek New Zealand Limited

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

Job: 219497
Client: Stonewood Homes
Phone:
Site: Lot 753
Ravenswood Estate
Woodend
Waimakariri

CONSENT ISSUED BC221264 - Page 129 of 359

Description:
Building Consent No.: BC221264
Phone:

MITEK FABRICATOR DESIGN STATEMENT

This statement is issued by MiTek accredited fabricator **Placemakers National Estimating Unit (NEU)**, 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

Importance Level : 2

Design Working Life : 50 years

Roof Truss

Timber Group:	NEU-H1.2	Pitch:	25.000 deg	Nominal Overhang:	600 mm
Roof		**Ceiling**		**Wind**	
Material:	Metal Tiles	Material:	Rondo screwed to BC	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:	400 mm centres	Restraints:	600 mm centres	**Snow**	
Live Load:	Qur = 0.250 kPa Qc = 1.100 kN	Live Load:	Qc = 1.400 kN	Location:	Christchurch (N4) at 100 m
				Open Ground Load:	0.900 kPa
				Basic Roof Load:	0.441 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)
ET01	1D	3180	25.000	900	T06	3	3180	25.000	900	T07A	1	7370	25.000	900
*HB01	2	7633	18.249	900	T07	3	7370	25.000	900	GT01	1	5780	25.000	900
*HB02	1	2483	18.249	900	V01	1	1014	25.000	900	J02	1	2997	25.000	900
*HB03	1	4882	18.249	900	V02	1	1914	25.000	900	J03	1	2762	25.000	900
*HB04	2	6028	18.249	900	V03	1	1875	25.000	900	J02A	1	2997	25.000	900
J01	2	2097	25.000	900	V04	1	1324	25.000	900	J02B	1	2997	25.000	900
J04	1	1862	25.000	900	V05	1	705	25.000	900	J02C	1	2997	25.000	900
*R01	2	1810	25.000	900	J01A	1	2097	25.000	900	J02D	1	2997	25.000	900
*R02	4	913	25.000	900	J01B	1	2097	25.000	900	J02E	1	2997	25.000	900
*R03	1	633	25.000	900	J01C	1	2097	25.000	900	J03A	1	2762	25.000	900
*R04	1	855	25.000	900	J01D	1	2097	25.000	900	J03B	1	2762	25.000	900
*R05	2	901	24.999	900	J01E	2	2097	25.000	900	J03C	1	2762	25.000	900
*R06	1	1575	25.000	900	J04A	1	1862	25.000	900	J03D	1	2762	25.000	900
T01	1	5348	25.000	900	J04B	1	1862	25.000	900	TG01	1	6910	25.000	900
T02	1	5780	25.000	900	J04C	1	1862	25.000	900	TG02	1	9640	25.000	900
T03	1	5780	25.000	900	*R02A	4	913	25.000	900	TG03	1	7370	25.000	900
T04	4	6248	25.000	900	*R06A	1	1575	25.000	900					
T05	1	3180	25.000	900	T03A	1	5780	25.000	900					

Total quantity : 71

-- AS BUILT TRUSS LAYOUT REQUIRED --
This must be received by the Building Unit
AT LEAST 10 WORKING DAYS PRIOR to
the Structure Pre-Roof Pre-Wrap inspection.

Truss "As-Build" designs shall be sent to
buildinginfo@wmk.govt.nz

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

The computer design input has been carried out by:

Signed: .....

Date: ...Thursday, 20 January 2022....

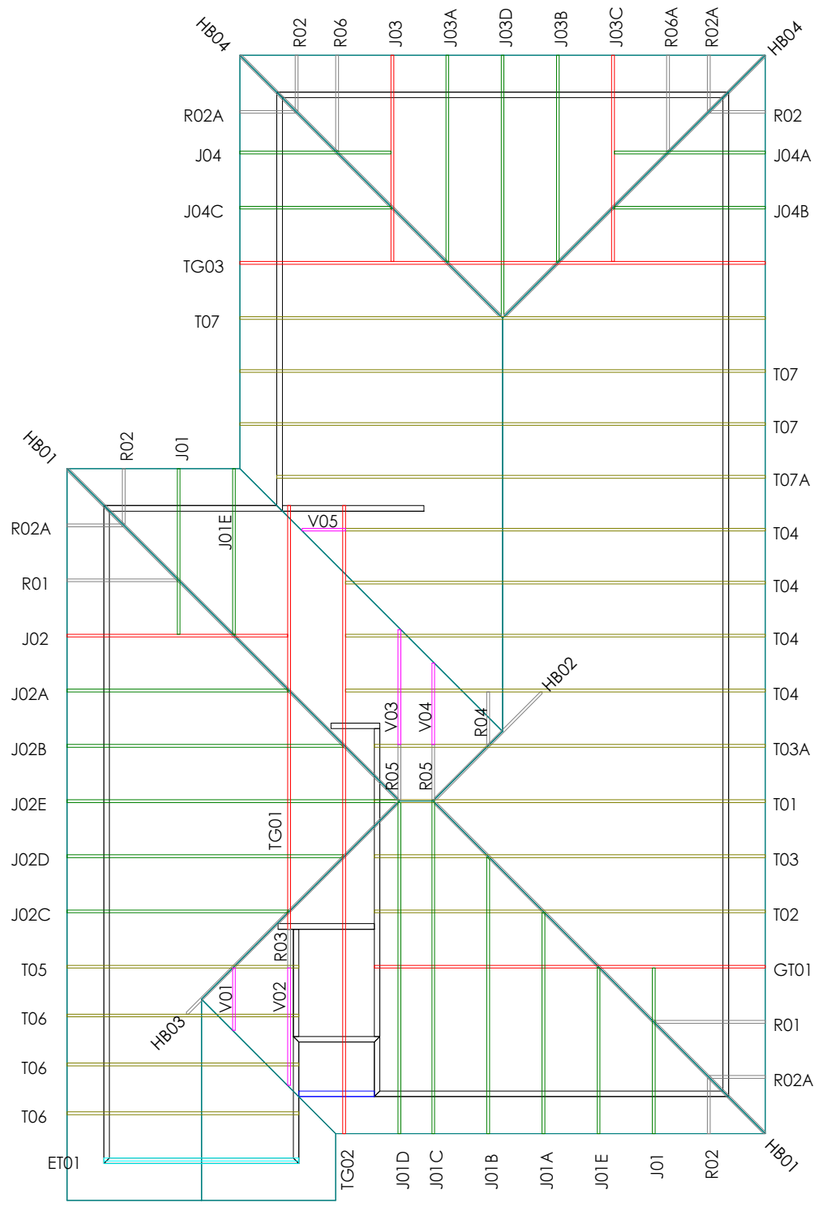
Name of Detailer: Alistair Sparke.....

Qualifications and Title: Estimator

On behalf of: Placemakers National Estimating Unit (NEU)

BC221264

Layout is null and void if trusses not supplied by PlaceMakers



WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance
with the Building Act 2004, clause 49 and the Building
Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

-- AS BUILT TRUSS LAYOUT REQUIRED --
This must be received by the Building Unit
AT LEAST 10 WORKING DAYS PRIOR to
the Structure Pre-Roof Pre-Wrap inspection.

PrimeCad v4.7.346

PlaceMakers® Know how. Can do.

Site Address :
Lot 755
Ravenswood Estate
Woodend
Waimakariri

Sheet Title :
For Building Consent
Buildable Truss Layout

Date : 20 Jan,2022 | Drawn : Alistair Sparke
Scale : 1: 100 | System : MiTek 20/20

Job Details:

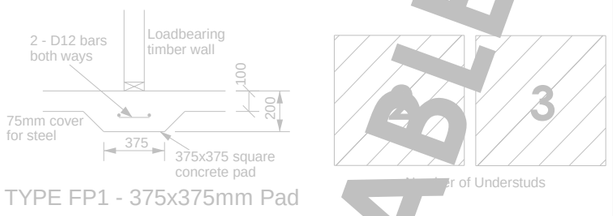
Roof Pitch	: 25.000 Deg		Truss Centres	: 900	mm
Roof Material	: Metal Tiles		Roof Live Load	: 0.250	kPa
Ceiling Material	: Rondo screwed to BC		Floor Live Load	:	kPa
Wind Zone	: High		Wind Speed	: 44.0	m/s
Roof Snow Load	: 0.441 kPa				

MiTek™

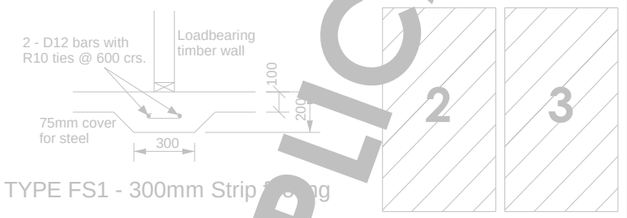
Job Title : 219497
Sheet : 1
Revision Number :

Layout is null and void if trusses not supplied by PlaceMakers

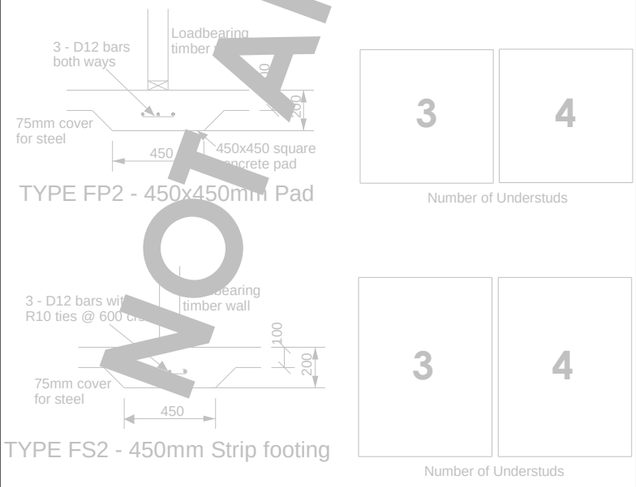
Slab Thickening Details



TYPE FP1 - 375x375mm Pad



TYPE FS1 - 300mm Strip footing



TYPE FP2 - 450x450mm Pad

TYPE FS2 - 450mm Strip footing

NOT APPLICABLE

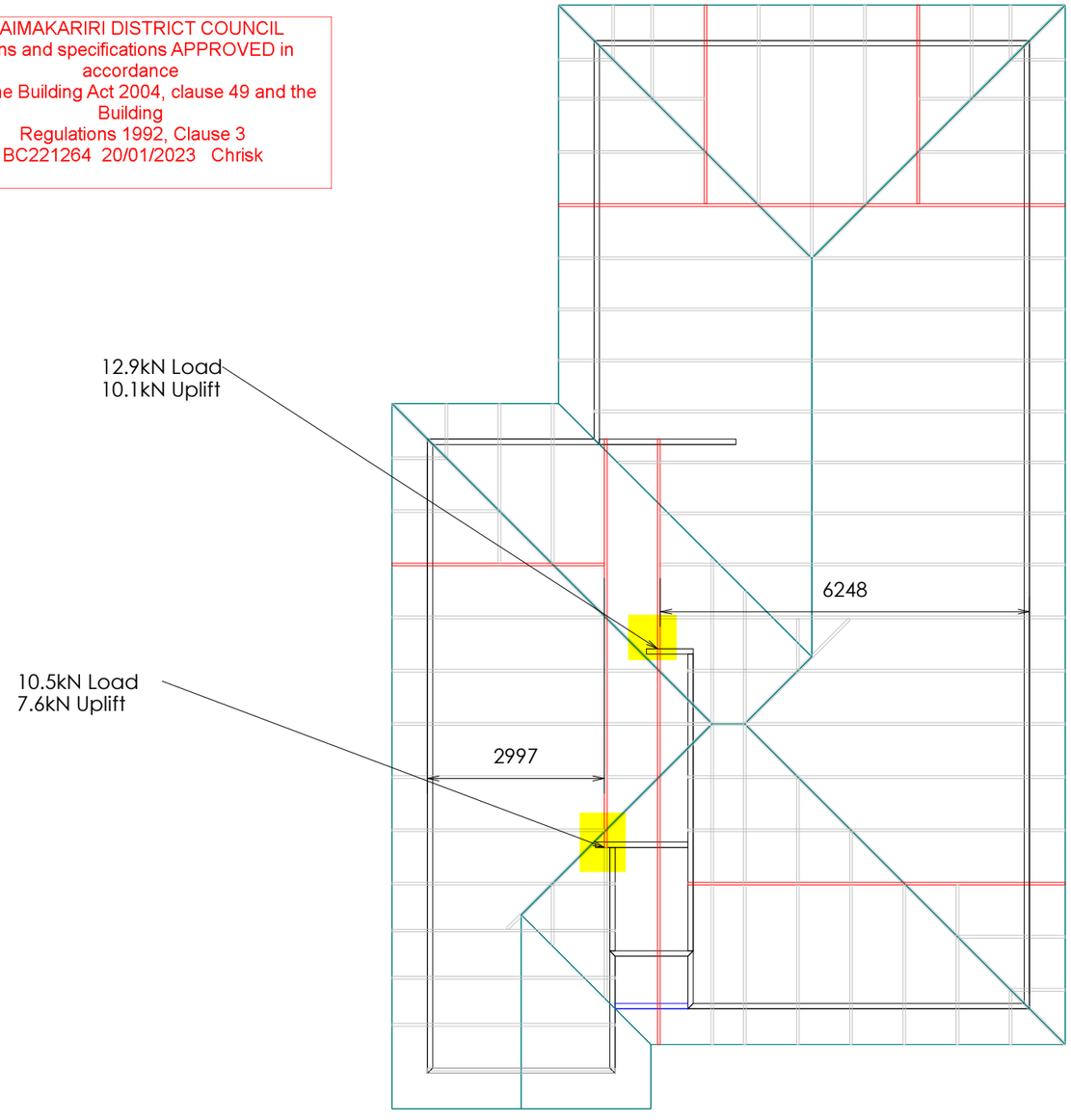
NOTES:

All point loads exceeding 8.0kN are indicated.

All walls shown to be considered load bearing.

Refer to Rib-raft floor design for slab thickening.

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance
with the Building Act 2004, clause 49 and the Building
Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk



-- AS BUILT TRUSS LAYOUT REQUIRED --
This must be received by the Building Unit
AT LEAST 10 WORKING DAYS PRIOR to
the Structure Pre-Roof Pre-Wrap inspection.

PrimeCad v4.7.346

PlaceMakers® Know how. Can do.

Site Address :
Lot 755
Ravenswood Estate
Woodend
Waimakariri

Sheet Title :
For Building Consent
Slab Thickening

Date : 20 Jan,2022 | Drawn : Alistair Sparke
Scale : 1: 100 | System : MiTek 20/20

Job Details:

Roof Pitch	: 25.000 Deg	Truss Centres	: 900 mm
Roof Material	: Metal Tiles	Roof Live Load	: 0.250kPa
Ceiling Material	: Rondo screwed to BC	Floor Live Load	: kPa
Wind Zone	: High	Wind Speed	: 44.0 m/s
Roof Snow Load	: 0.441 kPa		

MiTek™

Job Title : 219497
Sheet : 2
Revision Number :

BC221264

Lintel Fixing Details

TYPE E
1.4kN

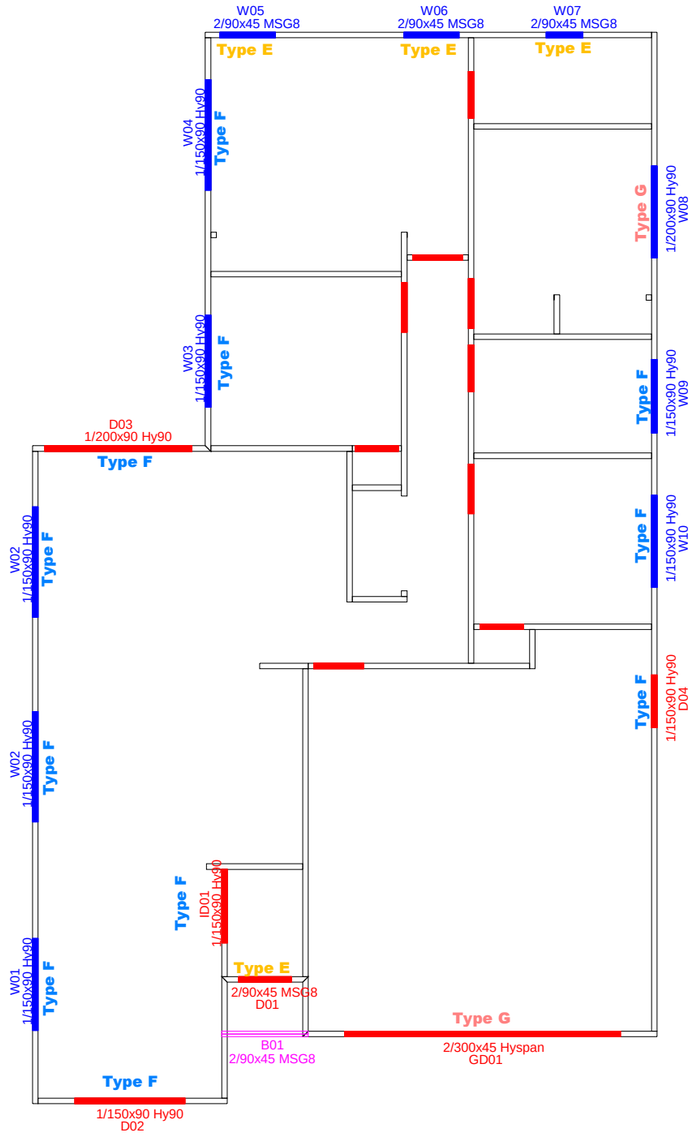
TYPE F
4.0kN

TYPE G
7.5kN

TYPE H
13.5kN

Layout is null and void if trusses not supplied by PlaceMakers

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance
with the Building Act 2004, clause 49 and the Building
Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk



-- AS BUILT TRUSS LAYOUT REQUIRED --
This must be received by the Building Unit
AT LEAST 10 WORKING DAYS PRIOR to
the Structure Pre-Roof Pre-Wrap inspection.

NOTES:

Refer to:
Lintel Fixing Schedule 01/2018
pages 73 & 74, Structrual Fixings
On-site Guide for Buildng Code
Compliance 2018 Edition

(Alternative to NZS 3604:2011
Table 8.14 & Figure 8.12)

PlaceMakers® Know how. Can do.

Site Address :
Lot 755
Ravenswood Estate
Woodend
Waimakariri

Sheet Title :
For Building Consent
Lintel Fixing

Date : 20 Jan,2022 | Drawn : Alistair Sparke
Scale : 1: 100 | System : MiTek 20/20

Job Details:

Roof Pitch	: 25.000 Deg		Truss Centres	: 900	mm
Roof Material	: Metal Tiles		Roof Live Load	: 0.250	kPa
Ceiling Material	: Rondo screwed to BC		Floor Live Load	:	kPa
Wind Zone	: High		Wind Speed	: 44.0	m/s
Roof Snow Load	: 0.441 kPa				

PrimeCad v4.7.346

MiTek™

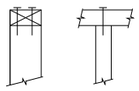
Job Title : 219497
Sheet : 3
Revision Number :

Stud to top plate fixing details

Type A is minimum fixing required unless specified otherwise

FIXING TYPE A
0.7kN

2/90x3.33 plain steel wire nails driven vertically into stud.

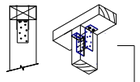


FIXING TYPE B
4.7kN

2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.

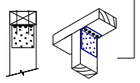
AND

Plus 2x LUMBERLOK CPC40



OR

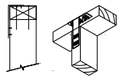
Plus LUMBERLOK 6 kN Stud Anchor (CPC80)



Recommended for internal wall options to avoid lining issues.

OR

Plus LUMBERLOK Stud Strap (One face only)



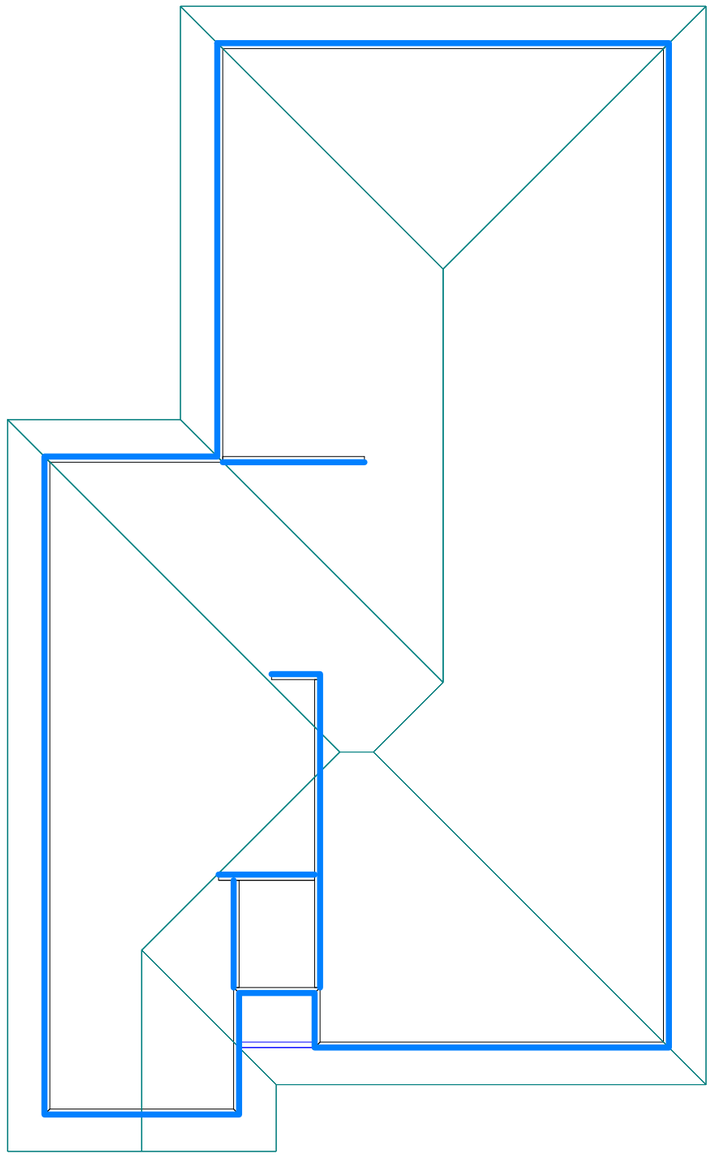
NOTES:

Refer to:
LUMBERLOK Wall Fixing Chart - Stud to Top Plate Fixing Schedule 09/2011

(Alternative to NZS3604:2011 Table 8.18)

Layout is null and void if trusses not supplied by PlaceMakers

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance
with the Building Act 2004, clause 49 and the Building
Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk



-- AS BUILT TRUSS LAYOUT REQUIRED --
This must be received by the Building Unit
AT LEAST 10 WORKING DAYS PRIOR to
the Structure Pre-Roof Pre-Wrap inspection.

PrimeCad v4.7.346

PlaceMakers® Know how. Can do.

Site Address :
Lot 755
Ravenswood Estate
Woodend
Waimakariri

Sheet Title :
For Building Consent
Stud To Top Plate Fixing

Date : 20 Jan,2022 | Drawn : Alistair Sparke
Scale : 1: 100 | System : MiTek 20/20

Job Details:

Roof Pitch	: 25.000 Deg	Truss Centres	: 900	mm
Roof Material	: Metal Tiles	Roof Live Load	: 0.250	kPa
Ceiling Material	: Rondo screwed to BC	Floor Live Load	:	kPa
Wind Zone	: High	Wind Speed	: 44.0	m/s
Roof Snow Load	: 0.441 kPa			

MiTek™

Job Title : 219497
Sheet : 4
Revision Number :

Layout is null and void if trusses not supplied by PlaceMakers

Truss Fixings

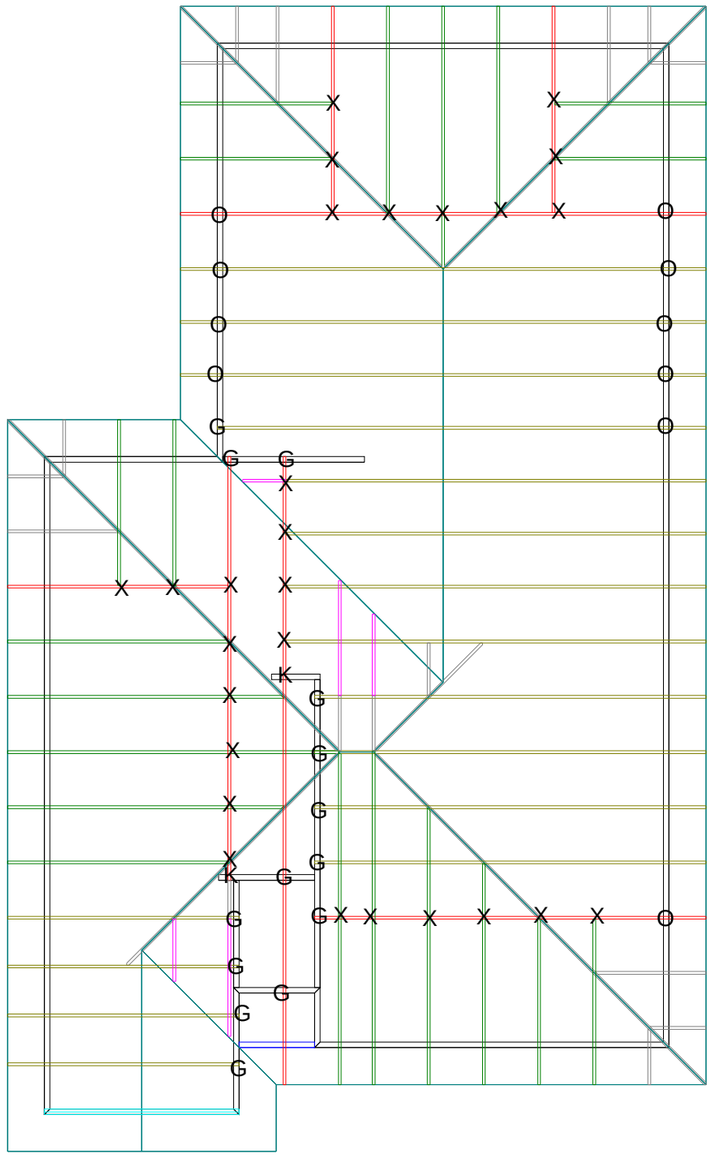
- X - LUMBERLOK JH47x90 Joist Hanger
- Z - LUMBERLOK JH47x120 Joist Hanger
- P - LUMBERLOK JH47x190 Joist Hanger
- E - LUMBERLOK JH95x165 Joist Hanger
- O - Pair of LUMBERLOK CT200 Ceiling Ties
- H - LUMBERLOK CT400 Cyclone Tie
- B - LUMBERLOK CT600 Cyclone Tie
- M - Pair of LUMBERLOK Multi Grips
- NP - LUMBERLOK Nailon Plate
- N - LUMBERLOK N21 Diagonal 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

NOTES:

All other areas must have at the minimum
2/ 90x3.15mm skew nails + 2 wire dogs (4.7kN)
for truss to top plate connections.

Refer to:
LUMBERLOK Timber Connectors Characteristic Loadings Data brochure 03/4

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance
with the Building Act 2004, clause 49 and the Building
Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk



-- AS BUILT TRUSS LAYOUT REQUIRED --
This must be received by the Building Unit
AT LEAST 10 WORKING DAYS PRIOR to
the Structure Pre-Roof Pre-Wrap inspection.

PlaceMakers® Know how. Can do.

Site Address :
Lot 755
Ravenswood Estate
Woodend
Waimakariri

Sheet Title :
For Building Consent
Truss Fixings

Date : 20 Jan,2022 | Drawn : Alistair Sparke
Scale : 1: 100 | System : MiTek 20/20

Job Details:
Roof Pitch : 25.000 Deg
Roof Material : Metal Tiles
Ceiling Material : Rondo screwed to BC
Wind Zone : High
Roof Snow Load : 0.441 kPa

Truss Centres : 900 mm
Roof Live Load : 0.250 kPa
Floor Live Load : kPa
Wind Speed : 44.0 m/s

PrimeCad v4.7.346

MiTek™

Job Title : 219497
Sheet : 5
Revision Number :

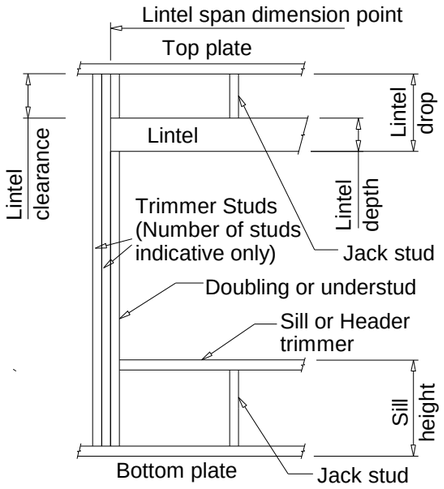
LUMBERLOK®

LINTEL FIXING SCHEDULE
ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12
NZS 3604:2011

NOTE:

- ★ All fixings are designed for vertical loads only. Dead loads include the roof weight and standard ceiling weight of 0.20 kPa.
- ★ 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

DEFINITIONS



Lintel Supporting Girder Trusses:

Roof Tributary Area	Light Roof Wind Zone			Heavy Roof Wind Zone		
	L, M, H	VH	EH	L, M, H	VH	EH
8.6 m²	G	G	H	G	G	H
11.6 m²	G	H	H	G	G	H
12.1 m²	G	H	H	G	H	H
15.3 m²	H	H	-	G	H	H
19.1 m²	H	-	-	G	H	-
20.9 m²	H	-	-	H	H	-
21.8 m²	H	-	-	H	-	-
34.3 m²	-	-	-	H	-	-

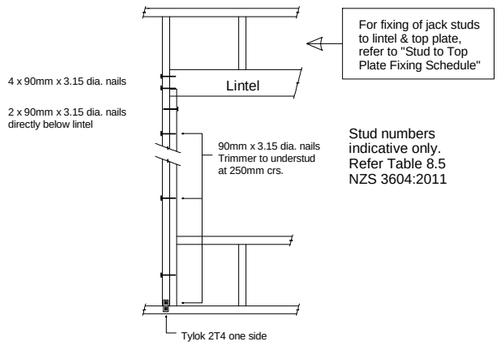
Notes:
1) Roof Tributary Area = approx. 1/2 x (Total roof area on girder and rafter trusses supported by Lintel)
2) Assumed girder truss is at mid-span or middle third span of lintel
3) Use similar fixings for both ends of lintel
4) All other cases require specific engineering design.

SELECTION CHART FOR LINTEL FIXING

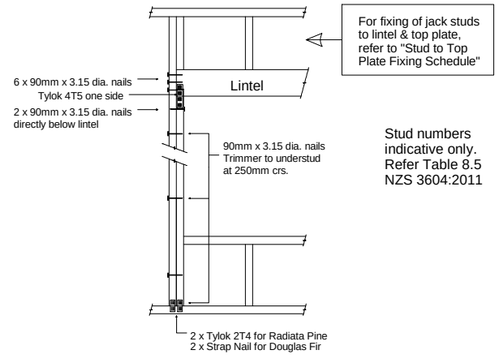
Lintel Span	Loaded Dimension (See Fig. 1.3 NZS 3604:2011)	Light Roof Wind Zone					Heavy Roof Wind Zone				
		L	M	H	VH	EH	L	M	H	VH	EH
1.0	2.0	E	E	E	F	F	E	E	E	E	F
	3.0	E	E	F	F	F	E	E	E	F	F
	4.0	E	F	F	F	G	E	E	F	F	F
	5.0	E	F	F	G	G	E	E	F	F	G
	6.0	E	F	F	G	G	E	E	F	F	G
1.2	2.0	E	E	F	F	F	E	E	E	F	F
	3.0	E	E	F	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	-	-

LINTEL FIXING OPTIONS

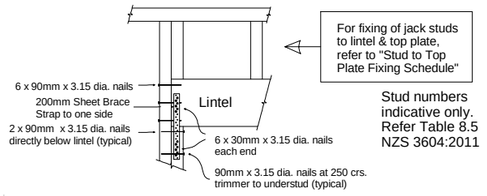
TYPE E 1.4kN

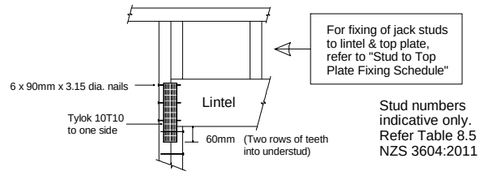


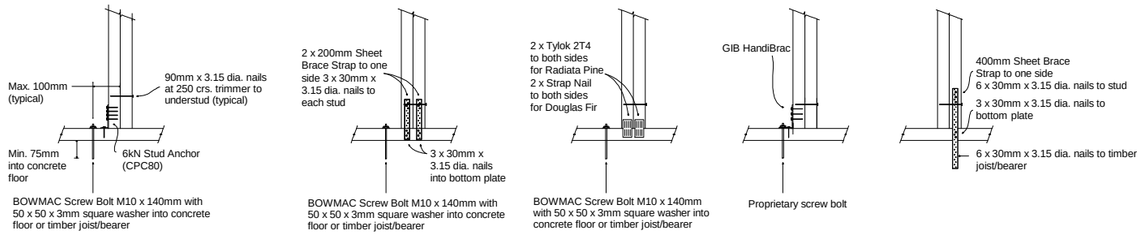
TYPE F 4.0kN



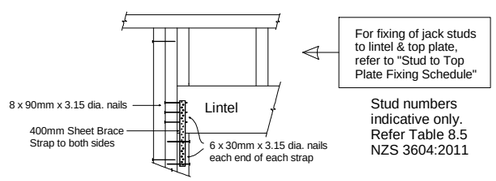
TYPE G 7.5kN

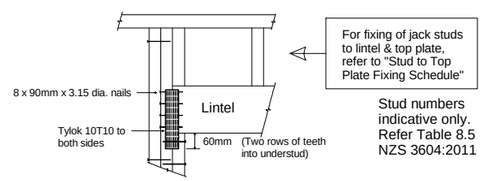


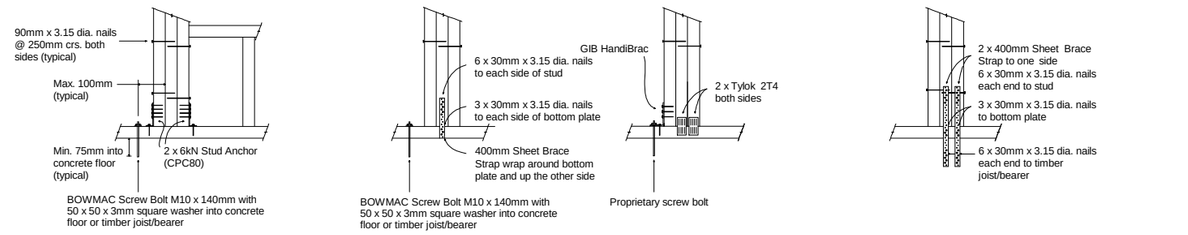




TYPE H 13.5kN







MiTek New Zealand Limited
AUCKLAND
PO Box 58-014, Botany 2163
Phone: 09-274 7109
Fax: 09-274 7100
www.miteknz.co.nz
CHRISTCHURCH
PO Box 8387, Riccarton 8440
Phone: 03-348 8691
Fax: 03-348 0314

GANG-NAIL® LUMBERLOK® BOWMAC®

© Copyright 2010 MiTek Holdings, Inc.
All rights reserved.

CONSENT ISSUED BC221264 - Page 136 of 359

DESIGN CERTIFICATE

Technical basis for structural design methodology contained in designIT for houses - New Zealand.

designIT for houses, New Zealand has been developed by experienced timber engineers to assist designers in selecting appropriate sizes of structural laminated veneer lumber products manufactured by Carter Holt Harvey LVL Limited (including hySPAN, hy90, hyONE and hyJOIST) and other generic stress grades of timber, to be used as structural elements for the construction of buildings that fall within the scope of NZS 3604.

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).

designIT 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 (NZBC), provided the installation is in accordance with the installation requirements provided by designIT and/or in product literature and/or NZS 3604, or specific engineering design, as appropriate.

Futurebuild LVL and SG8 components, when used and treated to the required treatment levels prescribed in NZS 3602 and NZS 3604, as modified by Acceptable Solution B2/AS1, will comply with the requirements of the NZBC (Acceptable Solution B2/AS1, 3.2).

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: 5 October 2021

-- AS BUILT TRUSS LAYOUT REQUIRED --
This must be received by the Building Unit
AT LEAST 10 WORKING DAYS PRIOR to
the Structure Pre-Roof Pre-Wrap inspection.

Truss "As-Build" designs shall be sent to
buildinginfo@wmk.govt.nz

For further information or advice contact:
Carter Holt Harvey LVL Limited,
173 Captain Springs Road, Onehunga. Auckland
Telephone: 0800 808 131
Email: designit@futurebuild.co.nz
Web: https://futurebuild.co.nz/

Specifier details:

Specifier:	Alistair Sparke
Business name:	Placemakers NEU
Email:	alistair.sparke@placemakers.co.nz

Project & site details:

Project:	22-00219497
Site address:	Ravenswood Estate
For (owner/s):	Lot 755
Design wind zone	High
Snow loading	Design snow zone: N4, Altitude: 0 m (sub-alpine), Ground snow load, $S_g^{1,2}$ = 0.9 kPa

1. designIT does not include any allowance for the effects of drifting and sliding of snow.
2. Snow loads are applied to roofed over structures only, the design of exposed floors/decks are not covered by designIT.

MEMBER DESIGN DETAILS

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

Member 1

1) Member code and description	D01 - Lintels - In single or upper storey load bearing walls
2) Date prepared	20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	0.9 m
Roof load width 'RLW'	1.6 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 2/90 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m²

6) Serviceability

Load case	Limit[3] on average deflection[2]	Estimated average deflection[2]	Rigidity ratio[4]
Long term load - G + Ψ_{LQ}*	3.0 mm	0.5 mm (long term)	5.7
Live load - Ψ_sQ	3.6 mm	0.2 mm	22.4
Wind load - W_s	4.5 mm	0.5 mm	9.3
Snow load - S_s	3.0 mm	0.3 mm	8.7

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-0.9
1.2G + 1.5Q	0.80	-1.4
1.2G + S_u + Ψ_cQ	0.80	-1.9
1.2G + W_u + Ψ_cQ	1.00	-2.0
0.9G + W_u	1.00	1.3

8) Installation requirements

- Provide at least 30 mm bearing at end supports
- Vertical lamination required - refer AS 1684

Member 2

1) Member code and description D02 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.8 m
Roof load width 'RLW'	0.9 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 150 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 + Ψ_{LQ}*	6.0 mm	0.5 mm (long term)	11.9
Live load - Ψ_sQ	7.2 mm	0.1 mm	55.1
Wind load - W_s	9.0 mm	0.4 mm	22.8
Snow load - S_s	6.0 mm	0.3 mm	20.8

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-0.7
1.2G + 1.5Q	0.80	-1.1
1.2G + S_u + Ψ_cQ	0.80	-1.5
1.2G + W_u + Ψ_cQ	1.00	-1.5
0.9G + W_u	1.00	0.9

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 3

1) Member code and description W01 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.5 m
Roof load width 'RLW'	2.4 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 150 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 + Ψ_{LQ}*	5.0 mm	0.7 mm (long term)	7.3
Live load - Ψ_sQ	6.0 mm	0.2 mm	29.8

Wind load - W_S	7.5 mm	0.6 mm	12.3
Snow load - S_S	5.0 mm	0.4 mm	11.8

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-1.5
1.2G + 1.5Q	0.80	-2.3
1.2G + S_u + Ψ_cQ	0.80	-3.0
1.2G + W_u + Ψ_cQ	1.00	-3.2
0.9G + W_u	1.00	2.0

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 4

1) Member code and description W02 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.8 m
Roof load width 'RLW'	2.3 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 150 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 + Ψ_LQ*	6.0 mm	1.2 mm (long term)	5.2
Live load - Ψ_SQ	7.2 mm	0.3 mm	21.6
Wind load - W_S	9.0 mm	1.0 mm	8.9
Snow load - S_S	6.0 mm	0.7 mm	8.5

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-1.7
1.2G + 1.5Q	0.80	-2.6

1.2G + S_u + Ψ_cQ	0.80	-3.5
1.2G + W_u + Ψ_cQ	1.00	-3.7
0.9G + W_u	1.00	2.3

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 5

1) Member code and description D03 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	2.4 m
Roof load width 'RLW'	1.8 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , Ce=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 200 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 + Ψ_LQ*	8.0 mm	1.0 mm (long term)	7.8
Live load - Ψ_sQ	9.6 mm	0.3 mm	35.4
Wind load - W_s	12.0 mm	0.8 mm	14.7
Snow load - S_s	8.0 mm	0.6 mm	13.9

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-1.6
1.2G + 1.5Q	0.80	-2.5
1.2G + S_u + Ψ_cQ	0.80	-3.3
1.2G + W_u + Ψ_cQ	1.00	-3.4
0.9G + W_u	1.00	2.1

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 6

1) Member code and description W03 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.5 m
Roof load width 'RLW'	4.7 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , Ce=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 150 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 + $\Psi_L Q^*$	5.0 mm	1.3 mm (long term)	3.8
Live load - $\Psi_s Q$	6.0 mm	0.4 mm	15.2
Wind load - W_s	7.5 mm	1.2 mm	6.3
Snow load - S_s	5.0 mm	0.8 mm	6.1

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-2.8
1.2G + 1.5Q	0.80	-4.4
1.2G + S_u + $\Psi_c Q$	0.80	-5.8
1.2G + W_u + $\Psi_c Q$	1.00	-6.2
0.9G + W_u	1.00	4.0

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 7

1) Member code and description W04 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.8 m
Roof load width 'RLW'	1.7 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm

Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 150 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 + Ψ_{LQ}*	6.0 mm	0.9 mm (long term)	6.8
Live load - Ψ_sQ	7.2 mm	0.2 mm	29.2
Wind load - W_s	9.0 mm	0.7 mm	12.1
Snow load - S_s	6.0 mm	0.5 mm	11.4

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

		Limit States Design Reaction[2,3]
Load case	k_1[1]	End kN[4]
1.35G	0.60	-1.3
1.2G + 1.5Q	0.80	-2.0
1.2G + S_u + Ψ_cQ	0.80	-2.6
1.2G + W_u + Ψ_cQ	1.00	-2.8
0.9G + W_u	1.00	1.7

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 8

1) Member code and description	W05 - Lintels - In single or upper storey load bearing walls
2) Date prepared	20 January 2022
3) Serviceability criteria	AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	0.9 m
Roof load width 'RLW'	1.2 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 2/90 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m²

6) Serviceability

Load case	Limit[3] on average deflection[2]	Estimated average deflection[2]	Rigidity ratio[4]

Long term load - G + Ψ_{LQ}*	3.0 mm	0.4 mm (long term)	7.5
Live load - Ψ_sQ	3.6 mm	0.1 mm	29.9
Wind load - W_s	4.5 mm	0.4 mm	12.4
Snow load - S_s	3.0 mm	0.3 mm	11.5

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-0.7
1.2G + 1.5Q	0.80	-1.1
1.2G + S_u + Ψ_cQ	0.80	-1.4
1.2G + W_u + Ψ_cQ	1.00	-1.5
0.9G + W_u	1.00	1.0

8) Installation requirements

- Provide at least 30 mm bearing at end supports
- Vertical lamination required - refer AS 1684

Member 9

1) Member code and description W06 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	0.9 m
Roof load width 'RLW'	2.2 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , Ce=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 2/90 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m²

6) Serviceability

Load case	Limit[3] on average deflection[2]	Estimated average deflection[2]	Rigidity ratio[4]
Long term load - G + Ψ_{LQ}*	3.0 mm	0.7 mm (long term)	4.2
Live load - Ψ_sQ	3.6 mm	0.2 mm	16.3
Wind load - W_s	4.5 mm	0.7 mm	6.8
Snow load - S_s	3.0 mm	0.5 mm	6.4

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-1.2
1.2G + 1.5Q	0.80	-1.9
1.2G + S_u + Ψ_cQ	0.80	-2.6
1.2G + W_u + Ψ_cQ	1.00	-2.7
0.9G + W_u	1.00	1.8

8) Installation requirements

- Provide at least 30 mm bearing at end supports
- Vertical lamination required - refer AS 1684

Member 10

1) Member code and description W07 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	0.6 m
Roof load width 'RLW'	2.2 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , Ce=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 2/90 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m²

6) Serviceability

Load case	Limit[3] on average deflection[2]	Estimated average deflection[2]	Rigidity ratio[4]
Long term load - G + Ψ_LQ*	2.0 mm	0.2 mm (long term)	9.4
Live load - Ψ_sQ	2.4 mm	0.1 mm	36.7
Wind load - W_s	3.0 mm	0.2 mm	15.2
Snow load - S_s	2.0 mm	0.1 mm	14.5

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

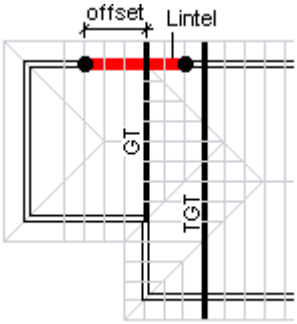
Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-1.1
1.2G + 1.5Q	0.80	-1.8
1.2G + S_u + Ψ_cQ	0.80	-2.3
1.2G + W_u + Ψ_cQ	1.00	-2.5
0.9G + W_u	1.00	1.6

8) Installation requirements

- Provide at least 30 mm bearing at end supports
- Vertical lamination required - refer AS 1684

Member 11

1) Member code and description W08 - Lintels - Supporting girder truss / truncated girder truss



2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Roof type	Light roof and ceiling - 40 kg/m²
Roof pitch	25.0 º
Truss spacing	900 mm
Eaves overhang	600 mm
TGT setback	2762 mm
GT span	7370 mm
GT offset	918 mm
Lintel span	1500 mm
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 200 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 + $\Psi_L Q^*$	5.0 mm	0.8 mm (long term)	6.6
Live load - $\Psi_s Q$	6.0 mm	0.2 mm	26.1
Wind load - W_s	7.5 mm	0.7 mm	10.8
Snow load - S_s	5.0 mm	0.5 mm	10.5

*Critical serviceability load case
See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

	Limit States Design Reaction[2,3]

Load case	k_1[1]	End kN[4]
1.35G	0.60	-4.0
1.2G + 1.5Q	0.80	-6.2
1.2G + S_u + Ψ_cQ	0.80	-8.1
1.2G + W_u + Ψ_cQ	1.00	-8.8
0.9G + W_u	1.00	5.7

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 12

1) Member code and description W09 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.2 m
Roof load width 'RLW'	4.7 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 150 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 + Ψ_LQ*	4.0 mm	0.7 mm (long term)	6.0
Live load - Ψ_sQ	4.8 mm	0.2 mm	23.7
Wind load - W_s	6.0 mm	0.6 mm	9.8
Snow load - S_s	4.0 mm	0.4 mm	9.5

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

		Limit States Design Reaction[2,3]
Load case	k_1[1]	End kN[4]
1.35G	0.60	-2.5
1.2G + 1.5Q	0.80	-4.0
1.2G + S_u + Ψ_cQ	0.80	-5.2
1.2G + W_u + Ψ_cQ	1.00	-5.6
0.9G + W_u	1.00	3.6

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 13

1) Member code and description W10 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.5 m
Roof load width 'RLW'	4.1 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 150 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 + Ψ_LQ*	5.0 mm	1.1 mm (long term)	4.4
Live load - Ψ_sQ	6.0 mm	0.3 mm	17.4
Wind load - W_s	7.5 mm	1.0 mm	7.2
Snow load - S_s	5.0 mm	0.7 mm	7.0

*Critical serviceability load case
See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-2.5
1.2G + 1.5Q	0.80	-3.9
1.2G + S_u + Ψ_cQ	0.80	-5.1
1.2G + W_u + Ψ_cQ	1.00	-5.4
0.9G + W_u	1.00	3.5

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 14

1) Member code and description D04 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	0.9 m
Roof load width 'RLW'	3.9 m

Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 150 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 + $\Psi_L Q$*	3.0 mm	0.2 mm (long term)	12.9
Live load - $\Psi_s Q$	3.6 mm	0.1 mm	50.9
Wind load - W_s	4.5 mm	0.2 mm	21.1
Snow load - S_s	3.0 mm	0.1 mm	20.3

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-1.9
1.2G + 1.5Q	0.80	-3.0
1.2G + S_u + $\Psi_c Q$	0.80	-4.0
1.2G + W_u + $\Psi_c Q$	1.00	-4.3
0.9G + W_u	1.00	2.8

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 15

1) Member code and description	GD01 - Lintels - In single or upper storey load bearing walls
2) Date prepared	20 January 2022
3) Serviceability criteria	AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	4.5 m
Roof load width 'RLW'	1.8 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 2/300 x 45 hySPAN
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 + $\Psi_L Q^*$	10.0 mm	3.5 mm (long term)	2.9
Live load - $\Psi_s Q$	15.0 mm	0.9 mm	17.1
Wind load - W_s	22.5 mm	2.6 mm	8.5
Snow load - S_s	10.0 mm	1.9 mm	5.4

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-2.8
1.2G + 1.5Q	0.80	-4.1
1.2G + S_u + $\Psi_c Q$	0.80	-5.4
1.2G + W_u + $\Psi_c Q$	1.00	-5.7
0.9G + W_u	1.00	3.1

8) Installation requirements

- Provide at least 30 mm bearing at end supports
- Vertical lamination in accordance with Detail H1.

Member 16

1) Member code and description ID01 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.2 m
Roof load width 'RLW'	1.8 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 150 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 + $\Psi_L Q^*$	4.0 mm	0.3 mm (long term)	15.1
Live load - $\Psi_s Q$	4.8 mm	0.1 mm	62.0
Wind load - W_s	6.0 mm	0.2 mm	25.7
Snow load - S_s	4.0 mm	0.2 mm	24.3

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-1.0
1.2G + 1.5Q	0.80	-1.6
1.2G + S_u + Ψ_cQ	0.80	-2.1
1.2G + W_u + Ψ_cQ	1.00	-2.2
0.9G + W_u	1.00	1.4

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 17

1) Member code and description B01 - Lintels - In single or upper storey load bearing walls

2) Date prepared 20 January 2022

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.2 m
Roof load width 'RLW'	1.2 m
Roof type and mass	Light roof and ceiling - 40 kg/m²
Nominal wall thickness	90 mm
Roof snow load	0.6 kPa, snow overhang 0.1 kN/m (μ_i=0.7 , C_e=1.0, k=0.5)

5) Member specification

Size, stress grade/product	Use 2/90 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m²

6) Serviceability

Load case	Limit[3] on average deflection[2]	Estimated average deflection[2]	Rigidity ratio[4]
Long term load - G + Ψ_LQ*	4.0 mm	1.0 mm (long term)	4.2
Live load - Ψ_sQ	4.8 mm	0.3 mm	16.8
Wind load - W_s	6.0 mm	0.9 mm	7.0
Snow load - S_s	4.0 mm	0.6 mm	6.5

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1[1]	Limit States Design Reaction[2,3] End kN[4]
1.35G	0.60	-0.7
1.2G + 1.5Q	0.80	-1.1
1.2G + S_u + Ψ_cQ	0.80	-1.5
1.2G + W_u + Ψ_cQ	1.00	-1.6
0.9G + W_u	1.00	1.0

8) Installation requirements

- Provide at least 30 mm bearing at end supports
- Vertical lamination required - refer AS 1684

Notes for interpretation of serviceability data

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.

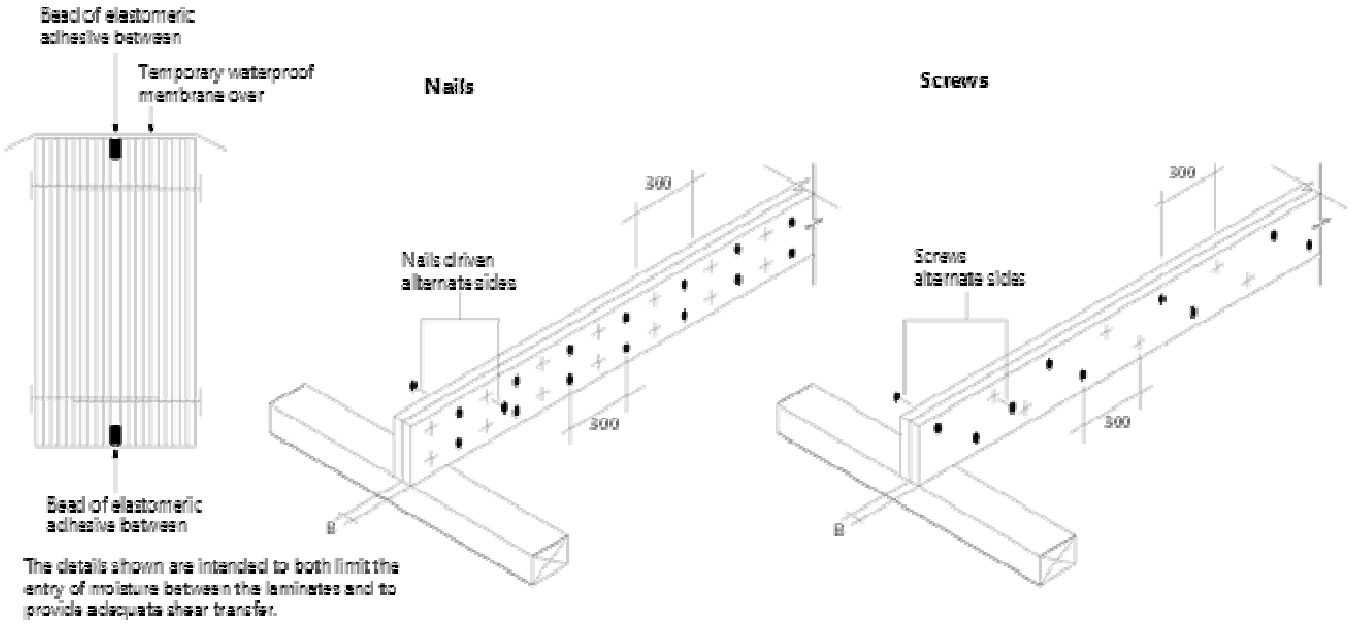
4. 'Rigidity ratio' expresses the rigidity of the specified beam relative to the rigidity of a notional beam just meeting the serviceability requirements detailed.

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

---

Detail H1: Vertical Lamination - Two Pieces



The details shown are intended to both limit the entry of moisture between the laminates and to provide adequate shear transfer.

Section Size 'B'	Minimum Nail Diameter	Minimum Nail Length	Minimum Screw Guage	Minimum Screw Length
35	3.06 mm	75 mm	-	-
45	3.30 mm	90 mm	14 g	75 mm
63	3.30 mm	100 mm	14 g	100 mm
90	-	-	14 g	150 mm

BC221264

designIT® HOUSES

CarterHoltHarvey LVL

Date printed: 20 January 2022

Producer Statement - PS1 - Design

Issued by:	Carter Holt Harvey LVL Limited
To:	Lot 755
To be supplied to:	Stonewood Homes
Site address:	Ravenswood Estate
In respect of	Member structural design using designIT for houses – Series 6.5

This Producer Statement covers the structural design of Futurebuild Laminated Veneer Lumber (LVL) and Structural Grade timber SG8 members determined using designIT® for houses in respect of the requirements of Clauses B1 and B2 of the Building Code for the proposed work identified in the Design Certificate and drawings. designIT® for houses is provided to designers, architects and engineers to assist in the specification of our Engineered and sawn timber products, to be used as structural elements for the construction of buildings that fall within the scope of NZS 3604:2011, Timber-framed buildings (NZS 3604). In conjunction with a site specific Design Certificate, this Producer Statement may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code (NZBC).

designIT® for houses software has been prepared in accordance with soundly based and widely recognised structural engineering principles. The design methodology used for the software complies with the loading and general design requirements contained within AS/NZS 1170 series and with timber structural design in accordance with NZS 3603:1993, Timber Structures Standard (NZS 3603), including Amendment 4 (Verification method B1/VM1, 6.1). This design methodology uses the most up to date information available from joint Australian/New Zealand standards to determine specified performance levels.

Futurebuild LVL and SG8 members, when used and treated to the required treatment levels prescribed in NZS 3602, Timber and Wood-based Products for Use in Building (NZS 3602), and NZS 3604, will form part of an Acceptable Solution and comply with the requirements of the NZBC (Acceptable Solution B2/AS1, 3.2).

On behalf of Carter Holt Harvey LVL Limited, and subject to:

i. All proprietary products meeting their performance specification requirements;

ii. The designer having knowledge of common building practice and terminology applied in NZS3604 and using designIT® for houses in accordance with the terms of the software licence;

iii. Correct and accurate input of span and loading information by the designer;

iv. Adequate overall building stability and robustness; and

v. Products being treated to the requirements of NZS 3602 and/or Acceptable Solution B2/AS1,

I believe on reasonable grounds that, provided installation is in accordance with the installation requirements provided in the Design Certificate and/or relevant product literature, NZS 3604 or specific engineering design, the product and/or product stress grade and size given by designIT® for houses will comply with the requirements of the New Zealand Building Code, specified above.

Carter Holt Harvey LVL Limited holds a current policy of Professional Indemnity Insurance of no less than $ 200,000.

For and on behalf of Carter Holt Harvey LVL Limited, Date: 5 October 2021

Signed by: Cameron Rodger, BE(Hons), MIEAust, CMEngNZ, IntPE, CPEng (Registration Number: 1017839)

Note: The total maximum amount of damages payable arising from this statement, whether in contract, tort or otherwise (including negligence) is limited to the sum of $200,000.

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

GIB EzyBrace® Bracing Software

Demand Calculation Sheet

Job Details

Name:	WENDELBORN PROPERTY LTD
Street and Number:	38 CROSSLEY AVE, RAVENSWOOD
Lot and DP Number:	LOT 755 LT 582033
City/Town/District:	WOODEND
Designer:	MG
Company:	ARCHIPLUS LTD
Date:	Tuesday, 13 September 2022

Building Specification

Number of Storeys	1
Floor Loading	2 kPa
Foundation Type	Slab
	Single
Cladding Weight	Heavy
Roof Weight	Light
Room in Roof Space	No
Roof Pitch (degrees)	25
Roof Height above Eaves (m)	2.79
Building Height to Apex (m)	5.14
Ground to Lower Floor (m)	0.23
Average Stud Height (m)	2.42
Building Length (m)	17.63
Building Width (m)	10.43
Building Plan Area (m²)	156.56

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

Building Location

Wind Zone = High

Earthquake Zone 2

Soil Type D & E (Deep to Very Soft)

Annual Prob. of Exceedance: 1 in 500 (Default)

Bracing Units required for Wind

	Along	Across
Single Level	**572**	**1030**

Bracing Units required for Earthquake

	Along & Across
Single Level	**936**

GIB EzyBrace® Bracing Software

Single Level Along Resistance Sheet

Job Name: WENDELBORN PROPERTY LTD

									Wind	EQ
									Demand	
									572	936
									Achieved	
Line	Element	Length (m)	Angle (degrees)	Stud Ht. (m)	Type	Supplier	Wind (BUs)	EQ (BUs)	1222 214%	1111 119%
A	1	1.10		2.42	GS1-N	GIB®	73	65		
	2	1.80		2.42	GS1-N	GIB®	123	107		
	3	1.20		2.42	GS1-N	GIB®	82	71		
	4	0.90		2.42	GS1-N	GIB®	56	53		
	External Length = 11.35								335 OK	297 OK
B	1	1.80		2.42	GS1-N	GIB®	123	107		
	2	1.80		2.42	GS1-N	GIB®	123	107		
	3	0.60		2.42	GS1-N	GIB®	34	35		
	4	0.60		2.42	GS1-N	GIB®	34	35		
	5	0.60		2.42	GS1-N	GIB®	34	35		
	6	0.60		2.42	GS1-N	GIB®	34	35		
	External Length = 9.61								382 OK	353 OK
C	1	1.80		2.42	GS1-N	GIB®	123	107		
	2	1.20		2.42	GS1-N	GIB®	82	71		
									205 OK	179 OK
D	1	2.40		2.42	GS1-N	GIB®	164	143		
	2	0.60		2.42	GS1-N	GIB®	34	35		
	3	0.60		2.42	GS1-N	GIB®	34	35		
	4	0.60		2.42	GS1-N	GIB®	34	35		
	5	0.60		2.42	GS1-N	GIB®	34	35		
	External Length = 16.62								300 OK	282 OK

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

GIB EzyBrace® Bracing Software

Single Level Across Resistance Sheet

Job Name: WENDELBORN PROPERTY LTD

									Wind	EQ
									Demand	
									1030	936
									Achieved	
Line	Element	Length (m)	Angle (degrees)	Stud Ht. (m)	Type	Supplier	Wind (BUs)	EQ (BUs)	1083 105%	974 104%
M	1	0.50		2.42	BL1-H	GIB®	47	50		
	2	0.50		2.42	BL1-H	GIB®	47	50		
	3	0.50		2.42	BLP-H	GIB®	63	69		
	4	0.50		2.42	BLP-H	GIB®	63	69		
	External Length = 10.43								219 OK	237 OK
N	1	1.00		2.42	BL1-H	GIB®	117	102		
									117 OK	102 OK
O	1	1.80		2.42	GS1-N	GIB®	123	107		
									123 OK	107 OK
P	1	1.80		2.42	GS1-N	GIB®	123	107		
	2	1.80		2.42	GS1-N	GIB®	123	107		
	External Length = 2.92								246 OK	214 OK
Q	1	1.80		2.42	GS1-N	GIB®	123	107		
									123 OK	107 OK
R	1	2.00		2.42	BL1-H	GIB®	254	206		
	External Length = 7.61								254 OK	206 OK

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

CONSENT ISSUED BC221264 - Page 157 of 359

GIB EzyBrace® Systems — August 2016

Winstone Wallboards Ltd accepts no liability if GIB EzyBrace® Systems are not designed and installed in strict accordance with instructions contained in this publication.

USE ONLY THE CURRENT SPECIFICATION

This publication may be superseded by a new publication at any time. Winstone Wallboards accepts no liability for reliance upon publications that have been superseded. Check for the current publication at gib.co.nz/library before using this publication. If you are unsure whether this is the current publication, call the GIB® Helpline on 0800 100 442.

GIB EzyBrace® 2011 software and specification literature remains valid until futher notice.

PATENTS

GIBFix® Framing System and GIB EzyBrace® Systems, including componentry and design method, have patents pending (NZ Patent Number 596691, NZ Patent 709159 pending) and design and other IP rights reserved.

Beware of substitution

The performance of GIB® Systems are very sensitive to design detailing and construction practices. All GIB® Systems have been developed specifically for New Zealand conditions and independently tested or assessed to ensure the required level of performance. It is important to use only GIB® branded 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.

For further information call our GIB® Helpline on 0800 100 442.

GIB EzyBrace® Systems have been designed and tested using only the products specified. When additional GIB® plasterboard properties are required the table below provides acceptable alternative options.

	Acceptable alternative GIB® plasterboards								
Specified GIB® plasterboard	GIB® Standard	GIB Ultraline®	GIB Braceline/ Noiseline®	GIB Aqualine®	GIB Toughline®	GIB Fyreline®			
						10mm	13mm	16mm	19mm
GIB® Standard		OK	OK	OK	OK	Note 1 and 3			
GIB Braceline®	X	X		Note 2	OK	X	Notes 1, 2 and 3		

Note 1 *The fastener type and length must be as required for the relevant FRR system using the perimeter fixing pattern illustrated for the relevant bracing specification.*

Note 2 *The element must be 900mm or longer. Decrease perimeter fastener centres to 100mm. The bracing corner fastening pattern, as illustrated for the relevant specification applies to all four corners of the element. Panel hold-down fixings are required.*

Note 3 *Specify traditional wall framing layout (see figure 1) where a Fire Resistance Rating (FRR) is required.*

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

Scope of use

This document is a guide to wall bracing of light timber frame (LTF) buildings constructed in accordance with NZS3604:2011 Timber Framed Buildings and presents a simple and efficient method for calculating and incorporating bracing resistance. This information draws on recent experiences from seismic activity in New Zealand and seeks to minimise earthquake damage to plasterboard linings in LTF buildings.

This document outlines the main principles of bracing design and construction using GIB® plasterboard products and systems. Further detailed information can be found in the GIB® Bracing Supplement by visiting gib.co.nz/library. This 'live' on-line document is updated continuously in response to market feedback and Winstone Wallboards' development initiatives.

Finish quality — framing and substrates

Home owners are increasingly demanding a high quality of interior finish. Finish quality is heavily influenced by the substrate to which linings are fixed. Detailed information on 'Levels of Finish' is given in AS/NZS 2589 and the latest version of the GIB® Site Guide.

New GIBFix® Framing System

With increased NZ Building Code requirements and growing customer demand for thermal efficiency and high quality interior finishes, traditional framing practices present problems such as multiple framing members at wall intersections creating thermal 'bridges' and cavities where insulation cannot be installed effectively.

Figure 1 shows a traditional wall framing layout. Figure 2 shows the alternative GIBFix® Framing System layout.

Multiple timber framing members also take longer to dry resulting in an increased risk of fastener pops and blemishes resulting from timber frame movement.

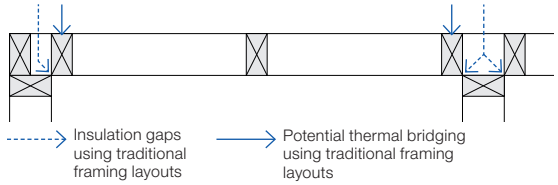
The GIBFix® Framing System offers better thermal efficiencies and minimises potential joint imperfections resulting from interior linings being fixed to multiple timber framing members.

The GIBFix® Framing System can be used in conjunction with GIB EzyBrace® Systems.

Bracing resistance is not affected by the GIBFix® Framing System if the use of this alternative timber framing layout is preferred. Refer to the GIBFix® Framing System literature for more information.

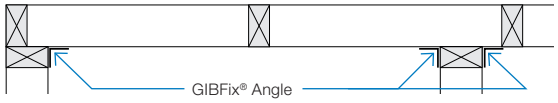
Bracing ratings apply whether fixing is directly into timber or into the metal components, provided correct construction details, fastener types and centres are applied.

FIGURE 1: TRADITIONAL WALL FRAMING LAYOUT



GFS004

FIGURE 2: GIBFIX® FRAMING SYSTEM (ALTERNATIVE LAYOUT)



GFS005

NEW GS2-NOM Bracing Element

The new GS2-NOM bracing element allows most homes to be braced with a single lining type and less fixings so that a high quality finish is maintained throughout.

GS2-NOM permits the contribution of 'nominally fixed' internal walls. Higher performance elements are commonly specified on external walls and where limited wall area is available or adjacent to significant openings.

Winstone Wallboards recommends the use of the GIBFix® Framing System in conjunction with GS2-NOM elements. Key benefits of this approach include:

- Reduced potential for fastener pop and joint cracking of plasterboard linings.
- Enhanced thermal performance.
- Allows internal walls lined with GIB® plasterboard on both sides and fastened off as per the standard fixing requirements of the current GIB® Site Guide to contribute bracing resistance.
- Potentially reduces the amount of fasteners[1].
- Encourages more even bracing distribution throughout the building.

1. Actual savings dependent on building and bracing design.

CONSENT ISSUED BC221264 - Page 159 of 359

Compliance with the NZ Building Code

NZBC CLAUSE B1 — STRUCTURE

The design and material specification for steel and timber framing used in conjunction with this literature must be in accordance with the performance requirements of NZBC Clause B1. GIB EzyBrace® Systems comply with the requirements of NZS 3604:2011, when designed and installed in accordance with this publication and relevant technical literature. NZS 3604:2011 is an acceptable solution to NZBC Clause B1.

NZBC CLAUSE B2 — DURABILITY

Under normal conditions of dry internal use GIB EzyBrace® Systems have a service life in excess of 50 years and satisfy the requirements of NZBC Clause B2. When in conditions of dry internal use, the components specified in this literature satisfy the requirements of NZBC Clause B2.

GIB® EzyBrace® Systems must not be specified in areas where 15 year durability applies and where linings are subject to direct water pressure, e.g. shower cubicle or shower over bath situations.

NZBC CLAUSE F2 — HAZARDOUS BUILDING MATERIALS

Under normal conditions of use, during handling, installation or serviceable life, the products detailed in GIB EzyBrace® Systems do not constitute a health hazard and meet the provisions of the NZBC Clause F2.

NZBC CLAUSE H1 — ENERGY EFFICIENCY

Buildings must be constructed to achieve an adequate degree of energy efficiency and the building envelope must provide adequate thermal resistance. The required thermal resistance (R-value) of timber framed external walls depends on climate zone but is commonly in the range from R 1.9 to R 2.0.

CAD design details

Where applicable drawings related to GIB EzyBrace® Systems have been produced for CAD design. These are identified by a unique number in the bottom corner of each detail box. CAD design details can be found at gib.co.nz/library.

Appraisal

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 this document.

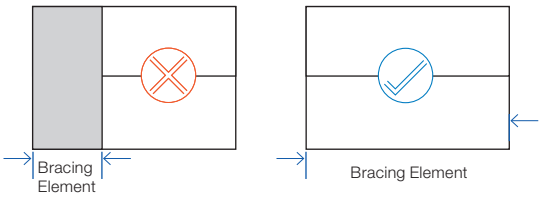
CONSENT ISSUED BC221264 - Page 160 of 359

Bracing resistance

WALL BRACING LAYOUT

When designing the bracing layout, carefully consider the final finished appearance and utilise full wall lengths where possible, avoiding unnecessary fastenings in the centre of a clear wall. Using the available wall length provides additional bracing and achieves improved aesthetics.

FIGURE 3: WALL BRACING LAYOUT



BRACING DISTRIBUTION

Distribute bracing by drawing a grid pattern of bracing lines along and across the building. Bracing lines must coincide as much as possible with the wall bracing elements. Pairs of elements may be counted on a single line provided they are no more than 2 metres apart and parallel. See figure 4.

Locate bracing evenly throughout the building and as close as practical to corners of external walls.

Space bracing lines no more than:

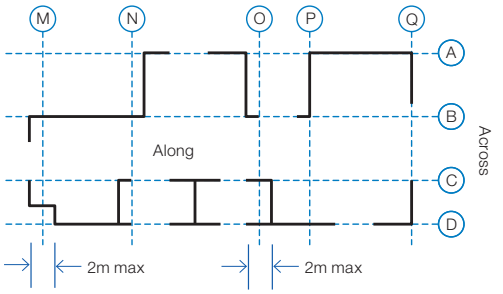
- 6 metres for standard construction with any GIB® plasterboard ceiling, or
- 7.5 metres where dragon ties in accordance with NZS3604:2011 have been installed, or
- 12 metres with a GIB® plasterboard ceiling diaphragm.

The construction of ceiling diaphragms is described in detail on p.18–20.

NZS3604:2011 requires that no bracing line shall have a capacity less than the greater of:

- 100 Bracing Units (BUs), or
- 15 x the external wall length (BUs) for bracing lines coinciding with external walls, or
- 50% of the total demand (D) divided by the number of lines (n) in the direction being considered (BUs).

FIGURE 4: BRACING GRID LAYOUT



The NZS3604 ‘rules’ are merely minimum guidelines and compliance with them does not in itself ensure even distribution. The designer is responsible for checking distribution. Poor distribution can cause torsional effects and localised or more significant damage in an earthquake event.

GIB EZYBRACE® SYSTEMS

The GIB EzyBrace® Specification Numbering System (and sub-components thereof) is protected by copyright and makes specification and identification of GIB EzyBrace® Systems transparent.

- 'GS' stands for GIB® Standard.
- 'BL' for GIB Braceline®.
- 'P' for plywood.
- '1' and '2' for linings one or both sides.
- ‘N’ stands for 'no specific panel hold-down fixings'.
- 'H' stands for 'specific panel hold-down fixing' required.
- 'NOM' stands for 'nominal plasterboard fixing'. This refers to the standard fixing method used to install plasterboard as shown in the current GIB® Site Guide.

Where specific hold-down fixings are specified, refer to p.15-16. GIB HandiBrac® is fully contained within the framing cavity and does not interfere with lining installation and quality of finish.

Where no specific hold-down fixings are required, the minimum NZS3604:2011 bottom plate fixings apply.

Full bracing element construction details are provided in this technical literature.

Further general design and construction information can also be found in our GIB® Bracing Supplement by visiting gib.co.nz/library.

Specifying GIB EzyBrace® elements (minimum wall length 400mm)	
Inside lining external walls.	Nominate available lengths of wall as GS1-N elements. Use BL1-H if higher ratings are required. If the other side of the frame is lined with plywood consider GSP-H or BLP-H elements or use alternative proprietary bracing systems.
Internal walls (only one side available for bracing).	Nominate available lengths of wall as GS1-N elements. Use BL1-H if higher ratings are required.
Internal walls (both sides available for bracing).	Nominate available length of wall as GS2-NOM elements. Change to GS1-N if higher ratings are required. Change to GS2-N if higher ratings are required. Change to BLG-H for even higher ratings. Consider GSP-H or BLP-H if the opposite side is lined with plywood.

CONSENT ISSUED BC221264 - Page 161 of 359

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

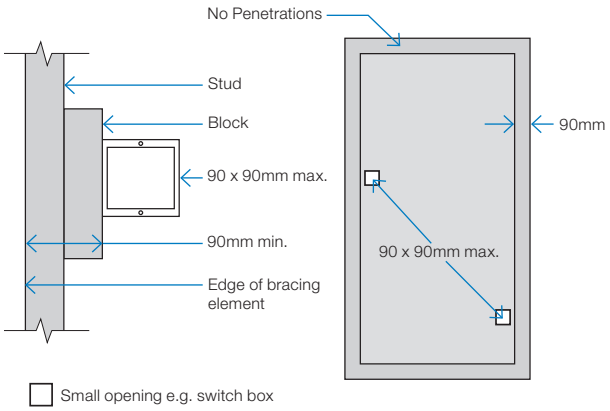
SMALL OPENINGS

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

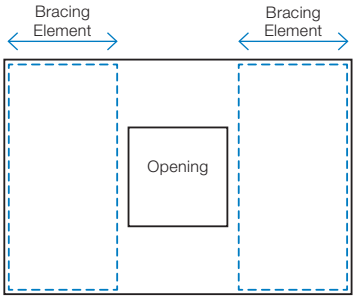
Openings above 90 x 90mm such as switch boards, recessed cabinets and TV's etc. should be placed outside of the bracing element or locate bracing on the other side of the wall framing.

FIGURE 10: SMALL OPENINGS IN BRACING ELEMENTS



GEB001

FIGURE 11: LARGE OPENINGS AND BRACING ELEMENTS



CONSENT ISSUED BC221264 - Page 162 of 359

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.

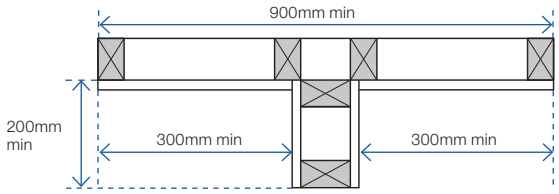
Guidelines for intersection walls

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).

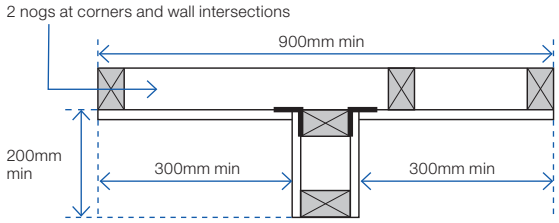
When fixing part sheets of GIB® plasterboard to the side of a T-junction, a minimum width of 300mm applies for bracing elements. See figures 12 and 13.

FIGURE 12: WALL INTERSECTION (TRADITIONAL WALL FRAMING)



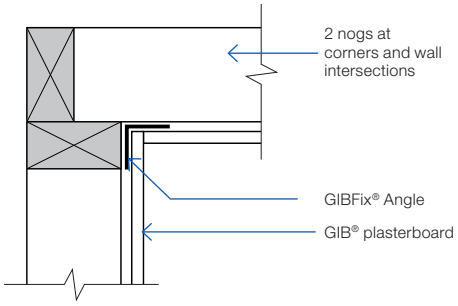
GEB002

FIGURE 13: WALL INTERSECTION (GIBFIX® FRAMING SYSTEM)



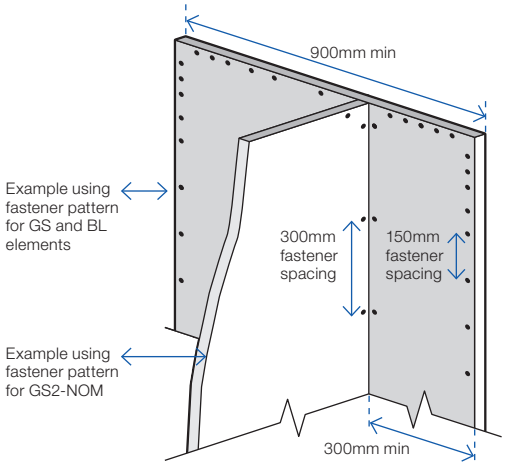
GEB003

FIGURE 14: CORNER INTERSECTION (GIBFIX® FRAMING SYSTEM)



GFS001

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.

CONSENT ISSUED BC221264 - Page 163 of 359

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

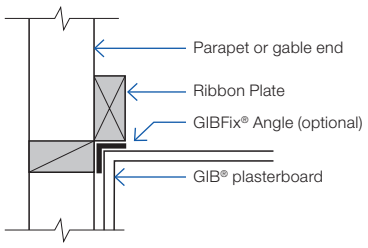
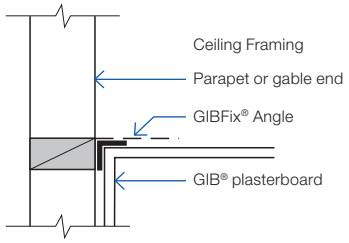


FIGURE 17: PARAPETS AND GABLE ENDS WITH GIBFIX® ANGLE



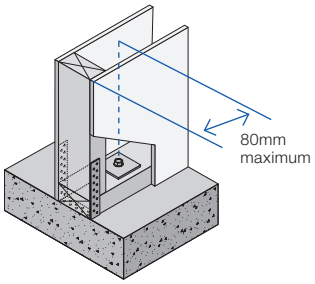
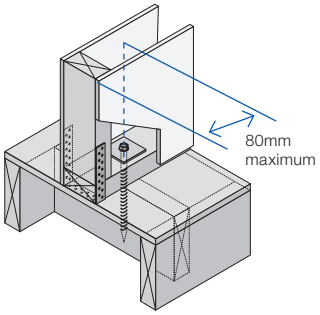
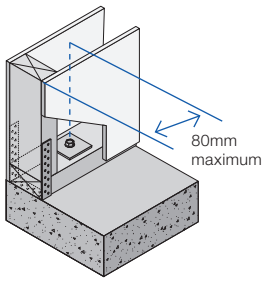
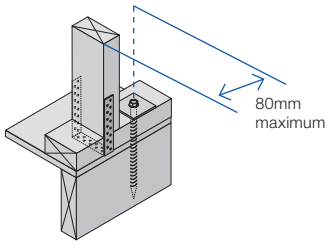
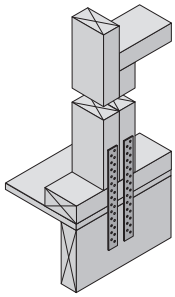
GFS003

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 BL1-H BLP-H	Intermediate fastenings to comply with NZS 3604:2011 In addition: 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. In addition: 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.	

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

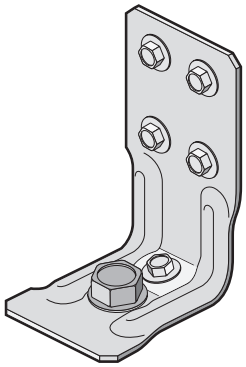
Hold-down fastener requirements	
Concrete floor	Timber floor
A mechanical fastening with a minimum characteristic uplift capacity of 15kN fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element.	12 x 150mm galvanised coach screw fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element

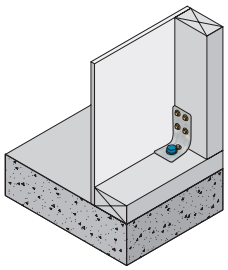
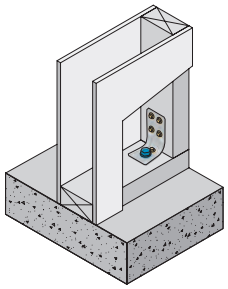
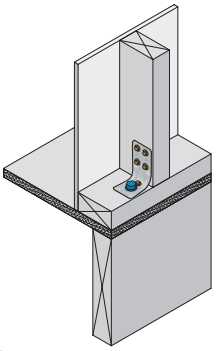
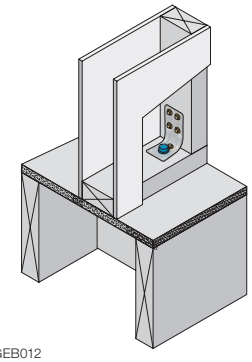
GIB HandiBrac® installation

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.	

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.

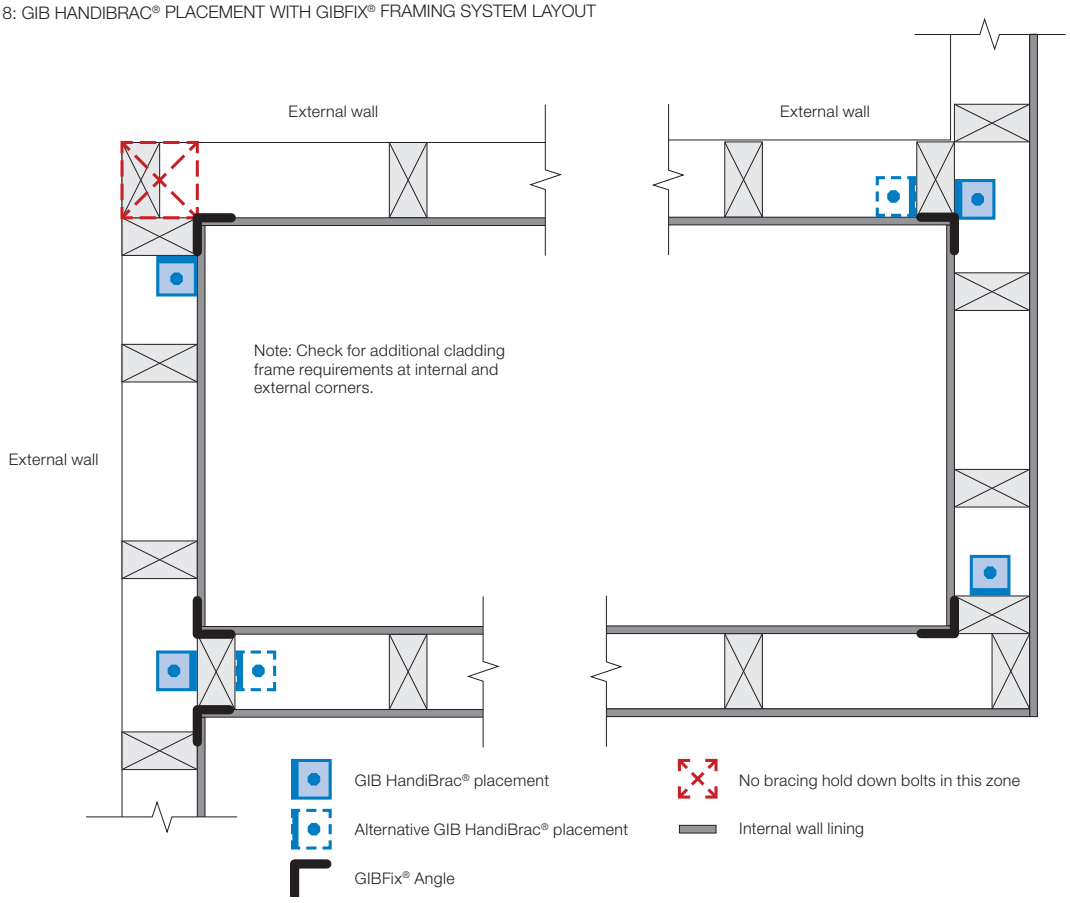
The GIB HandiBrac® is fixed to the stud which has the GIBFix® Angle.

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

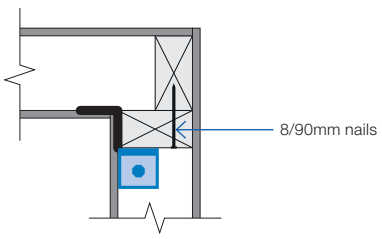
For timber floors bolt fixing in to solid joist or block is required, as shown on p 15.

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

CONSENT ISSUED BC221264 - Page 167 of 359

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.

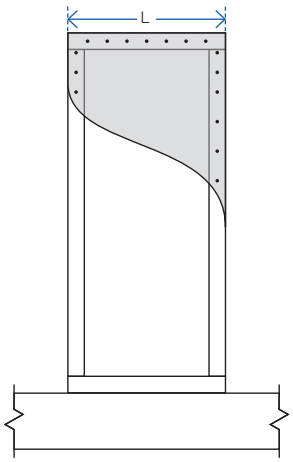
'N' type GIB EzyBrace® elements are identified by GIB® specification numbers GS1-N, GS2-N and GS2-NOM

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.

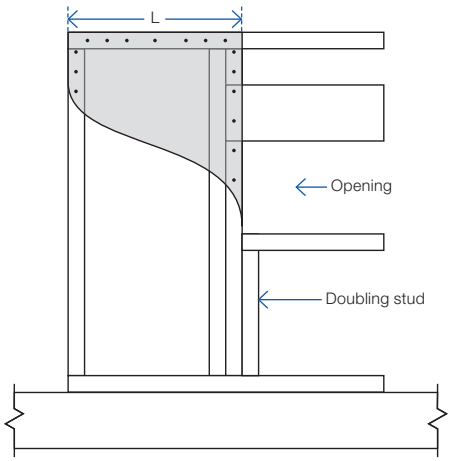
Fastener spacings and diagram scales shown in Figures 29–32 are indicative only. Refer to p.23–30 for construction details.

FIGURE 29: GS BRACING ELEMENTS (OPTION A)



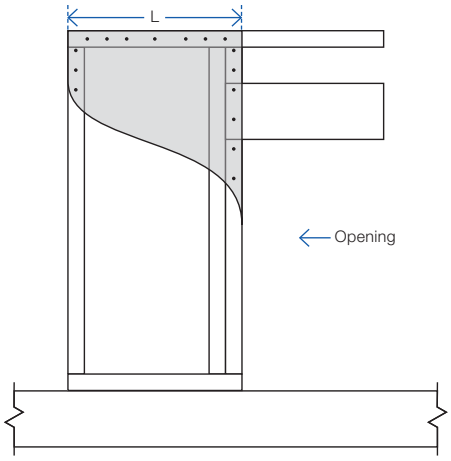
GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 30: GS BRACING ELEMENTS (OPTION B)



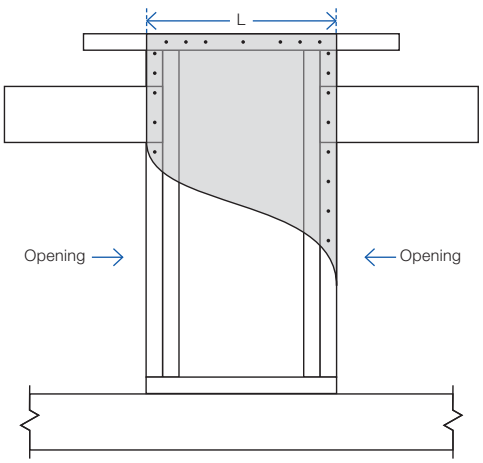
GS1-N, GS2-N elements
'L' indicates the length of the bracing element

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

CONSENT ISSUED BC221264 - Page 168 of 359

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.

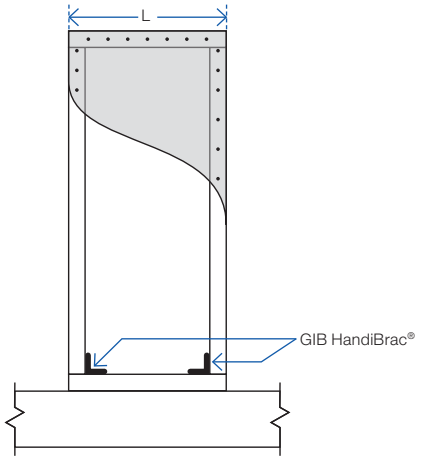
Spike doubling stud to trimming stud using a minimum of 2/90mm gun nails at 600mm centres. Lintel straps (where required for wind uplift) should be checked in and be located away from the bracing element fasteners.

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.

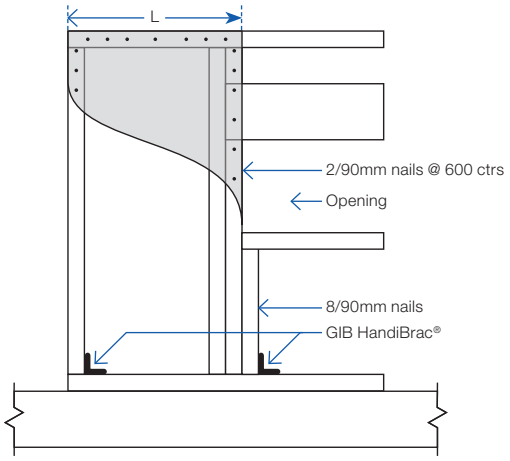
Fastener spacings and diagram scales shown in figures 33–36 are indicative only. Refer to p.23–30 for construction details.

FIGURE 33: BL BRACING ELEMENTS (OPTION A)



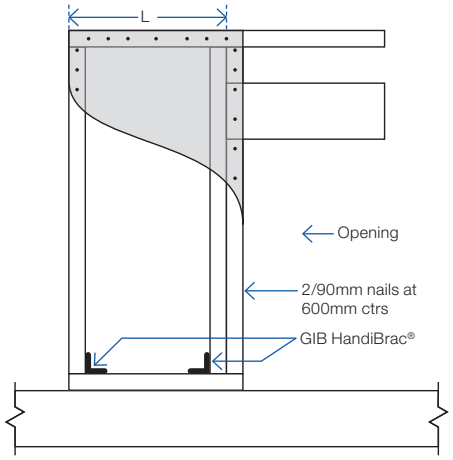
'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 34: BL BRACING ELEMENTS (OPTION B)



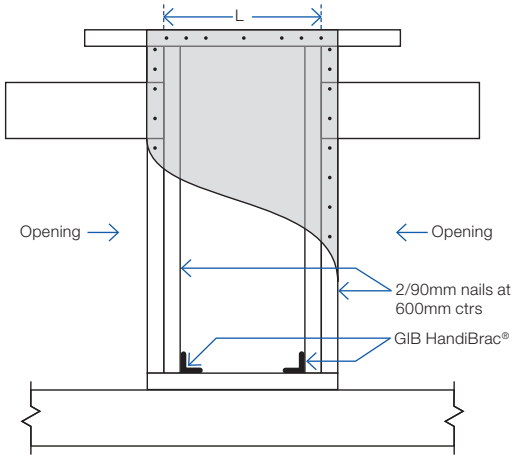
'H' type elements with specific hold downs
'L' indicates the length of the bracing element

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

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

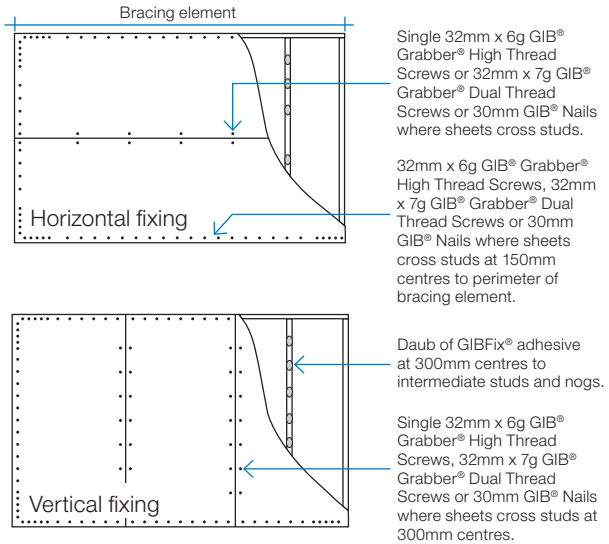
32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

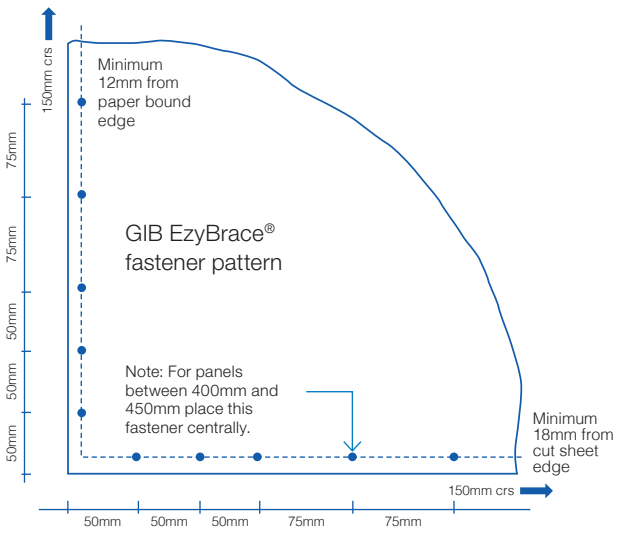
Fastener centres

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.

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

CONSENT ISSUED BC221264 - Page 170 of 359

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

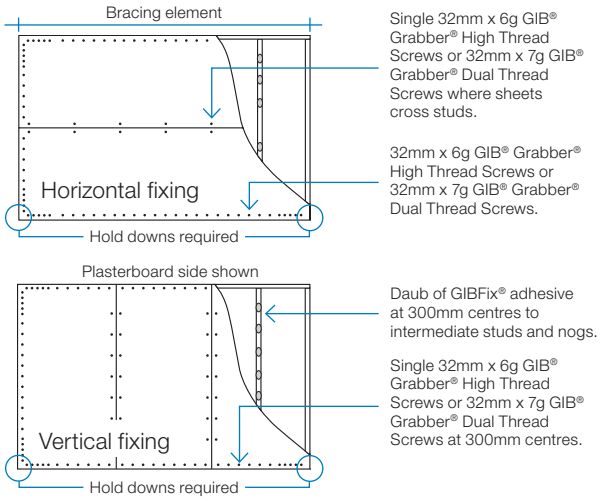
32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

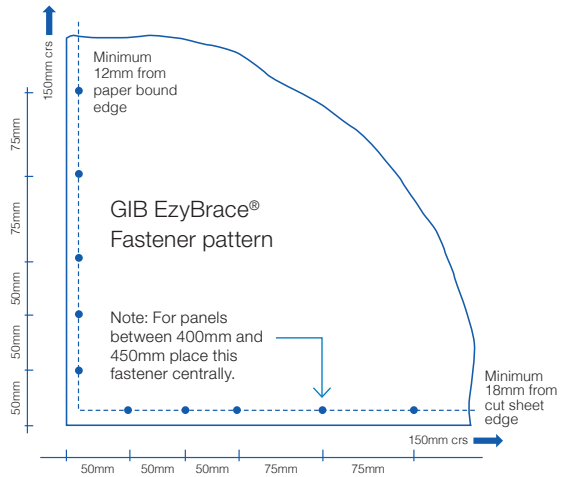
Fastener centres

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

CONSENT ISSUED BC221264 - Page 171 of 359

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

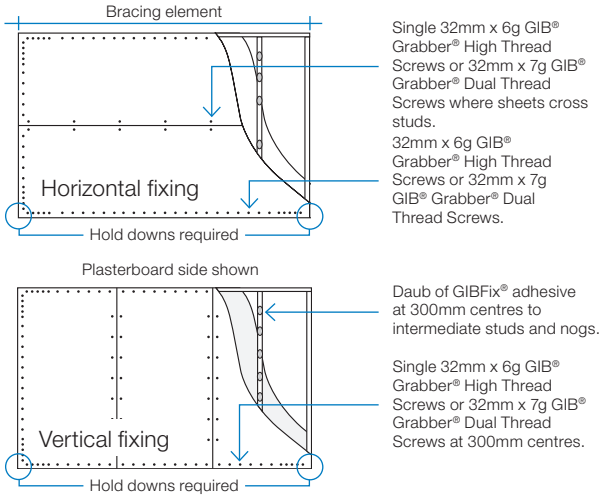
GIB Braceline® side: 32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. Plywood: 50 x 2.8mm Galv or Stainless steel annular grooved FH nails. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

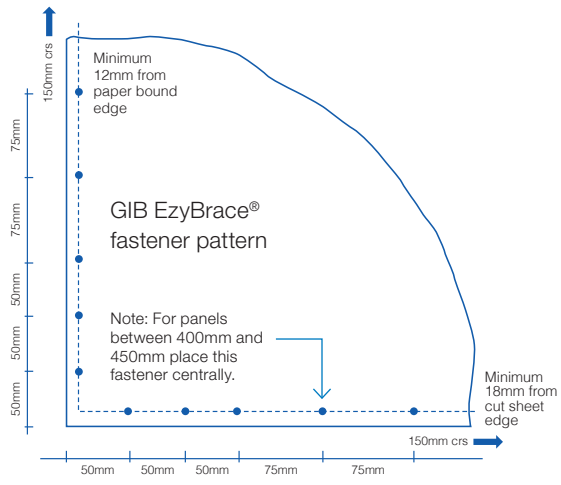
Fastener centres

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.

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

Section 4
H1 Calculations
Risk Matrix

CONSENT ISSUED BC221264 - Page 173 of 359

BRANZ NZS 4218:2009 CALCULATION METHOD TOOL

PROJECT SUMMARY

Project name	Wendelborn Property Ltd
Address	38 Crossley Avenue, Woodend (Lot 755 Ravenswood)
Designer	MG
Address	17 Goh St, Lincoln
Phone	021 0238 1905
Date	28/09/2022
Reference number	22152

Climate zone	3: South Island, Taupo and Ruapehu Districts, northern part of Rangitikei District, Stewart Island, Chat	
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	1: External 75 mm thick solid timber and timber framed internal walls	

Is there just one wall construction R-value (R_{Wall}) and one door (R_{Door}) construction R-value (but different to the walls) for the building? no

Summary of calculation method heat loss

Element	Area (m²)	Proposed building heat loss (W/°C)	Reference building heat loss (W/°C)
Roofs/ceilings	109.8	30.1	33.3
Walls	95.5	45.2	47.8
Floors	156.3	104.2	120.2
Vertical glazing	36.6	140.6	152.4
Skylights	0.0	0.0	-
Doors (Attributable)	0.0	0.0	-
Total		320.2	353.6 W/°C

Glazing percentage: 28%
Glazing <50%: Yes
Minimum R-values OK: Yes
Issues to check:

PASS/FAIL **PASS**

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

BRANZ NZS 4218:2009 CALCULATION METHOD TOOL

BUILDING ELEMENTS

Roofs/ceilings: Skylights are not included here. Enter them in the skylights table below.

Roof/ceiling element	Description	Area (m²)	Construction R-value	Heat loss
1	Trussed roof with R4.0 batts	109.84	3.65	30.1
2				
3				
4				
5				

Total area 109.8 m²

Total roofs/ceilings heat loss 30.1 W/°C

Skylights: Skylights are at an angle of 60° or less to the horizontal. If the skylight R-value is not known, use a value of 0.15.

Skylight	Description	Area (m²)	Construction R-value	Heat loss
1				
2				
3				
4				
	From Skylight Schedule	0.0		0.0

Total area 0.0 m²

Total skylight heat loss 0.0 W/°C

Walls: Doors are not included here. Enter them in the door table.
Each wall area is the total wall area less the glazing and door area for that wall

Wall element	Description	Area (m²)	Construction R-value	Heat loss
1	Brick with R2.4 batts	56.9	2.13	26.7
2	Oblique with R2.4 batts	11.6	2.09	5.6
3	Internal wall with R2.4 batts	27.0	2.08	13.0
4				
5				
6				
7				
8				
9				
10				

Total area 95.5 m²

Total wall heat loss 45.2 W/°C

Floors: Only include the ground or exterior floors. Intermediate floors not exposed to the exterior are excluded.
] H1/AS1 is not perm

Floor element	Description	Area (m²)	Construction R-value	Heat loss
1	Ribraft	156.3	1.50	104.2
2				
3				
4				
5				

Total area 156.3 m²

Floor heat loss 104.2 W/°C

Vertical glazing: Vertical glazing only (steeper than 60°), including glazing in doors. Skylights are on the Skylight table.
If the glazing R-value is not known, use a value of 0.15

Glazing element	Description	Area (m²)	Construction R-value	Heat loss
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
	From Glazing Schedule	36.6		140.6

Total area 36.6 m²

Total vertical glazing heat loss 140.6 W/°C

Doors: Only the non-glazed area of doors is included. The glazed area of doors must be entered in the Glazing table.
The heat loss of doors is automatically set to 0 if the total door area is ≤ 6m² or 6% of the total wall area.
If the area of doors are above 6m² or 6% of the total wall area then the marginal heat loss needs to be considered.
If the insulation values of the walls are different or the insulation value of the doors are different then
the assignable heat loss due to doors can not be calculated using this tool.
If the R-value of a door is not entered a default value of R 0.18 is automatically used.

Door element	Description	Area (m²)	Construction R-value	Heat loss
1				0.0
2				0.0
3				0.0
4				0.0
5				0.0
	From Door Schedule	0.0		0.0

Total area 0.0 m²

7.923768 Attributable 0.0 0.0 W/°C

BRANZ NZS 4218:2009 CALCULATION METHOD TOOL

Vertical Glazing Schedule

Vertical glazing: Vertical glazing only (steeper than 60°), including glazing in doors. Skylights are on the Skylight table.
If the glazing R-value is not known, use a value of 0.15

ID	Description	Quantity	Height (mm)	Width (mm)	Construction R-value	Area (m²)	Heat loss
1		1	2130	960	0.26	2.0	7.9
2		1	2130	1800	0.26	3.8	14.7
3		1	1400	1500	0.26	2.1	8.1
4		1	1400	1800	0.26	2.5	9.7
5		1	1400	1800	0.26	2.5	9.7
6		1	2130	2400	0.26	5.1	19.7
7		1	2130	2400	0.26	5.1	19.7
8		1	1400	1500	0.26	2.1	8.1
9		1	1400	1800	0.26	2.5	9.7
10		1	1400	900	0.26	1.3	4.8
11		1	1400	900	0.26	1.3	4.8
12		1	1100	600	0.26	0.7	2.5
13		1	1400	1500	0.26	2.1	8.1
14		1	1100	1200	0.26	1.3	5.1
15		1	1400	1500	0.26	2.1	8.1
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
					Total area	36.6 m²	
					Total vertical glazing heat loss		140.6

Door Schedule

Doors: Only the non-glazed area of doors is included. The glazed area of doors must be entered in the Glazing table.
The heat loss of doors is automatically set to 0 if the total door area is ≤ 6m² or 6% of the total wall area.
If the area of doors are above 6m² or 6% of the total wall area then the marginal heat loss needs to be considered.
If the insulation values of the walls are different or the insulation value of the doors are different then
the assignable heat loss due to doors can not be calculated using this tool.
If the R-value of a door is not entered a default value of R 0.18 is automatically used.

ID	Description	Quantity	Height (mm)	Width (mm)	Construction R-value	Area (m²)	Heat loss
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Total area 0.0 m²
Total door heat loss 0.0

Skylight Schedule

Skylights: Skylights are at an angle <= 60° to the horizontal. If the skylight R-value is not known, use of 0.15.

ID	Description	Quantity	Height (mm)	Width (mm)	Construction R-value	Area (m²)	Heat loss
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Total area 0.0 m²
Total skylight heat loss 0.0

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: 13/07/2021

Trussed Roof — **3.65** 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 : Metal tiles 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® Ultra R4.0 Ceiling 4

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

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: 14/07/2021

Brick — 2.13 m²°C/W

Type: Wall: Timber Frame with vented Cavity

Timber Frame with vented Cavity [view detail]

external surface 0.03

Cladding : 70mm brick
R-value: 0.06

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: 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

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: 16/07/2021

Linea Oblique Weatherboard (Vertical) **2.09** m²°C/W

Type: Wall: Timber Frame with vented Cavity

Timber Frame with vented Cavity [view detail]

external surface 0.03

Cladding : James Hardie Linea weatherboard
R-value: 0.08

Air Barrier : Building paper
R-value: 0.01

Timber Frame & Cavity : 90mm, studs @ 600mm, dwangs @ 600mm

Wall Frame Area: 16.2%	*Cavity Area: 83.8%*
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: 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

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: 14/07/2021

Internal Wall — **2.08** 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: 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

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 "isothermal planes" method, the same method as used in NZS4214:2006.

I have recently implemented some changes to the way assemblies with multiple adjacent insulation layers such as truss roofs with a second layer of insulation are calculated. Check out the details here.

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: 28/09/2022

Ribraft — 1.50 m²°C/W

Type: Floor: Slab Floor - only for Clause H1 Edition 4

Slab Floor [view detail]

internal surface 0.09

Flooring : generic - none (Example: polished surface of a concrete floor)

R-value: 0.00

Slab Insulation

Slab floor area [m²]:	156.3		
Perimeter length [m]:	58.06		
External wall thickness [mm]:	100		
Soil conductivity [W/m °C]	1.2		
Underslab insulation:	none	Insulation :	
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

BC221264

External Moisture Risk Matrix

Project Name / Facade ID: NorthWest Elevation

Wall type:
- ○ Parapet or enclosed balustrade
- ◉ Other

Risk Scores	Low	Medium	High	Very High
A. Wind Zone:	○ Low = 0	○ Medium = 0	◉ High = 1	○ Very High = 2 ○ Extra High = 2
B. Number of Storeys:	◉ Low = 0	○ Medium = 1	○ High = 2	○ Very High = 4
C. Roof/Wall Intersection Design:	◉ Low = 0	○ Medium = 1	○ High = 3	○ Very High = 5
D. Eaves Width:	○ Low = 0	○ Medium = 1	◉ High = 2	○ Very High = 5
E. Envelope Complexity:	○ Low = 0	◉ Medium = 1	○ High = 3	○ Very High = 6
F. Deck Design:	◉ Low = 0	○ Medium = 2	○ High = 4	○ Very High = 6

Total Risk Score: **4**

low risk 0 up to 6	medium risk 7 up to 12	high risk 13 up to 20	very high risk over 20

this wall

Display Results Table | Download Results Table (HTML)

This wall can use any of the wall cladding types which have a green tick ☑. Claddings with red crosses ☒ are not permitted under the Acceptable Solution E2/AS1.

Direct fixed to framing	Over nominal 20 mm drained cavity
☑ Timber weatherboard - all types	☑ Masonry veneer
☑ Timber weatherboard - bevel backed	☑ Stucco
☑ Fibre cement weatherboards	☑ Horizontal profiled metal - corrugated and trapezoidal only
☑ Vertical profiled metal - corrugated and symmetrical trapezoidal	☑ Rusticated weatherboards
☑ Vertical profiled metal - corrugated only	☑ Fibre cement weatherboards
☑ Vertical timber board and batten	☑ Fibre cement sheet - flush finish
☑ Fibre cement sheet jointed finish (except stucco over fibre cement backing)	☑ Fibre cement sheet - jointed finish
☑ Plywood sheet	☑ Plywood sheet
☒ EIFS	☑ EIFS
	☑ Bevel backed weatherboards

This table is based on Table 3 of E2/AS1. The claddings which have not received a green tick should not be used in this situation.

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

Section 5
Specifications

Archiplus

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

SPECIFICATION

of work to be done and materials to be used in carrying out the works shown on the accompanying drawings

prepared for

WENDELBORN PROPERTY LTD
(owner's name)

LOT 755 LT 582033
38 CROSSLEY AVENUE
RAVENSWOOD
WOODEND
(project address)

22152
(job number)

28 SEPTEMBER 2022

CONTENTS

CONTENTS 2
CONSTRUCTION SCHEDULE 3
PRELIMINARIES AND GENERAL 5
PREPARATION AND GROUND WORK 6
CONCRETE 7
CARPENTRY 9
BRICK VENEER CLADDING 12
METAL TILE ROOFING 15
ALUMINIUM WINDOWS AND DOORS 17
GLAZING 18
INSULATION 19
GIB® PLASTERBOARD LININGS 20
CARPETING 21
PAINTING 22
HOT AND COLD WATER SYSTEM 23
RAINWATER SYSTEMS 26
DRAINAGE 28
ELECTRICAL 30
MANAGEMENT OF SITE SAFETY 33
EROSION AND SEDIMENT CONTROL PLAN 34
BUILDING MAINTENANCE 35

CONSTRUCTION SCHEDULE

Any Alterations to the Construction Schedule / Consented documentation shall be forwarded to the local Council for approval.

For the following site/project information refer to the lower section of the title block on the plans:
- Snow zone, Earthquake zone, Corrosion zone, Roof type, Wall types & Wind Zone (Refer to bracing calculation sheet “building location” section for wind zone analysis).

These drawings to be read in conjunction with any supplementary engineer’s documentation (i.e. Truss design, floor framing layout)
All construction to comply with NZS 3604, NZBC & local council policy.
All timber treatment to comply with NZS 3602

FOUNDATION:
Floor Slab: Ribraft (Refer to Engineers drawings).
Foundations: Ribraft (Refer to Engineers drawings).
Sub floor: Ribraft (Refer to Engineers drawings).
Where the DPM is likely to be damaged from the granular fill then protection shall be provided by no more than 25mm sand blinding in accordance with NZS 3604 clause 7.5.6.2.

ALL FRAMING (unless stated otherwise on the drawings)
SG8 Pinus Radiata
Exterior walls: H1.2, Bottom plate - 90x45 & Double top plate - 90x45 + 140x35
Interior walls: H1.2, Bottom plate & Top Plate - 90x45, refer to ceilings for double top plate requirements
Bottom plate fixings: Lumberlok Bottom Plate Fixing Anchors as per manufacturer’s specification 150mm of each end of the plate and spaced @ 900crs max. on all external wall & internal load bearing wall at no less than 60mm from edge. DPC between bottom plate & floor slab (Refer to MiTek specification attached for specific bottom plate fixing details required for bracing & lintels).

WALL FRAMING:
Ground Floor
Exterior & Interior Loadbearing wall: 90x45mm studs @ 600 crs
Dwangs Ext: 90x45mm @ 800crs (Oblique @ 600crs)
Non loadbearing: 90x45mm studs @ 600 crs
Dwangs Int: 90x45mm @ 800crs

Lintels: Lintels are shown on the Truss design. (All Lintels SG8 unless stated otherwise).

Building Wrap: Watergate Plus building wrap with Aluband flexible flashing tape
Air Barrier to unlined wall and gables: Watergate Plus building wrap
Building wrap to be strapped @ 300crs between dwangs.

INSULATION, ENERGY EFFICIENCY:
Refer to H1 Schedule, Energy Efficiency Calculations
Exterior Walls: Pink Batts – R 2.4 Wall
Ceilings: Pink Batts – R 4.0 Ceiling
Glazing: Double glazing to all windows, excluding garage
Air Seals: PEF Rod & Low expansion foam.
Lighting: All lighting recessed into ceilings to be closed and abutted type.

TRUSSED ROOF AREA: (An as built truss design will be provided at time of manufacturing)
Metal Tile - Battens: 50x40 SG8 H1.2 @ 370crs, fixings 2/90 x 3.15 gun nail
Trusses: @ 900crs, refer to truss design (H1.2 unless otherwise stated)
Fascia & Gutter system: Refer to manufacturers specification attached
Down pipes: 75x55 Rectangle Colorsteel
Soffits: 4.5mm fibre cement board to Ribbon boards, sprockets & packers ex50

CEILINGS:
Interior Walls: Walls running parallel to battens to be double top plate - 90x45 + 140x35

Battens: 35mm Rondo battens @ 600 crs

Finish garage: 13mm Gib board, Level 3 plaster finish
Flat Ceilings: 13mm Gib board throughout unless specified different on the plans & Level 4 finish to all rooms in flat ceiling areas

FLOOR FINISHES
Note: Floor surfaces of any space containing "*sanitary fixtures or sanitary appliances must be impervious and easily cleaned*." (Seal floor when Laundry is in garage)
Carpet: Non-slip and have a slip (wet) coefficient value of 0.55-0.70 for tufted of loop pile. (NZBC D1/AS1 Table 2)
Floors to be carpet unless stated otherwise on plan, not including the garage.
Vinyl: Non-slip and have a slip (wet) coefficient value of 0.25-0.5 for smooth or Imprinted. (NZBC D1/AS1 Table 2)

Entry through external doors to have a max step of 190mm (Riser height and tread depth for all steps in one flight, shall be uniform within the tolerance of ± 5 mm measured at the centreline on straight flights and at the pitch line on curved and spiral flights.)
With outward opening doors, a landing shall be provide with a clear space of at least 400mm from the leading of the door and the full width of the landing.
Build up this area with AP40 and compact, to have a cross fall of no less than 1:100 and fall away from building. (By Others, Coefficient of friction, wet - 0.6 - 0.9)

WET AREAS
Aqualine

KITCHEN JOINERY
Bench top – Tristone, Cupboards – Melteca/Melamine
Bathroom Joinery
Top – Vitreous China, Cupboards – Polyurethane coated
Minimum Requirements for sinks:
Kitchen Sink: 300mm dia min X 125mm min depth. (As per NZBC G3/AS1)
Laundry tub: No less than 35 litres. (As per NZBC G2/AS1)

VENTILATION:
Mechanical ventilation to be discharged outside via the soffit to comply with NZBC G4/AS1. (Weiss Clearflow FV160)

Smoke Alarms (Hush type) To comply with NZBC F7/AS1. Smoke detectors to be fitted within 3.0m of sleeping areas and on Escape routes, as indicated on plan. (Proof of compliance will be required for final inspection and issue of Code Compliance Certificate).

WATER PIPES
Water pipe from hot water heater to be 15mmØ with no more than 2 litres total volume (as per NZBC G12/AS1 Table 4 and NZS 4305 cl. 3.2.1 and Table 5) and closed cell foam polymer insulation which is preformed to the shape of the pipe and not less than 13 mm thick, is acceptable material for preventing pipes less than or equal to 40 mm diameter from freezing (as per NZBC G12/AS1)
Acceptable pipe lengths as per NZS 4305 table 5
10 mmØ = 78ml/m (25m max, total)
15mmØ = 176ml/m (12m max, total)
20mmØ = 214ml/m (7m max, total)
NZBC 7.5 Watertightness
7.5.1 The water supply system shall be tested to ensure watertightness.
An acceptable testing method is to:
a) Subject the hot and cold system to a pressure of 1500 kPa for a period of not less than 15 minutes, and
b) Inspect the system to ensure that there are no leaks.

RAINFALL CATCHMENT AREA CALCULATION
Rainfall Intensity: as per Appendix A, E1/AS1
Gutter Type & Downpipe Size: As noted above in "Truss Roof area" note in Construction Schedule.
Cross Sectional Area: Refer to manufacturers specification attached
Roof Pitch: As noted in the project information on the plan.

PRELIMINARIES AND GENERAL

THE PROJECT
The works are as described in this specification and as shown on the drawings.

SITE
The site of the works, the site address and the legal description are shown on the drawings. Confine access and work to the area of site indicated on the drawings.

BUILDING CONSENT COMPLIANCE
It is an offence under the Building Act 2004 to carry out any work not in accordance with the building consent. Refer the resolution of matters concerning compliance to the main contractor for direction. Where building consent approval is affected refer any change to the territorial authority.

STATUTORY OBLIGATIONS
Comply with all statutory obligations and regulations of regulatory bodies controlling the execution of the works.

BUILDING CONSENT
Obtain the original or copies of the building consent form and documents from the main contractor and keep on site. Liaise with the territorial authority for all notices to be given and all inspections required during construction to ensure compliance. Return the consent form and documents to the owner on completion.

PRODUCER STATEMENTS
When producer statements verifying construction are required, provide copies to both the territorial authority and the owner. Producer statements to be in the form required by the Territorial Authority to comply with the Building Act.

SET-OUT AND DATUM
Set out the works to conform with the drawings. Establish a permanent site datum to confirm the proposed building ground floor level and its relationship to all other existing and new building levels.

PREPARATION AND GROUND WORK

Documents referred to in this section are:

NZBC	B1 Structure
	B2 Durability
	E2 External Moisture
NZS 3604:2011	Timber framed buildings

OSH: Approved code of practice for safety in excavation and shafts for foundations

GRANULAR FILL
Approved screened crushed gravel or scoria, graded in size from 20 mm to 7 mm, clean. When tested with a standard sieve of 4.75 opening no material is to pass.

SURFACE PREPARATION
Comply with NZS 3604 section 3.5

STOCKPILE TOPSOIL
Stockpile excavated topsoil on site where directed. Keep separate from other excavated materials.

GENERAL EXCAVATION
Trim ground to required profiles, batters, falls and levels. Remove loose material. Protect cut faces from collapse. Keep excavations free from water.

FOUNDATION EXCAVATION
Take foundation excavations to depths shown on plans. Keep trenches plumb and straight, bottoms level and solid, stepped as detailed and clean and free of water.

INADEQUATE BEARING
If supplied, Engineers Ground Bearing and Foundation report takes precedence over the following:

When bearing is inadequate, excavate further and backfill as per below.
Confirm any changes with the territorial authority.

Below slabs on grade:	Hardfill
Below footings:	10 MPa concrete
Service trenches:	Hardfill

If excavation exceeds the required depths, backfill and compact to the correct level with material as listed.

GRANULAR BASE FOR SLABS
To conform with NZS 3604 (Details noted on the plans). Consolidate with a vibrating roller ready to receive a dampproof membrane.

GENERAL BACKFILLING
Refer to Engineer's specification.

CONCRETE

Documents referred to in this section are:

NZS 3101:2006	Concrete structures standard, Part 1 The design of concrete structures.
NZS 3104:2003	Specification for concrete production
NZS 3109:1997	Concrete construction
NZS 3114:1987	Specification for concrete surface finishes
NZS 3604:2011	Timber framed buildings
AS/NZS 4671:2001	Steel reinforcing materials

FALSEWORK AND FORMWORK

Use falsework and formwork of sufficient strength to retain and support the wet concrete to the required profiles and tolerances. Select formwork finish to produce the specified finished quality. Ensure timber or plywood used for formwork is non-staining to the set concrete.

Securely fix and brace formwork sufficiently to support loads and with joints and linings tight enough to prevent water loss.

DAMPPROOF MEMBRANE

0.25 mm minimum polyethylene to NZS 3604 clause 7.5.4 Damp-proof membrane.

Apply polythene membrane to prepared base course with 150 mm laps between sheets. Tape seal laps and penetrations with 50 mm wide pressure sensitive plastic tape.

REINFORCEMENT

Bars to AS/NZS 4671. Grade Ductility Class E, all deformed other than for ties, stirrups and spirals, unless shown otherwise on the drawings. Welded reinforcing mesh to AS/NZS 4671.

Cut and bend bars using proper bending tools to avoid notching and to the requirements of NZS 3109 clause 3.3 Hooks and bends. Do not rebend bars without written approval.

Secure reinforcement adequately with tying wire and place, support and secure against displacement when concreting. Bend tying wire back well clear of the formwork. Spacing as dimensioned, or if not shown, to the clear distance minimums laid down in NZS 3109 clause 3.6 Spacing of reinforcement.

Minimum cover to all reinforcing bars, stirrups, ties and spirals, as shown on the drawings. Where cover is not shown on drawings provide minimum cover to NZS 3101 table 5.5 minimum required cover. Fix chairs for top reinforcement in slabs at 1.0 metre centres or to ensure adequate support. Cover tolerances to NZS 3109 clause 3.9 Tolerances for reinforcement.

Length of laps where not dimensioned on the drawings in accordance with the Manufacturers Specification. Increase laps of plain round steel by 100%. Tie all lapping bars to each other.

REINFORCEMENT LAPS

Bar Diameter	Lap
10 mm	400 mm
12 mm	500 mm
16 mm	650 mm

TYING WIRE

Mild drawn steel wire not less than 1.2 mm diameter.

SPACERS AND CHAIRS

Precast concrete or purpose made moulded PVC to approval. Use concrete spacer blocks only where the concrete surface is not exposed in the finished work.

PRE-PLACEMENT INSPECTION

Do not place concrete until all excavations, boxing and reinforcing have been inspected and passed by the territorial authority inspector.

NORMAL CONCRETE

Normal concrete 20 MPa grade, maximum aggregate size 19 mm ready-mixed to NZS 3104. Provide delivery dockets listing mix and despatch details.

PRESCRIBED MIX CONCRETE
Prescribed mix concrete as per Engineers specification.

Formwork linings and surface finishes as nominated for both fair face and concealed or exposed surfaces. Unless detailed, obtain written confirmation of the type and pattern of all joints.

Set up and supervise pump operation, placing and compaction of the mix to NZS 3109 clause 7.4 Handling and placing and 7.6 Compaction Advise the ready-mix supplier of the type of pump and the slump required, in addition to the concrete grade, strength and quantity.
Use power operated vibrators on foundations, vertical constructions and beams.

CASTING IN
Build in all grounds, bolts and fixings for wall plates and bracing elements, holding down bolts, pipes, sleeves and fixings as required by all trades and as shown on the drawings, prior to pouring the concrete.

Do not use grounds exceeding 100 mm in length. Location and form of conduits to be approved in writing by the owner. Minimum cover 40 mm. Do not encase aluminium items in concrete. Do not paint steel embedded items more than 25 mm into the concrete encasement. Cut back form ties to specified cover and fill the cavities with mortar.

Form all pockets, chases and flashing grooves as required by all trades and as shown on the drawings.

Wrap all pipes embedded in concrete with tape to break the bond and to allow for expansion. Do not embed pipes for conveying liquids exceeding a temperature of 50°C in concrete.
.

CARPENTRY

Documents referred to in this section are:

AS/NZS 1748:2011	Mechanically stress-graded timber
AS/NZS 1859:2017	Reconstituted wood based panels, 1859.1: Particleboard
AS/NZS 2269:2012	Plywood – Structural, 2269.0: Specifications
NZS 3602:2003	Timber and wood-based products for use in building
NZS 3603:1993	Timber structures standard
NZS 3604:2011	Timber framed buildings
AS/NZS 1328 1&2:1998	Glued laminated structural timber
NZS 3631:1988	New Zealand national timber grading rules

Refer to Production Specification for Durability requirements.

TIMBER FRAMING, FOR INTERIOR USE
Timber treatment as per “All Framing” section, machine stress graded timber to AS/NZS 1748, with moisture content at supply of 18% or less.

TIMBER FRAMING, FOR EXTERIOR USE
Timber treatment as per “All Framing” section, machine stress graded timber to NZS 3631 and to NZS 3602, table 1 with moisture content to NZS 3602 table 4

CEILING BATTENS
GIB Rondo Galvanised Steel Ceiling Battens

TIMBER TRUSSES
Moisture content at supply: 18%.

DAMPPROOF COURSE
2-ply/3-ply Kraft felt strip saturated and coated with bitumen.

NAILS
Steel, stainless steel and galvanised steel of pattern to suit the location.

Type to NZS 3604 section 4 Durability, and of the size and number for each particular types of joint as laid down in the nailing schedules of NZS 3604 sections, 6 Foundations, 7 Floors, 8 Walls, 9 Posts, 10 Roof framing and 15 1.5 kPa and 2 kPa snow loading. Except that when hand driving nails into Timber the nail lengths and diameters should be generally as for power driven nails.

BOLTS AND SCREWS
Steel, stainless steel and galvanised steel of pattern to suit the location.

NAIL PLATES
As per manufacturer’s design for the particular locations as shown on the drawings.

CONNECTORS
Galvanised steel connectors and structural brackets to the connector manufacturer's design for particular locations shown on drawings.

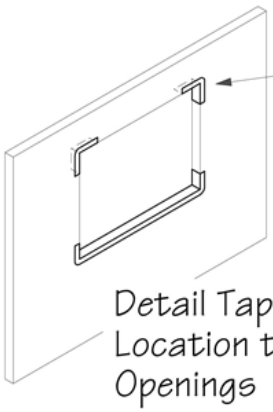
MOISTURE CONTENT
Maximum allowable equilibrium moisture content (EMC) for framing supporting interior linings 18%

FRAMING WALLS
Frame to required loading and bracing complete with lintels, sills and nogs, all fabricated and fastened to NZS 3604 sections 8 & 15.

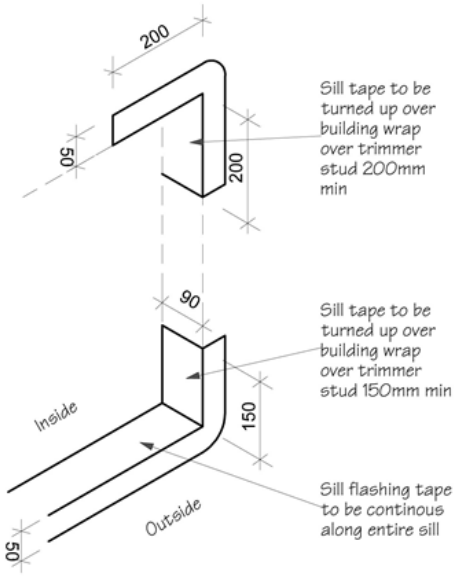
FRAMING ROOFS

Frame to required loading and bracing complete with valley boards, ridge boards and purlins/battens. Design and fit roof trusses complete with anchorage. All fabricated and fastened to NZS 3604 sections, 9 Posts, 10 Roof framing and 15 1.5 kPa and 2 kPa snow loading.

INSTALLING CEILING BATTENS
Fabricate and fasten to as per manufacturers recommendation.



Detail Tape Location to Wall Openings

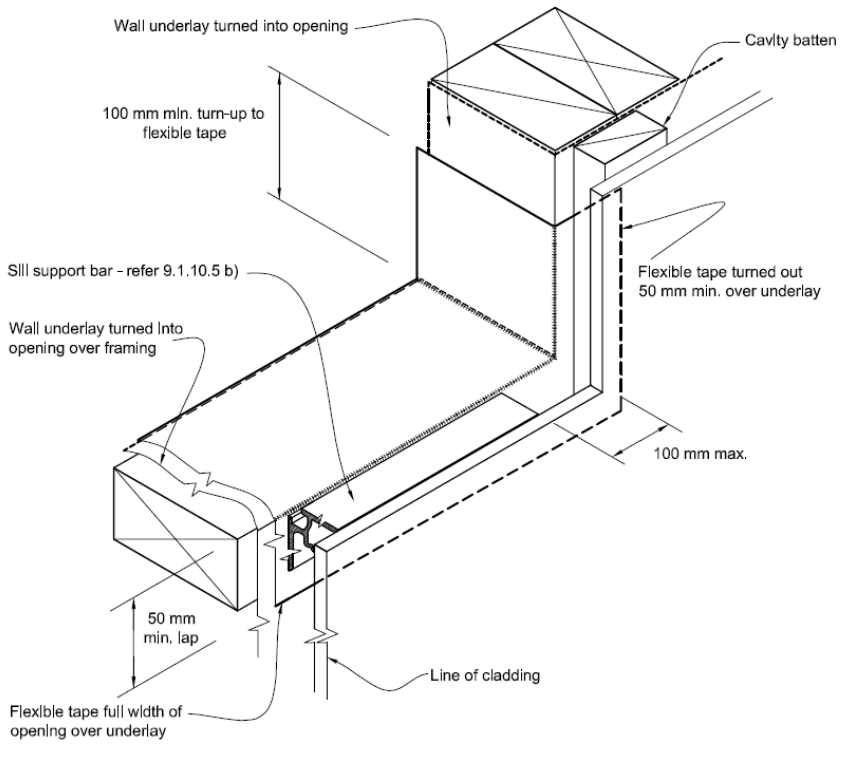


Trim all building wrap to finish flush with inside face of stud frame wall

Sill Tape Flashing Detail

Figure 72B: **General window and door opening with drainage cavity**
Paragraphs 9.1.5, 9.1.9.3, 9.1.10.2, Figures 73C, 76, 85, 86, 91, 99, 116 and 128

NOTE:
(1) Detailed *cladding* omitted for clarity, refer to specific *claddings*.
(2) Head to be treated similarly with continuous *wall underlay* and *flexible tape* at corners.
(3) Refer individual cladding details for jamb flashings.



BRICK VENEER CLADDING

Documents referred to in this section are:

NZBC B1/AS1	Structure general
AS/NZS 2699:2002	Built in components for masonry construction
NZS 3103:1991	Sands for mortars and plasters
NZS 3112:1986	Specification for pigments for Portland cement and Portland cement products
NZBC E2/AS1	External Moisture
NZS 3604:2011	Timber-framed Buildings
NZS 4210:2001	Masonry construction: Materials and workmanship
NZS 4236:2002	Masonry veneer wall cladding

BRICKS
To AS/NZS 4455. Size: 230 mm x 76 mm x 70 mm
Lay bricks to NZS 4210. Ensure bricks are dry when laid. Use bricks equally off all pallets as work proceeds. Distribute facing bricks of varying colour randomly throughout so no patches or striping appears.

Stretcher bond, single width unless detailed or stated otherwise.

Rake out joints as work proceeds. Joints tooled concave after initial mortar stiffening.

Cavity 40mm min. – 75mm max. Pipes and services not to be placed within the cavity.

Weep holes to E2/AS1 clause 9.2.6 Cavities. (Approximately 800 crs & to be a minimum of 1000mm² per meter)

DAMPPROOF MEMBRANE
Apply bituminous brush-on liquid applied membrane as a primer and 2 coats, to drain water effectively out of the cavity.

VENEER TIES
To NZS 4210
Wall ties shall be placed within 5º of a right angle to the plane of the masonry, fix to face of studs without otherwise piercing or damaging the building wrap. Ties placed and spaced to E2/AS1 table 18A. Corrosion protection for masonry wall ties as per E2/AS1 table 18C.

Table 18C: Corrosion protection to masonry wall ties
Paragraph 9.2.7

	316, 316L, or 304 stainless steel	470 g/m² galvanising on mild steel
Zone B	Yes	Yes
Zone C	Yes	Yes
Zones D and E	Yes	-

Table 18B: Placement of wall ties
Paragraph 9.2.5 and 9.2.7

Location	Placement of masonry ties
Unsupported panel sides and edges of openings	Within 300 mm of panel side or edge.
Top of veneer panels and top of panels under openings	Within 300 mm or two courses (whichever is the smaller) of top of veneer
Bottom of veneer panel in masonry rebate sealed with liquid applied *damp-proof course*	Within 300 mm or two courses (whichever is the smaller) from bottom of veneer
Bottom of veneer panel supported on steel angle lintel	
Bottom of veneer panel in masonry rebate with *membrane damp-proof course*	In each of the first two courses

NOTES:

Ties are to be screw fixed (ie. non-impact method) using screws outlined in Table 24.

Table 18A: Specification of maximum tie spacings for type B (4) veneer ties
Paragraph 9.2.7

Seismic zone Refer NZS 3604	Masonry veneer Less than 180 kg/m²			Masonry veneer 180 – 220 kg/m²			Masonry veneer more than 220 kg/m²
	Tie type (4)(5)	Maximum spacings (1) Horizontal	Vertical	Tie type (4)(5)	Maximum spacings (1) Horizontal	Vertical	
1	EL	600	400	EM	600	400	SED (2)
2 (6)	EM	600	400	EH (3)	600	400	SED (2)
3	EH (3)	600	400	EH (3)	600	400	SED (2)
4	SED (2)	SED (2)	SED (2)				

NOTES

(1) Maximum masonry tie spacings of 600 mm horizontally and 400 mm vertically

(2) Spacing of ties to be determined by specific engineering design

(3) EM may be used if the horizontal spacings do not exceed 400 mm and the vertical spacings do not exceed 300 mm

(4) Type B and Prefix E indicate masonry ties manufactured to AS/NZS 2699.1

(5) L (Light), M (Medium), H (High) indicate strength capability of ties in AS/NZS 2699.1

(6) Use seismic zone 2 (minimum) for Christchurch region comprising Christchurch City, Waimakariri District and Selwyn District.

SAND FOR MORTAR
Sand to comply with NZS 3103. Chloride levels to not exceed 0.04% by dry weight of sand.

Composed of Portland cement, sand and water with an admixture to the provisions of NZS 4210 clause 2.2. Obtain written approval of admixture to be used. Also obtain written approval if intending to use cement mortar as a damp proof course and where, or if intending to use hydrated lime in the mortar.

To maximum practical density. Mortar fully laid, firmly placed, correctly cured and not re-tempered. Discard any mortar not used within 1½ hours of mixing.
Joint thickness: 10 mm ±1 mm.

Add mineral oxide pigment conforming to NZS 3117 and to requirements of NZS 4210 clause 2.2.2.2(f).

WATER
Clean, fresh and free from excess alkali, salt, silt and organic materials. Water from a local authority water supply is acceptable.

STORAGE
Store bricks and other materials clear of the ground, under cover and well ventilated until placed in the work.

KEEP CAVITY AND TIES CLEAR
Keep cavity and ties clear of mortar droppings and clean the brickwork face of any marking as the work proceeds. Repair damage to building paper immediately it occurs.

METAL TILE ROOFING

Documents referred to in this section are:

NZBC	B1 B2 & E1
NZBC	E2/AS1 External moisture
AS1397:2011	Steel sheet and strip – hot-dipped, zin-coated, or aluminium/ zinc coated
NZS3602:2003	Timber and wood-base products for use in building
NZS3604:2011	Timber framed buildings
NZS4217:1994	Pressed metal tile roofs

QUALIFICATIONS
Carry out roofing work using experienced, competent roofers familiar with the materials & techniques specified.

TILE BATTENS
Radiata pine to NZS3602, table 1E. Size to NZS3604, section 10. (Refer to Construction Schedule)
Install the tile battens to the roofing manufacturer's requirements and with all joints fully supported and staggered.

SET-OUT
Set out the planned layout before fixing commences, to ensure true lines and the correct relationship to module, grid and roof features.

UNDERLAY
Type : Heavy weight self-supporting roofing underlay. (Thermakraft 215)
Lay underlay horizontally or vertically with a 150mm side lap, over sailing the spouting and/ or gutters by 10-20mm. Fit and lap roofing underlay over the netting to the underlay manufacturer's requirements.

METAL ROOFING TILES
Pressed steel sheet aluminium/ zinc coated to AS1397. Finish as specified. Accessories, capping, flashings, and fixings to match and to the roofing manufacturer's requirements.

Take care to avoid damaging pre-finished roofing both during and after fixing. Wear only soft-soled shoes on the finished surface.

Cut with tools specified by the roofing manufacturer. Fold ends and seal cut edges of tiles and accessories without damaging their integrity or finish, all to the roofing manufacturer's requirements.

Lap metal tiles and fix complete with matching accessories, flashed to roof features and penetrations; all to the roofing manufacturer's requirements and NZS 4217.

NAILS, SCREW AND FASTENINGS
Metal, size and pattern, to roofing manufacturer's requirements and complying with the relevant aspects of NZS 3604, section 4: Durability.

Install and fix as detailed and to the roofing manufacturer's details and to NZS 3604 for fixings durability requirements.

INSTALL COVERS AND FLASHINGS
Install and fix as detailed and to the roofing manufacturer's details and to comply with NZBC E2/AS1: 4.0 Flashings, 5.0 Roof/Wall junctions and 6.0 Parapets.

PENETRATIONS AND JUNCTIONS
Flash and overflash all penetrations through the roof

Check the 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 pertrations through the roof. Required work includes the following:

- Underlay turned up at wall and parapet lines
- Underlay finished and dressed off to all openings, ready for the installation of skylights and other penetrations
- Roofing installation neatly finished to all sides of penings and to all wall and parapet junctions
- Installation of flashings (those required to be installed prior to installation of penetrating elements and/ or wall lings).

USE OF SEALANT
Select and use sealants only as recommended by the roofing manufacturer.

COMPLETE
Ensure the work is complete with flashings, under cloaks, valleys, ridges and hips properly installed so the finished roof is completely weathertight.

REMOVE FILINGS
Remove metal filings from roofing surfaces at least daily.

CLEAR
Clear trade rubbish and unused materials from the roof and surrounds regularly during the work and at completion. Sweep down the completed roof and flush out spouting, gutters and rainwater pipes, ensuring that metal filings, metal scraps and loose fixings are removed.

REPLACE
Replace damaged or marked elements. Remove unused materials from the site.

ALUMINIUM WINDOWS AND DOORS

DOCUMENTS
Documents referred to in this section are:

NZS3604:2011	Timber framed buildings
NZS4211:2008	Specification for Performance of Windows
AS 3715:2002	Metal finishing - Thermoset powder coatings for architectural applications

WINDOW AND DOOR SECTIONS
Form all aluminium members from extruded sections. Folded sections are restricted to flashings and concealed members only.

FLASHINGS GENERALLY
Material, grade and colour of head flashings 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.

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 upstand of the sill flashing. Ensure that sill flashings drain to the outside air.

Except where window/door frames are recessed, ensure that head flashings over-sail jamb facings by 20 mm at each end.

FIXINGS
Ensure all fixings and bracketing are compatible with aluminium. Do not use electroplated zinc fasteners or brass fastenings.

CONFIRM PREPARATION OF WALL OPENINGS
Confirm that wall openings have been prepared ready for the installation of all window and door frames. Do not proceed with the window and door installation until required preparatory work has been completed.

Required preparatory work includes the following:
-wall cladding building wrap to openings finished and dressed off ready for the installation of window and door frames
-claddings neatly finished off to all sides of openings
-interior linings neatly trimmed ready for installation of jamb liners and completion of air seals to all sides of openings
-installation of flashings (those which are required to be installed prior to frames, including Flexible flashing tape).

FIX FRAMES
Fix frames rigidly in place without distortion, to the window manufacturer's and WANZ Aluminium window handbook requirements, plumb, true to line and face, weathertight and with all openings operating freely.

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.

WINDOW AND DOOR JAMB LINERS, TIMBER

Timber species:	Pine
Grade/treatment:	Finger jointed H3
Thickness:	ex40mm
Finish:	Paint grade

ORGANIC POWDER COATING FINISH

Minimum thickness:	40 microns

GLAZING

Documents referred to in this section are:

NZBC B1/AS1	Structure, 7.0 Glazing
NZBC F2/AS1	Hazardous building materials, 1.0 Glazing
NZBC F4/AS1	Safety from falling, 1.0 Barriers in buildings
AS/NZS 2208:1996	Safety glazing materials in building
NZS 3604:2011	Timber framed buildings
NZS 4223.1:2008	Code of practice for glazing in buildings – Glass selection and glazing
NZS 4223 Parts 1 and 2:1985	Code of practice for glazing in buildings – Code of practice for glazing in buildings
NZS 4223.2:2016	Glazing in buildings – Part 2: Insulating glass units
NZS 4223.3:2016	Glazing in buildings – Part 3: Human impact safety requirements
NZS 4223.4:2008	Glazing in buildings – Part 4: Wind, dead, snow and live actions
NZS 4223 Supplement 1:2008	Supplement 1 to NZS 4223.1:2008 and NZS 4223.4:2008
NZS 4211:2008	Performance of windows
AS/NZS 4666:2012	Insulating glass units
AS/NZS 4667:2000	Quality requirements for cut-to-size and processed glass

GLASS
Processed glass to AS/NZS 4667, thickness to NZS 4223 parts 1, 3 and 4 unless otherwise specified:
-Clear float glass: Clear annealed transparent float glass
-Patterned glass: Translucent, annealed, rolled glass with a decorative pattern on one surface.
-Laminated glass: Grade A safety glazing material to AS/NZS 2208 with PVB or CIP resin interlayer.
-Toughened glass: Grade A safety glazing material to AS/NZS 2208.

SAFETY GLASS
All windows noted with “SG” on the elevations require Grade A safety glass. (All glazing in bathrooms <2m requires Grade A safety glass)

MIRROR GLASS
Float mirror glass to NZS 4223, part 1, clause 101.2.2.2: Silvering quality (selection S), with silver and copper plating and 2 coats of protective paint.

GLASS SCREENS
Proprietary shower/bath screens, formed to shape before toughening, complete with matching hardware.

GLAZING TAPE AND GASKETS
Single/double sided pressure sensitive self-adhesive low/medium/high density foam tapes/butyl tapes selected to suit the glazing detail to window manufacturers’ requirements.

SETTING BLOCKS
Santoprene/Neoprene, 80-90 Shore A hardness, set at quarter points or to detail, to support the weight of glass panes.

MIRROR ADHESIVE
Adhesive mirror-mastic and double-sided adhesive tape.

INSTALL GLASS SCREENS
Install shower and bath screens and doors to manufacturer’s requirements. Fix wall channel with silicone sealant.

INSULATION

Documents referred to in this section are:

NZBC H1/AS1	Energy efficiency, 2.0 Building thermal envelope
NZS 4214:2006	Methods of Determining the total thermal resistance of parts of buildings
NZS 4218:2009	Thermal insulation – Housing and small buildings
NZS 4243:2007	Energy efficiency – Large buildings

FIT THERMAL INSULATION

Lay, install, fit and fix insulation to NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope. Install in housing to NZS 4218 and in large buildings to NZS 4243.

Friction fit 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.

THERMAL INSULATION, WALLS

Location:	Exterior walls (excluding garage)
Brand:	Pink Batts R 2.4
R Value:	Refer to H1 Schedule, Energy Efficiency Calculations

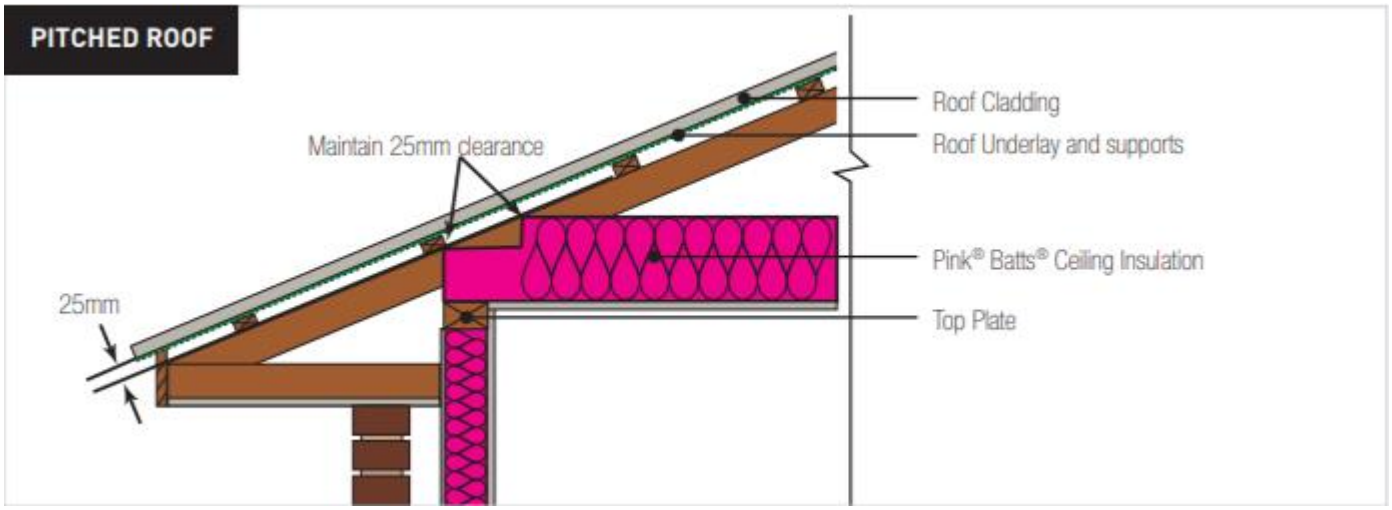
THERMAL INSULATION, CEILING

Location:	Ceilings (excluding garage)
Brand:	Pink Batts R 4.0
R Value:	Refer to H1 Schedule, Energy Efficiency Calculations

CLEARANCE

Follow the clearance specified by the manufacturer; if they are not known then:

- IC rated recessed downlight – Nill
- Enclosures containing electrical equipment – min. 50mm
- Built in appliances – min. 50mm
- Fan/ heat/ light unit – min. 100mm
- Ventilation systems – min. 50mm
- Unducted mechanical fan units – min. 200mm
- Undected passive vents that remain function – min. 200mm
- Metal chimney and flues – min.75mm
- Brick chimney – min. 50mm
- Roof underlay – min. 25mm



GIB® PLASTERBOARD LININGS

Refer to GIB® EzyBrace™ Systems installation information attached to specification.

Documents referred to in this section are:
AS/NZS 2588:2018 Gypsum linings in residential and light commercial construction - Application and finishing, Part 1: Gypsum plasterboard
BRANZ technical paper P21: A wall bracing test and evaluation procedure

MANUFACTURER'S DOCUMENTS
Manufacturer's and supplier's documents which refer to work in this section are:
General: GIB® Site Guide
Wet area: GIB Aqualine® Wet Area Systems
Bracing: GIB EzyBrace® Systems
Ceilings: GIB® Rondo® Metal Batten Systems

GIB® PLASTERBOARD
Gypsum plaster core encased in a face and backing paper formed for standard and water resistance use to AS 2588.

CEILING BATTENS
GIB Rondo galvanised steel ceiling battens

SCREWS
GIB® Grabber™ drywall screws.

NAILS
GIB® Nails (gold passivated).

TAPE ON TRIMS AND EDGES
GIB® Goldline™ tape-on paper tape and galvanised steel trims and edges and/or GIB® UltraFlex high impact corner mould.

ADHESIVE
GIBFix® All Bond wallboard adhesive.

JOINTING COMPOUND
Bedding compound: GIB Tradeset®, GIB® Lite Blue and GIB ProMix® Taping compound
Finishing compound: GIB ProMix® GIB ProMix®, Lite, GIB® All Purpose and GIB Plus 4®

JOINTING TAPE
GIB® paper jointing tape.

CHECK SUBSTRATE
Do not commence work until the substrate is plumb, level and to the standard required by the sheet manufacturer's requirements. Moisture levels not to exceed 18% at the time of lining.

MOISTURE CONTENT
Maximum allowable moisture content in accordance with AS/NZS 2589.1 for:
Framing at lining: 18% for plasterboard linings

PROTECT
Protect all surfaces, cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage.

LEVELS OF FINISH
Provide the scheduled plasterboard surfaces to the levels of finish specified in AS/NZS 2589

Before commencing work, agree in writing upon the expectation for the final quality of finish. The specified level of finish for each area should be appropriate for the type of decoration and the type and angle of the primary source of illumination specified in that area.

CARPETING

Documents referred to in this section are:

AS/NZS 2455.1:2007	Textile floor coverings - Installation practice, Part 1: General
	The New Zealand Carpet Manufacturers' Association Conditions of Warranty and installation guide

QUALIFICATIONS
Carpet layers to be experienced competent workers, familiar with the materials and the techniques specified and with AS/NZS 2455.

EDGE GRIPPER, TAPES, FIXING BARS
To AS/NZS 2455.

BINDER BARS
Anodised aluminium section with a fluted face.

SUBSTRATE
Before starting work inspect the substrate to ensure it will allow work of the required standard and that all fittings and fixtures around which the carpet is to be scribed, are in place.

PROTECTION
Protect adjoining work surfaces and finishes during installation and make good any damage to same.

TAPE
Tape for binding and seaming to be the type and width required by AS/NZS 2455 to suit the specified carpet and the standard of performance required.

LAYOUT
Plan the carpet layout so that seams run lengthways, traffic runs along the seam, light from windows is not across the seam and pile faces away from the main natural light source.

TEMPERATURE
Acclimatise carpet to a room temperature above 15°C through the whole of the installation.

PREPARE FLOOR SURFACE
Prepare floors for laying to AS/NZS 2455 requirements.

INSTALLATION, UNDERLAY
Installation to AS/NZS 2455 Lay at right angles to the carpet direction.

INSTALLATION, TAPED JOINTS
Tape carpet joints, fix grippers to floor, install underlay and carpet, to AS/NZS 2455.

FIX TRIMS
Fix binder bars, carpet to carpet bars, and trims to all junctions with other materials and to carpet edges, to AS/NZS 2455. Ensure that all junctions with other materials are neatly formed, with bars and trims securely fastened to the substrate, 20 mm from each end and at maximum 100 mm centres.

PAINTING

Documents referred to in this section are:
Resene: One-Line Specifications and Product Data Manual

PAINT TYPES
All paint coatings to be **Resene** products (which are guaranteed for consistency and performance under ISO 9001 and APAS) prepared, mixed and applied as directed in the One-Line Specifications and Product Data Manual.

GAP FILLERS
Use suitable gap fillers to match the surface being prepared. Any special primers required of the fillers must be satisfied. Refer to **Resene** surface preparation sheets in the One-Line Specifications and Product Data Manual.

INSPECT
Inspect all surfaces to be painted and report any that will not, after the preparation as laid down in the **Resene** surface preparation sheets; allow work of the required standard.

PRIMING AND SEALING
Ensure that all priming and sealing work necessary before or during construction is carried out when required.

ENVIRONMENTAL CONDITIONS
Carry out work within acceptable temperature and humidity limits, with timber dry, all to the requirements of **Resene**.

SHARP EDGES, CRACKS AND HOLES
Sharp edges, cracks and holes if present: remove and/or repair as outlined in the preamble to the **Resene** One-Line Specifications and Product Data Manual.

PREPARE ALL SURFACES
Prepare all surfaces to be coated to the requirements of the **Resene** surface preparation sheets. Use suitable gap fillers to match the surface being prepared. Any special primers required of the fillers must be satisfied. Refer to **Resene** surface preparation sheets.

APPLICATION
Apply paint by brush and/or roller to the requirements of **Resene** to obtain a smooth, even coating of the specified thickness, uniform gloss and colour. Do not spray on site without express permission.

RESENE SPECIFICATIONS
Refer to the **Resene** One-Line Specifications and Product Data Manual for surface preparation, coating sequence and application requirements as they apply to each system. Correct defective work immediately, with any recoating following the system's requirements.

SCUFF BETWEEN COATS
Between all coats remove any dust pick-up, protruding fibres and coarse particles.

FINISHED PAINT SURFACES
All finished paint surfaces to show uniformity of gloss and colour, to have the correct thickness for each coat, and freedom from painting defects such as tackiness and conspicuous brush marks. Finished work to be clean and free of any disfigurement.

PAINT SYSTEMS TO WET AREAS (Plasterboard firstly apply a sealer coat)

Undercoat & Top Coat:	Lustercryl D310	walls/ceilings
Trim:	Lusterglo	architraves, skirting, sills

PAINT SYSTEMS TO INTERIOR AREAS

Undercoat:	Resene ceiling "Flat white"	walls/ceilings
Top coat:	Resene Acrylic "Low sheen"	walls/ceilings
Trim:	Lusterglo	architraves, skirting, sills

PAINT SYSTEMS TO EXTERIOR AREAS

Undercoat:	Resene SpaceCote "Flat white"
Top coat:	Resene SpaceCote "Flat white"

HOT AND COLD WATER SYSTEM

Documents referred to in this section are:

NZBC G12/AS1	Water supplies
AS/NZS 2642.1:2007	Polybutylene pipe systems – Polybutylene (PB) pipe extrusion compounds
AS/NZS 2642.2:2008	Polybutylene pipe systems – Polybutylene (PB) pipe for hot and cold water applications
AS/NZS 2642.3:2008	Polybutylene pipe systems – Mechanical jointing fittings for use with polybutylene (PB) pipes for hot and cold water applications
NZS 3501:1976	Specification for copper tubes for water, gas and sanitation
NZS 4606.1:1989	Storage water heaters – General requirements
NZS 4606.2:1989	Storage water heaters – Specific requirements for water heaters with single shells
NZS 4606.3:1992	Storage water heaters – Specific requirements for water heaters with composite shells
NZS 4607:1989	Installation of thermal storage electric water heaters
NZS 4617:1989	Tempering (3-port mixing) valves
DIN 8077	Polypropylene (PP) Pipe dimensions
DIN 8078	Polypropylene (PP) Pipes Types 1, 2 & 3, General Quality
NZS 4305:1996	Energy efficiency domestic hot water systems

Plumbers, Gasfitters and Drainlayers Act 2006

Note: Floor surfaces of any space containing sanitary fixtures or sanitary appliances must be impervious and easily cleaned. (Seal floor when Laundry is in garage)

QUALIFICATIONS
Plumbers to be experienced competent craftsman plumbers, or registered plumbers working under the direction of a craftsman plumber, familiar with the materials and techniques specified.

WATER MAIN POLYETHYLENE
High density polyethylene pipe completed with rubber ring compression type fittings.

POLYBUTYLENE WATER PIPE
Polybutylene tubing to AS/NZS 2642.2 and AS/NZS 2642.3 complete with fittings and accessories brand-matched.

EXPOSED PIPES
Chrome plated copper pipe with chrome plated brass nuts and fittings.
Faucet hoses covered with stainless steel braid and fitted with stainless steel nuts.
White polyethylene composite pipe with white nuts and accessories.
Selected pipework finish to include escutcheon plates and bends and elbows protruding from walls or fittings. All cold-water pipework installed in external walls or exposed to the elements to be lagged and protected from frost.

VALVES
Pressure reducing or limiting valve, filter, non-return valve, cold water expansion valve, pressure relief or temperature valve, pressure relief valve and isolating valves to NZBC G12/AS1: Water supplies. (Set to 55º) The storage water heater control thermostat shall be set at a temperature of not less than 60º C to prevent the growth of Legionella bacteria.

ELECTRIC HOT WATER CYLINDER, MAINS PRESSURE
To NZS 4606.3, ceramic-coated steel thermal storage cylinder, insulated and complete with fittings required for installation by the manufacturer.

Install where shown complete with all the necessary fittings to the cylinder manufacturer's requirements and in accordance with NZBC G12/AS1: 6.10. Valve-vented systems to NZS 4607.

ELECTROLYTIC ACTION
Avoid electrolytic action by eliminating contact or continuity of water between dissimilar metals.

EXCAVATE
Excavate for the water main to a firm, even trench base in straight runs. Allow to backfill.

WATER MAIN

Lay a minimum of 500 mm below ground level (600 mm under driveways) from the utility network operator's supply through a gate valve and meter toby box to the building. Lay marker tape above the water main in backfill.

POLYBUTYLENE/POLYETHYLENE WATER SUPPLY

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 NZBC G12/AS1. Conceal pipework and pressure test before the wall linings are fixed.

INSTALLING HOT WATER PIPE INSULATION

Insulate all hot water pipes in accordance with the insulation manufacturer's instructions. Cut insulation sections tight between timber framing and tight between the webs of studs. Where hair felt is used, wrap around pipes in two layers in opposite directions and secure with galvanised steel wire ties.

PENETRATIONS

Provide and fit collars and escutcheon plates to match the pipework at all penetrations through constructions.

INSTALL TAPS AND FAUCETS

Install taps and faucets in accordance with the tap manufacturer's requirements. Flush out on completion. Check that washers or ceramic discs are operating correctly.

TESTING OF PLUMBING

NZBC G12/AS1 7.5 Watertightness

7.5.1 The water supply system shall be tested to ensure watertightness. An acceptable testing method is to:

a) Subject the hot and cold system to a pressure of 1500 kPa for a period of not less than 15 minutes, and

b) Inspect the system to ensure that there are no leaks.

WATER MAIN

Material:	Polyethylene
Internal diameter:	(ID)20mm/ (OD)25mm

WATER PIPE

Material:	Polybutylene
Nominal bore:	(ID)20mm/ (OD)25mm

INSULATION FOR HOT WATER PIPES

Brand/type:	Euro lagging
Inside diameter:	16/22 mm

ELECTRIC HOT WATER CYLINDER

Brand/model number:	Rheem
Capacity:	250 litres

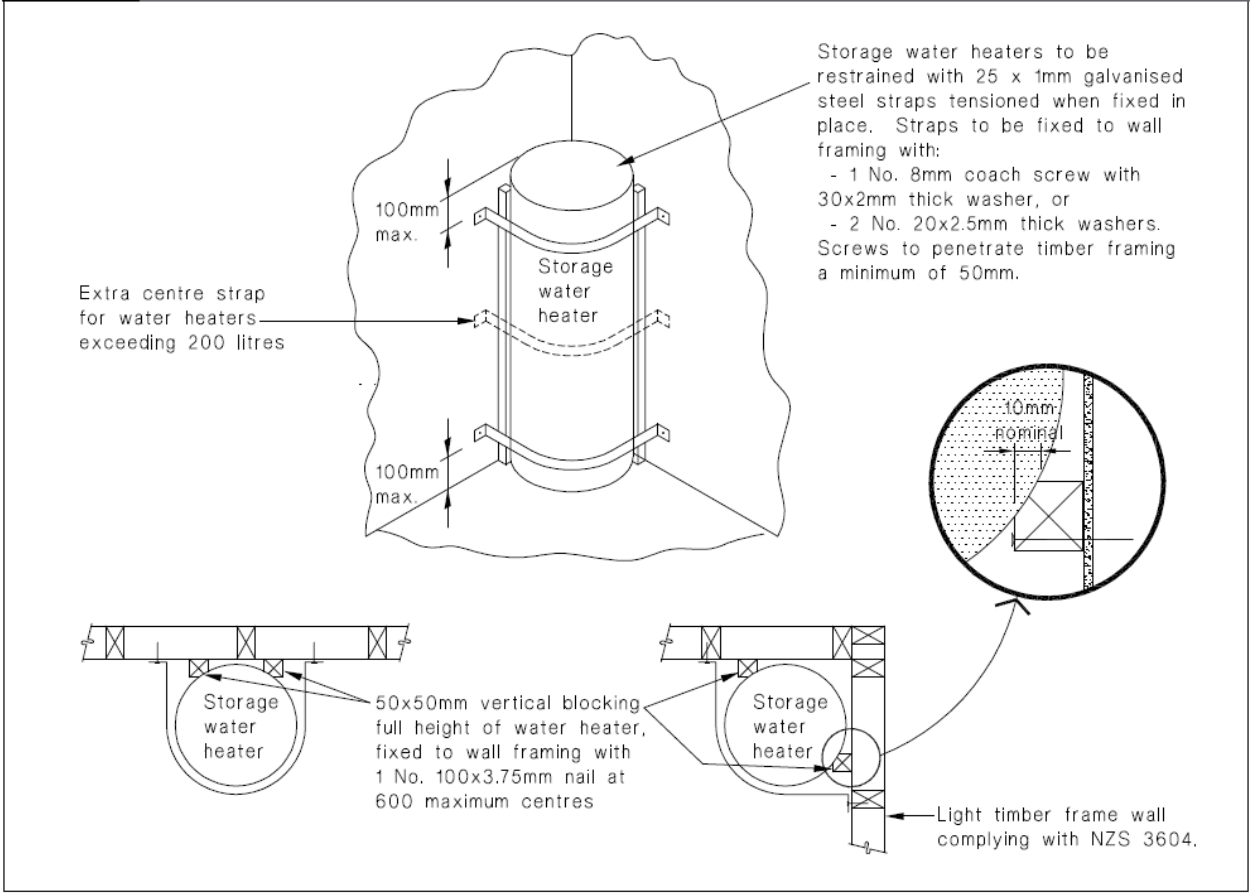
NZBC G12/AS1

Table 7: Water Supply Pipework Support Spacing
Paragraph 7.1.3

Pipe material	Pipe diameter (mm)	Maximum distance between supports (m) Vertical pipe	Graded and horizontal pipe
Copper	10 – 15	1.5	1.2
	20 – 25	2.0	1.5
Galvanised steel	15 – 20	2.0	1.5
	25	3.0	2.5
uPVC	15 – 20	2.0	1.0
	25	2.4	1.2
Polyethylene and polybutylene (cold water supply)	15 – 20	1.5	0.75
	25	1.8	0.9
Polybutylene (hot water supply)	15 – 18	1.0	0.6
	20 – 22	1.4	0.7

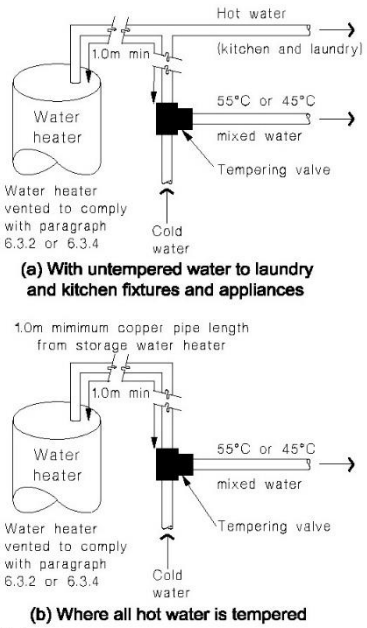
Note:
The spacing for these pipe materials is based on the pipes being located within the *building* structure.

Figure 14: Seismic Restraint of Storage Water Heaters 90 – 360 litres
Paragraph 6.11.4



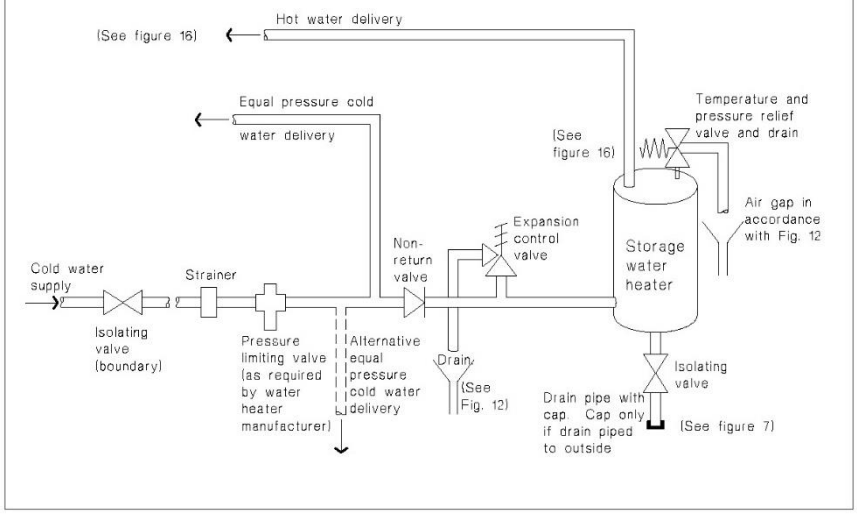
NZBC G12/AS1

Figure 16: Tempering Valve Installation
Paragraph 6.14.2 a)



Note:
1. For optimum system efficiency the tempering valve, for other than a mains pressure system, may be located as low as practicable to achieve the manufacturer's recommended head, at the tempering valve.
2. 1.0m minimum copper pipe length from storage water heater.

Figure 8: Mains Pressure Storage Water Heater System (unvented)
Paragraphs 6.1.2 and 6.2.1 b)



RAINWATER SYSTEMS

Documents referred to in this section are: -
NZBC B1, B2, E1 & E2
AS 1397:2011 Steel sheet and strip - hot-dipped, zinc-coated or aluminium/zinc-coated
Workers to be either competent craftsman plumbers, or registered plumbers working under the direction of a craftsman plumber, or roofers, familiar with the materials and techniques specified.

Aluminium/zinc alloy coated pre-painted steel
ALUMINIUM/ZINC ALLOY PRE-PAINTED SHEET STEEL
0.55 mm sheet steel coated to AS 1397, pre-painted.

ALUMINIUM/ZINC ALLOY COATED PRE-PAINTED STEEL SPOUTING
Profile, jointing, brackets and fittings brand matched and complete to the spouting manufacturer's specifications.

DOWNPIPES
Complete with stand-off brackets and galvanised screws.

FLASHINGS GENERALLY
0.55 mm sheet steel galvanised to AS 1397, aluminium/zinc coated to AS 1397, 1.8 mm (20 kg/m^2) copperised pure lead, 0.5 mm half hard copper sheet, or proprietary rubberised perforated aluminium strip, all to location, compatibility and design requirements of BRANZ Bulletin 304 Flashing design.

Aluminium/zinc alloy coated pre-painted steel
ALUMINIUM/ZINC ALLOY COATED PRE-PAINTED STEEL FASCIA
Shape/size: Refer to construction schedule
Brand/type: Coloursteel
Paint coating type: Endura/Max

ALUMINIUM/ZINC ALLOY COATED PRE-PAINTED STEEL SPOUTING
Shape/size: Refer to construction schedule
Brand/type: Coloursteel
Paint coating type: Endura/Max

ALUMINIUM/ZINC ALLOY COATED PRE-PAINTED STEEL DOWNPIPES
Shape/size: Refer to construction schedule
Paint coating type: Endura/Max

SANITARY PLUMBING

Documents referred to in this section are:

NZBC G1/AS1	Personal hygiene
NZBC G13/AS1	Foul water - sanitary plumbing
NZBC H1/AS1	Energy Efficiency – hot water systems
AS/NZS 1260:2017	PVC-U pipes and fittings for drain, waste and vent applications

Plumbers, Gasfitters and Drainlayers Act 2006

QUALIFICATIONS
Carry out work by or under the direct supervision of a person registered under the Plumbers, Gasfitters and Drainlayers Act 2006.

UPVC WASTE, SOIL AND VENT PIPES
UPVC pipe to AS/NZS 1260 complete with fittings brand-matched to the pipe manufacturer's requirements.

EXPOSED PIPES AND TRAPS
Chrome plate on copper pipes and associated copper and brass fittings.
White polybutylene or PVC, including all associated fittings.

SEALANT, SANITARY FIXTURES
For between sanitary fixtures and accessories and adjacent floor or wall surfaces.
1-part, silicone, containing mildew resistant agents.
Colour: White

EXECUTION GENERALLY
Carry out this work and complete all tests to NZBC G1/AS1: 2.0, 3.0 and G13/AS1

ELECTROLYTIC ACTION
Avoid electrolytic action by eliminating actual contact or continuity of water between dissimilar metals.

INSTALL SANITARY FIXTURES
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.

INSTALL TRAPS, WASTE AND VENT PIPES
Connect waste outlets to traps and run waste pipes and back vents concealed, sized and fixed to NZBC G13.
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 untrapped waste pipes.

PENETRATIONS
At penetrations through constructions provide and fit collars and escutcheon plates to match pipework. Penetrations to the DPM under the slab to be sealed with DPM tape. Wall penetrations as per E2/AS1 Figure 68.
Corrugated metal roof penetrations as per E2/AS1 Fig 53 & 54

NZBC G13/AS1

Table 7: Distances Between Supports
Paragraph 6.2.1

Material	Pipe diameter (mm)	Maximum distance between supports (m) Vertical pipe	Graded pipe
Copper pipes	32 to 50	3.0	2.5
	greater than 50	3.5	3.0
uPVC pipes	32 to 50	1.0	0.5
	65 to 100	1.2	1.0
	greater than 100	1.8	1.2

DRAINAGE

Documents referred to in this section are:

NZBC B1/AS1	Structure – general
NZBC E1/AS1	Surface water
NZBC G13/AS2	Foul Water
AS/NZS 1254:2010	PVC pipes and fittings for storm and surface water applications
AS/NZS 1260:2017	PVC pipes and fittings for drain, waste and vent applications
AS/NZS 4130:2009	Polyethylene pressure pipes (PE)
AS/NZS 4058:2007	Precast concrete pipes (pressure and non-pressure)
NZS 3104:2003	Specification for concrete production
NZS 7643:1979	Installation of unplasticised PVC pipe systems
	Plumbers, Gasfitters and Drainlayers Act 2006

QUALIFICATIONS
Drainlayers to hold a current licence within the terms of the Plumbers Gasfitters & Drainlayers Act 2006 and be experienced, competent and familiar with the materials and techniques specified.

CONCRETE
17.5 MPa ordinary grade to NZS 3104.

uPVC PIPES
uPVC Pipes bends, junctions, fittings and joints to AS/NZS 1254 and AS/NZS 1260.

GULLY TRAPS
To NZBC G13/AS2: 3.3, complete with grating. (NZBC G13 Fig 2)

DRAINAGE AND FILLING MATERIALS
Granular: Clean gravel or crushed stone or a blend of these. Particle size from minimum 7 mm to maximum 20 mm & AP40 compacted at 150mm layers under slab. (use AP40 compacted at 150mm layers under slab as drain bedding)
Selected: Fine grain soil or granular material suitable for bedding; excluding topsoil.
Ordinary: Top soil or other excavated materials.

STORMWATER
Dispose of stormwater on site as shown on the drawings.

CONCRETE ENCASEMENT
Concrete encase shallow drains and drains under driveways, on a 100 mm deep 17.5 MPa concrete bed reinforced with three 10 mm mild steel bars. Surround pipes with a polythene membrane to allow movement and encase in 100 mm 17.5 MPa concrete.

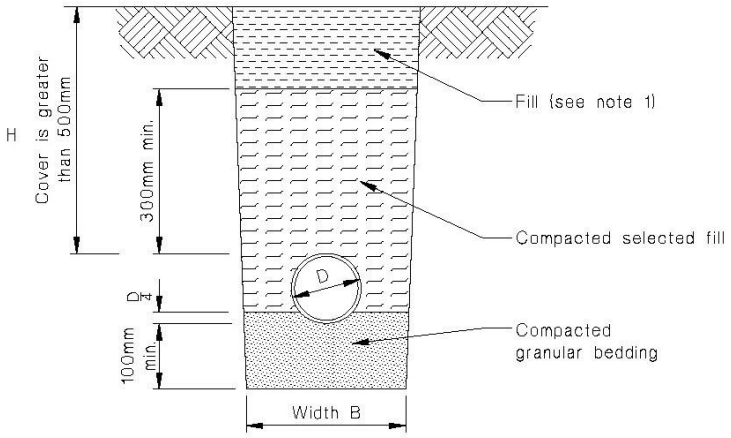
BEDDING AND BACKFILL
Backfill drain lines in 150 mm layers, well tamped but without disturbing the drains. Finish off with 150 mm of topsoil, slightly mounded above the finished ground line. As per NZBC G13/AS2 Bedding and backfilling

SUPPORT AND THERMAL MOVEMENT
The plumbing system shall accommodate without failure the expected longitudinal movement in pipes resulting from temperature changes. All copper and PVC-U pipes shall incorporate expansion joints to comply with clause NZBC G13/AS1 6.3.1

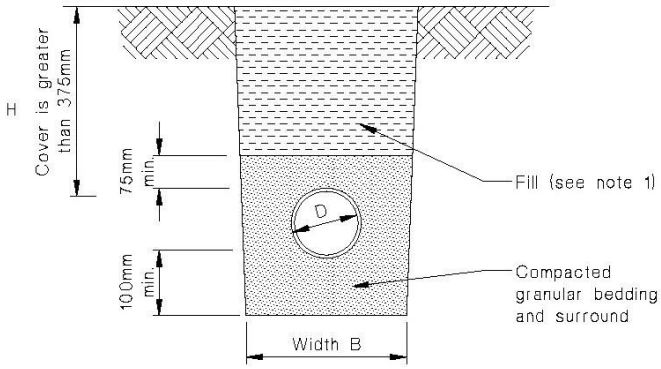
TESTING OF DRAINAGE
NZBC G13/AS1 - 7.0 Watertightness
7.1 Test methods
7.1.1 All above ground sanitary plumbing pipework shall be tested by water test or air test to verify that the system is watertight.
7.1.2 Water test: The method described in Section 10 of NZS 7643 may be used for ensuring watertightness of above ground sanitary plumbing pipework.
7.1.3 Air tests may be carried out in accordance with either clause 12.3.2 of AS/NZS 3500.2.2 or Paragraph 8.3 of E1/VM1.
NZBC G13/AS2 - 6.0 Watertightness
6.1 Testing

6.1.1 All sections of the drainage system shall be tested by water test or air test to ensure watertightness.
COMMENT:
Testing should be undertaken before backfilling for the easy identification of any leaks.
6.1.2 Water test
NZS 7643 Section 11 gives an acceptable method for ensuring watertightness of below ground uPVC drainage pipework.
6.1.3 Air tests may be carried out in accordance with either clause 12.3.2 of AS/NZS 3500.2.2 or Paragraph 8.3 of E1/VM1.

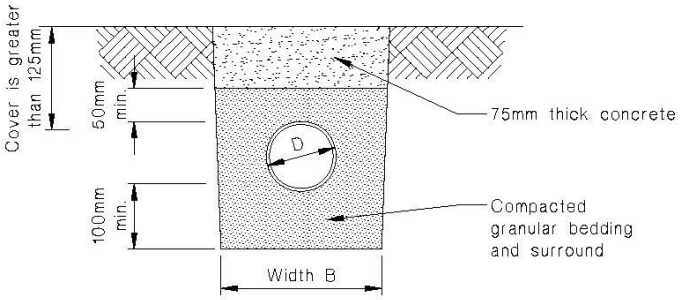
Figure 7: **Bedding and backfilling**
Paragraphs 5.2.1, 5.3.1 and 5.4.1



(a) Bedding type 'B' of NZS 7643
Cover greater than 500mm



(b) Bedding type 'D' of NZS 7643
Cover greater than 375mm



(c) Cover between 125mm and 375mm

NOTE:
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 subject to light traffic.

ELECTRICAL

Documents referred to in this section are:

NZBC F7/AS1	Warning systems, 3.1 Domestic smoke alarms
NZBC G2	Laundering – Service connections
NZBC G3	Food Preparation and Prevention of Contamination
NZBC G8	Artificial Light - Illuminance
NZBC G9/AS1	Electricity, 1.0 Electrical Installations within domestic dwellings
NZS 4514:2009	Part 6: Smoke Alarms
AS/NZS 3000:2018	Wiring Rules
AS/NZS 3008:2017	Electrical installations - Selection of cables
3008.1.2:2017	Typical New Zealand installation conditions
AS/NZS 5000.2:2006	Electric cables - Polymeric insulated - For working voltages up to and including 450/750 V
NZECP 51:2004	New Zealand Electrical Code of Practice for Homeowner/Occupier's Electrical Wiring Work in Domestic Installations

PVC-insulated cables for electric power and lighting
Electricity Regulations
New Zealand electrical codes of practice (ECP)

Illuminance at floor level shall be no less than 20 lux as per NZBC G8.3 - Performance requirement.
Minimum requirement: 1 standard lighting fixture per 10m² minimum. (per room) Hallway requires 1 lighting fixture per 4.7 lineal meters minimum. Lighting areas based on 100w closed abutted (CA80 or CA135) down light, 100w batten holder & 100w ceiling pan. (Where energy efficient bulbs are used they shall have an equivalent wattage to the minimum stated)

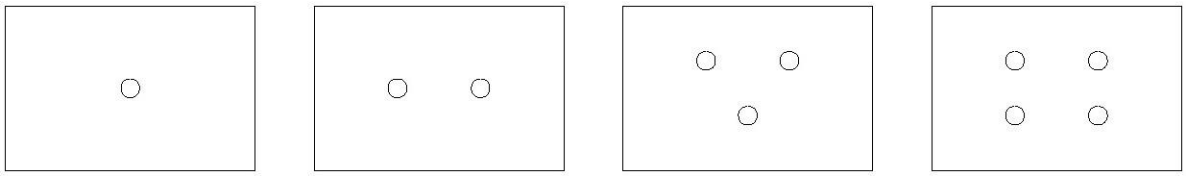
LIGHTING SCHEDULE (Minimum per area/room)

2 LF/room	Living, kitchen, dining, family, activity, media, lounge & bedroom.
1 LF	Hall (1 LF per 4.5 lineal metres min.)
1 LF/bay	Garage
1 LF	Entry, toilet, bathroom, laundry, WIR, store.
1 LF	Other rooms (1 LF per 10m² min.)

KEY

LF	Standard Lighting Fixture – 100w Down light (CA80 or CA135), 100w Batten holder or 100w Ceiling Pan
H	Halogen – 50w (1 H per 5m² min. or 1 H per 2.2 lineal metres)

LIGHTING LAYOUT EXAMPLES



Single (1LF) Double (2 LF) Triple (LF) Quad (4 LF)

Lighting to be spaced out evenly.

Note: The above lighting schedule is the minimum requirement. The final layout is by owner on site but will not be less than the above schedule.

COMPLY
Comply with the referenced Electricity Regulations, Standards and the New Zealand electrical codes of practice for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection.

QUALIFICATIONS
Carry out work by or under the direct supervision of a holder of a practising certificate under the Electricity Regulations.

CERTIFICATE OF COMPLIANCE
Supply a certificate of compliance to the owner, as required by the Electricity Regulations, and in particular, clauses 16, 34 and 35. Allow the network utility operator to test before the meter installation, listed work inspection, polarity check and livening of supply.

MAINS SUPPLY, SINGLE PHASE
Tough plastic sheathed neutral screened cable to AS/NZS 5000.2 and AS/NZS 3008.1.2, with a minimum rating of 60 amps per phase. Include pilot cable where required by network utility company.

MAIN EARTH
Provide a plastic toby box or UPVC tube to contain and protect the earth pin. Fix the connecting earth wiring securely against wall surfaces. Earth Bar to be bonded to the reinforcing mesh.

RCD protection to AS/NZS 3000

Bond together and to earth all plumbing fittings not adequately isolated, to the Electricity Regulations and to the fitting manufacturer's requirements.

CABLES
Tough plastic sheathed copper conductors to AS/NZS 5000.2, stranded above 1.0 mm^2, and to AS/NZS 3008.1.2. Minimum sizes. Increase sizes if the method of installation, thermal insulation, cable length or load will reduce the cable rating below that of the connected load, or produce an excessive voltage drop.

Heat resistant cable for final connections to all heated appliances, and high temperature cable in ambient conditions may be above 35°C.

METER BOX
Proprietary manufactured, zinc plated powder coated metal case, weatherproof if mounted outdoors, and complete with meter mounting, main switch and fuse.

DISTRIBUTION BOARD
Proprietary manufactured heavy duty plastic fire resistant enclosed construction, complete with neutral and earth busbars, MCBs, 30 mA RCDs and 60 amp main switch, complete with 20% spare capacity to AS/NZS 3000. All protective devices: 6kA MCBs of the appropriate rating.

MINIATURE CIRCUIT BREAKERS
Miniature moulded case circuit breakers

WALL BOXES
Standard size in plastic, with 2 or more gang size, all screw fixed.

SWITCH UNITS
Sixteen amp minimum rated, 230 volt polycarbonate flush plate units.

Fit all single and double switch units and socket at the following heights (to the centre of the unit) unless shown otherwise on the drawings.
Switch Units: 1000 mm & at least 500mm from corners.
Socket Units: 150 mm above work benches,

Mount switches vertically and socket units horizontally. Label all switch units that control electrical equipment by colour filled engraving on the switch plate.

HOT WATER SYSTEM SWITCH
One way 20 amp switch complete with cable clamp for flexible PVC conduit to element enclosure.

SWITCHED SOCKET UNITS
Ten amp, 230 volt polycarbonate flush plate 3 pin flat NZS combination switch units, single or multi gang.

SMOKE ALARMS
Smoke alarms shall be installed on or near the ceiling in accordance with NZS 4514 and the manufacturer’s instructions.

LAUNDRY
No less than 1x 10amp socket outlet to be provided adjacent to space provided for washing machine.

KITCHEN
No less than 1x 10amp socket outlet to be provided in space behind Refrigerator.
Provide 1x fixed outlet to cooking appliance

GARAGE DOOR CONTROLLERS
Provide single switched socket outlet for the door controller to plug into.

LIGHT FITTINGS
All fittings complete with lamps, install light fittings in locations as directed by the owner, and in accordance with the fitting manufacturer's requirements and no less than the lighting schedule.
All downlights to be IC rated LED.

CIRCUIT PROTECTION
Install MCBs to protect each final sub circuit sized for circuit maximum loading.

Domestic
Install RCD protection at the switchboard of final sub circuits controlling socket outlets and lighting except for:
- Fixed cooking equipment, heating, HWC and A/C units

SET-OUT
Unless specifically detailed, confirm on site the exact location, disposition and mounting heights of all outlets, fittings, equipment, penetrations, and use of exposed wiring with the owner. Fix outlet items level, plumb and in line.

CABLING
Install with a maximum of 17 light outlet units or 6 double or single switched socket units on any circuit. Minimum 2 lighting circuits per installation. Separate circuits for all electric heating appliances. All cabling run concealed. No TPS cable laid directly in concrete. Locate holes in timber framing for the passage of cables at the centre line of the timber member. Install cable in conduits where required to pass through concrete or underground.
Complete all labelling 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.

WALL BOXES
Flush mounted in cavity construction.

EXTRA LOW VOLTAGE LIGHTING
Where remote transformers are used for ELV lamps, connect from transformer to lamp with minimum 2.5 mm^2 conductor, to ensure voltage drop in transformer and conductor does not exceed 0.8 volts. Connect lamps 50 watt or greater matched to no more than one per transformer, located as close as practicable to the lamp. Ensure transformers and rear of light fittings are adequately ventilated and clear of any thermal insulation.

ELECTRIC HOT WATER SYSTEM
Wire as a separate circuit through a wall-mounted isolating switch, with the cable from switch to element encased in heat resistant conduit, clamp fixed at each end. Hot water cylinders, thermostats and 3000 watt element supplied and fitted under HOT AND COLD WATER SYSTEM.

COMPLETION
Leave work operating correctly, with equipment clean and all lamps operational.

MANAGEMENT OF SITE SAFETY

The main contractor to undertake best practice systems to manage health and site safety.

Building supervisors are all site safe qualified. The contractors are inducted on our Health and Safety policy and also provide the main contractor with documentation on their Health and Safety Management systems and also fill out a health and safety questionnaire.

The main contractor (Noted on specifications cover sheet) undertakes to manage hazards by elimination, isolation or minimisation in that order.

HAZARD PRECAUTION
There is a Hazard Register posted on site at all times and all sub trades and suppliers required to record any potential hazards introduced onto site.

Earthworks and trenching will generally be back filled on same day but if this is not possible, barriers will be erected to minimise hazard.

CLEAR SITE
To ensure site is clear, work areas are to be kept clean and tidy with receptacles provided and areas allocated areas for waste and refuse.

Chemicals and paints will be stored in original containers in a secure and well ventilated place appropriate to the product.

Building materials stored on site will be stacked so they cannot fall or protrude dangerously.

PUBLIC VISIT
Public visiting site are instructed to report to site foreman who will ensure public are provided with a high visibility vest which must be worn on site at all times. Site foreman to ensure public are detoured from hazardous areas.

TEMPORARY FENCING
Fencing to keep out unauthorised personel. Under NZBC F5 – Construction and Demolition Hazards Clause 1.1.1, a 2.0 metre fence is required for protection of public.

SAFETY NETS
Safety Nets are to be used to avoid the likelihood of tools or materials falling onto places where people might be present. Under NZBC F5 – Construction and Demolition Hazards, Performance Clause F5.3.1.

NON-WORK PERIODS
The main contractor and sub-contractors have responsibility to ensure public is not endangered in any way and site is safe during non-work periods

SIGNAGE
All sites have sign posted at entry stating '*Authorised personnel access only and please report to site foreman*'.

END OF DAY
Tools locked away at end of day.

EROSION AND SEDIMENT CONTROL PLAN

(Please also refer to the Drainage Plan and Rainwater & Drainage Sections of this Specification.)

The main contractor will use the relevant erosion and sediment control measures to meet the requirements for this site.

Provide protection for neighbouring sites from rubbish or sediment contamination.

EROSION CONTROL
Minimum existing vegetation and soil will be removed from the site,
Sediment Control measures will be in place before earthworks begin
Earthworks will keep to a minimum.
Stockpiles will be delivered as late as possible, located within the sediment control zone, and protected from runoff and covered where necessary.
Trenching will where possible be done at one time for all services. Contractors will be requested to set out, dig, and backfill trenches in a such as way as to minimise erosion and runoff.
Hard wastes will be placed in the bins provided by the Company.
Clients will be encouraged to landscape and cover exposed soil on their site as soon as possible.

SEDIMENT AND RUN-OFF CONTROL
Upslope water will be diverted from the site where possible.
Sediment controls will be placed at the bottom of the site to minimise runoff leaving the site. These may involve sediment fencing, supplemented with straw bales on steep areas.
Existing vegetation will be used where possible to minimise runoff
Sump inlets will be protected from sediment runoff.
Storm water down pipes will be connected as soon as practicable to the permanent Storm water system once the roof is laid.
Contractors will be required to comply with these control measures
Wash down and wet trade runoff will be trapped and controlled on site
Sediment control measures will be regularly inspected and maintained.

SITE ACCESS
Stabilised access from the road to the platform will be provided.
A runoff diversion bund will be included in the site access way if required.
Sediment on footpaths and roads will be removed as soon as practicable

BUILDING MAINTENANCE

REGULAR MAINTENANCE
Regular maintenance of a building shall entail:
a) Washing exterior surfaces to remove dirt and mould at least once in a year,
b) Inspecting surfaces and junctions at least once in a year, and repairing or replacing items as necessary,
c) Repairing cracks and surface defects, and recoating as necessary,
d) Inspecting sealants annually for loss of integrity or adhesion with the joint surfaces and replacing sealants as necessary,
e) Maintaining paint coatings by recoating at least every 10 years,
f) Inspecting clear sealers annually and recoating, if necessary, but at least every 5 years, and
g) Maintaining required clearances (as shown in the details in section 9) between wall claddings and:
i) ground surface,
ii) paving surface,
iii) deck membranes, and
iv) roof membranes.

COMMENT
The frequency of regular maintenance depends on the degree of exposure and the robustness of the building facade system including the integrity of any coating. The maintenance interval for concrete or concrete masonry systems can range from three months to one year. Washing by rain removes most accumulated atmospheric contaminants, but sheltered areas, such as walls directly below eaves, are protected from the direct effects of rain and require regular manual washing. Some heavily textured surfaces will not be as effectively washed by rain as smoother surfaces, so may require more regular manual washing. However, it is important that high pressure water is not directed at sensitive junctions such as joinery, window surrounds and flashings. Great care should be taken to avoid water being driven into joints and potentially dislodging seals. The repair of cracks to concrete and plaster may require specialist advice to ascertain the cause of cracking and the appropriate repair methodology.

Section 6
Technical Information

- ~~Septic Tank & Effluent Design incl. fencing~~
- ~~ECan Approval Documents~~
- ~~Gas Fire~~
- ~~Heating Unit~~
- ~~Solar Panels~~
- ~~Central Heating Systems~~
- Manufacturer's Literature
- A4 Details/Acceptable Solution Extract
- ~~Well/Water Test~~

Archiplus

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

SPECIFICATION APPENDIX

prepared for

WENDELBORN PROPERTY LTD
(owner's name)

LOT 755 LT 582033
38 CROSSLEY AVENUE
RAVENSWOOD
WOODEND
(project address)

22152
(job number)

28 SEPTEMBER 2022

INDEX

APPENDIX 01 – STRUCTURAL FIXINGS

APPENDIX 02 – ROOF UNDERLAY

APPENDIX 03 – DEKTITE FLASHING

APPENDIX 04 – GERARD ROOF SPECIFICATION MANUAL

APPENDIX 05 – WATERGATE PLUS BUILDING UNDERLAY

APPENDIX 06 – ALUBAND WINDOW FLASHING TAPE

APPENDIX 07 – GIB AQUALINE

APPENDIX 08 – HOT WATER SYSTEM

APPENDIX 09 – JH OBLIQUE VERTICAL WEATHERBOARD

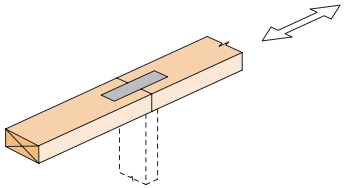
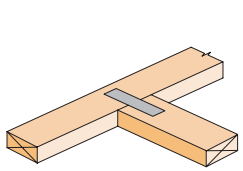
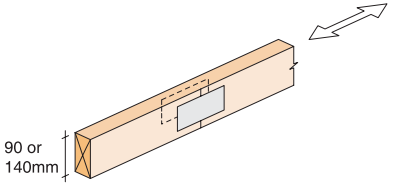
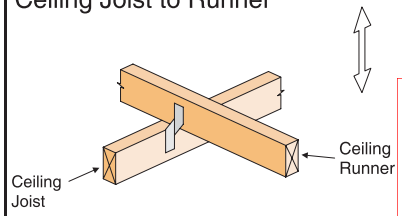
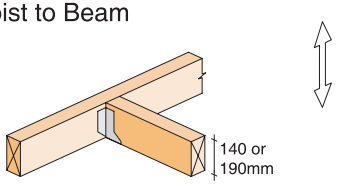
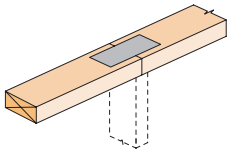
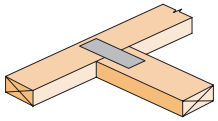
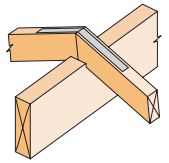
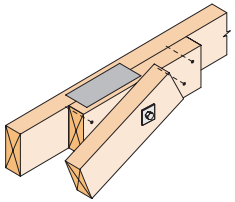
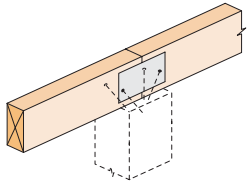
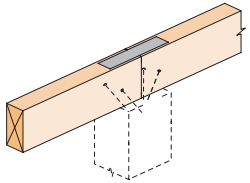
APPENDIX 01 – STRUCTURAL FIXINGS

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

LUMBERLOK® EASY-FIX

01/2017

A SIMPLE ON-SITE GUIDE FOR 3kN, 6kN & 12kN LOADS AS SPECIFIED IN NZS 3604:2011

FIXING LOAD	CONNECTION TYPE			
3kN	Top Plate Joint over Stud  Single Tylok 6T5 or Single Strap Nail Ref. Fig. 8.15 NZS 3604:2011	Top Plate Joint  Single Tylok 6T5 Ref. Fig. 8.16 NZS 3604:2011	Hip Rafter & Ridge Board Joint  Pair of Tylok 6T10 Ref. Fig. 10.2 NZS 3604:2011	Ceiling Joist to Runner  Single CT160 Ceiling Tie fully nailed with 30mm x 3.15 dia. nails Ref. Fig. 10.10 NZS 3604:2011
6kN	Joist to Beam  JH47 x 120 Joist Hanger with 12 x 30mm x 3.15 dia. nails (3 per flange) Ref. Fig. 7.7 NZS 3604:2011	Top Plate Joint over Stud  Single Tylok 6T10 or Single PLATE-LOK Ref. Fig. 8.15 NZS 3604:2011	Top Plate Joint  Single Tylok 6T10 or Single PLATE-LOK Ref. Fig. 8.16 NZS 3604:2011	Rafter  LUMBERLOK Sheet Brace Strap with 6 x 30mm x 3.15 dia. nails each end Ref. Fig. 10.5 NZS 3604:2011
12kN	Brace to Bearer  Single Nailon Plate 1mm x 110 x 160mm with 12 x 30mm x 3.15 dia. nails each side of joint Ref. Fig. 6.7 NZS 3604:2011	Bearer Joint over Pile  Single Nailon Plate 1mm x 110 x 160mm with 12 x 30mm x 3.15 dia. nails each end & 4 x 100mm skew nails Ref. Fig. 6.19 NZS 3604:2011	Bearer Joint over Pile  Single Nailon Plate 1mm x 110 x 160mm with 12 x 30mm x 3.15 dia. nails each end & 4 x 100mm skew nails Ref. Fig. 6.19 NZS 3604:2011	

SCAN FOR SPECIFICATION VIDEO

https://vimeo.com/117350347

CONSENT ISSUED BC221264 - Page 223 of 359

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

CONSENT ISSUED BC221264 - Page 224 of 359

TIMBER CHARACTERISTIC STRENGTH

NZS 3603:1993 AMENDMENT 4

Structural Grades (as defined in NZS 3604:2011 Clause 1.3)

Timber properties are for dry in-service conditions m/c = 16%

Timber Grade	Bending Strength f_b (MPa)	Compress. Strength f_c (MPa)	Tensile Strength f_t (MPa)	Shear Strength f_s (MPa)	Modulus of Elasticity E (GPa)	Lower Bound Modulus of Elasticity E_{lb} (GPa)
SG6	10.0	15.0	4.0	3.8*	6.0	4.0
SG8	14.0	18.0	6.0	3.8*	8.0	5.4
SG10	20.0	20.0	8.0	3.8*	10.0	6.7

*f_s = 3.0MPa for Douglas Fir

Timber Sizes

Call Size	Gauged Kiln Dried Size (in mm) (Actual Size)	Rough Sawn (in mm) (Actual Size)
100 x 50	90 x 45	100 x 50
150 x 50	140 x 45	150 x 50
200 x 50	190 x 45	200 x 50
250 x 50	240 x 45	250 x 50
300 x 50	290 x 45	300 x 50
100 x 100	90 x 90	100 x 100
150 x 100	140 x 90	150 x 100
200 x 100	190 x 90	200 x 100
250 x 100	240 x 90	250 x 100
300 x 100	290 x 90	300 x 100

Note: It is common now to refer to the timber size as the Kiln Dried Size. Where the Call Size refers to the use of Rough Sawn timber the Actual Size then becomes the Call Size. The Actual Size is the size used in the design calculations.

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

DURABILITY PRODUCT SELECTION

ALTERNATIVE SOLUTION TO TABLE 4.1 NZS 3604:2011

Zones	Fixings	Environment	Product Option
All Zones	Nail plates and timber connectors All other structural fixings	Closed	GANG-NAIL and LUMBERLOK Standard Zinc Coated Product(1) BOWMAC Hot Dip Galvanised(3)
Zone D	Structural fixings	Sheltered and Exposed	LUMBERLOK Stainless Steel 304(2) BOWMAC Stainless Steel 304(2)
Zones B and C	Timber pile fixings MORE than 600mm from ground	Sheltered Subfloors vented 7000mm²/m² or less	LUMBERLOK Hot Dip Galvanised(4) BOWMAC Hot Dip Galvanised(3)
		Exposed Subfloors vented 7000mm²/m² or more	LUMBERLOK Stainless Steel 304(2) BOWMAC Hot Dip Galvanised(3)
	Timber pile fixings LESS than 600mm from ground	Sheltered and Exposed	LUMBERLOK Stainless Steel 304(2)
	All other structural fixings	Sheltered	LUMBERLOK Hot Dip Galvanised(4) BOWMAC Hot Dip Galvanised(3)
		Exposed	LUMBERLOK Stainless Steel 304(2) BOWMAC Hot Dip Galvanised(3)

1. All GANG-NAIL, LUMBERLOK and BOWMAC product complies with Table 4.2 NZS 3604:2011.
2. LUMBERLOK and BOWMAC Stainless Steel product is 304 grade. Regular washing and maintenance will positively affect long term appearance of these items.
3. BOWMAC Hot Dip Galvanised product is to AS/NZS 4680 to 600g/m²
4. LUMBERLOK Hot Dip Galvanised product is to AS/NZS 4680 to 390g/m²

NOTES

Items above refer to GANG-NAIL®, LUMBERLOK® and BOWMAC® product marketed for specific applications with a requirement to last 50 years as an alternative solution to Table 4.1 NZS 3604:2011.

The MiTek New Zealand Limited Durability Flow Chart for product selection is derived from this alternative solution to Table 4.1 NZS 3604:2011. Definitions of zones and environments are derived from NZS 3604:2011.

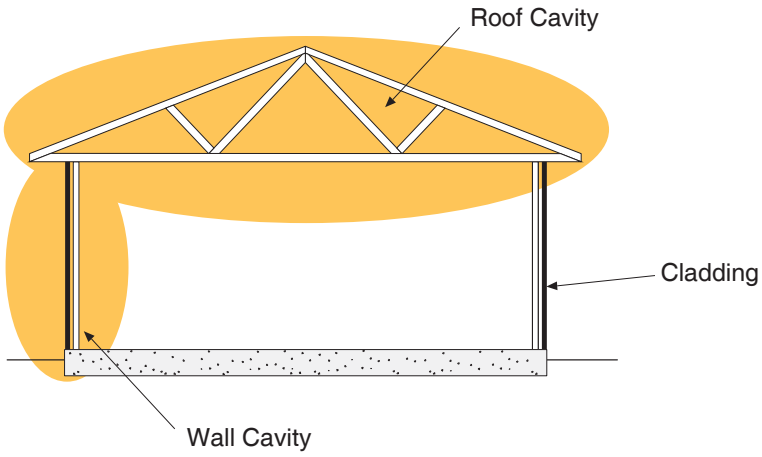
Supporting documents available for this alternative solution:-
Les Boulton and Associates. Materials and Corrosion Consultants Report 00330: Evaluation of Bracket Durability; NZS 3604:1999 and Report 01372: Corrosion of BOWMAC Fixings in Treated Timber.
Optimech Services Metallurgical Consultancy Test Certificate Reports No: 00-134 BOWMAC and No: 01-023 LUMBERLOK Determination of Galvanising Coating thickness.
Product Statements for LUMBERLOK and BOWMAC products.

Content from NZS 3604:2011 Table 4.1 adapted by MiTek New Zealand Limited with permission from Standards New Zealand under Copyright Licence 000907. Please see Standard for full details, available from www.standards.co.nz.

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

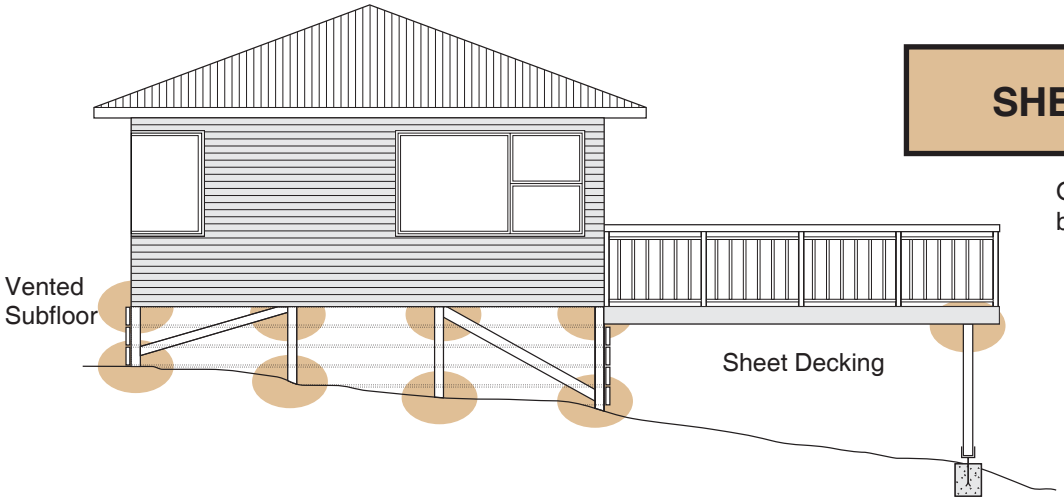
CONSENT ISSUED BC221264 - Page 226 of 359

DURABILITY FLOW CHART



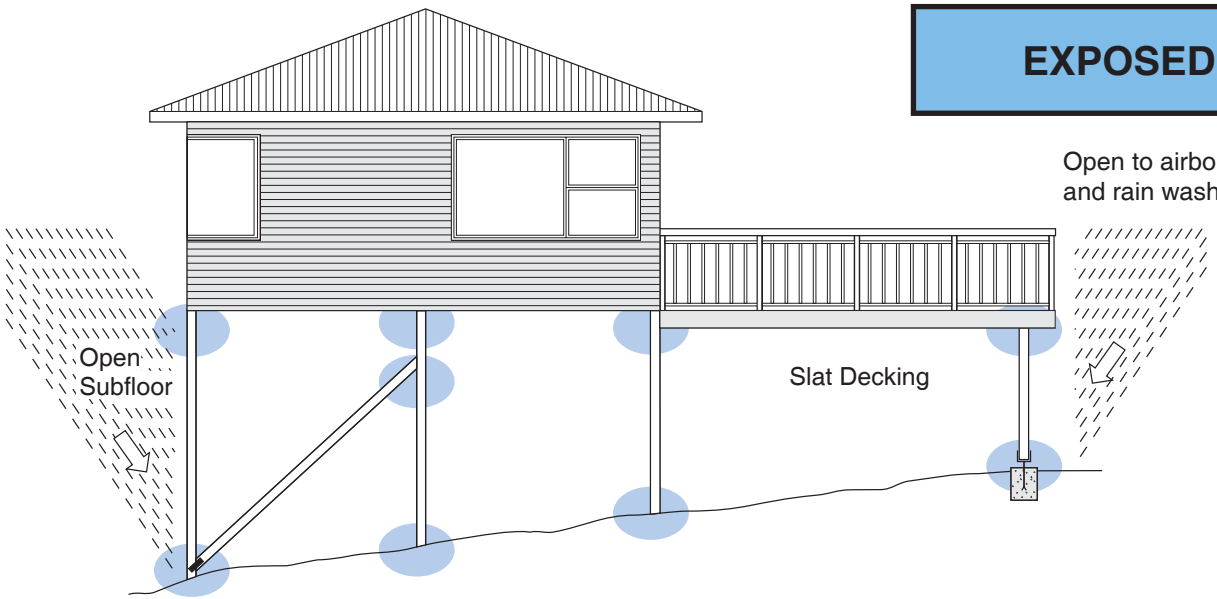
CLOSED

Dry, internal location, not subject to airborne salts or rain wetting.



SHELTERED

Open to airborne salts, but not rain washed.

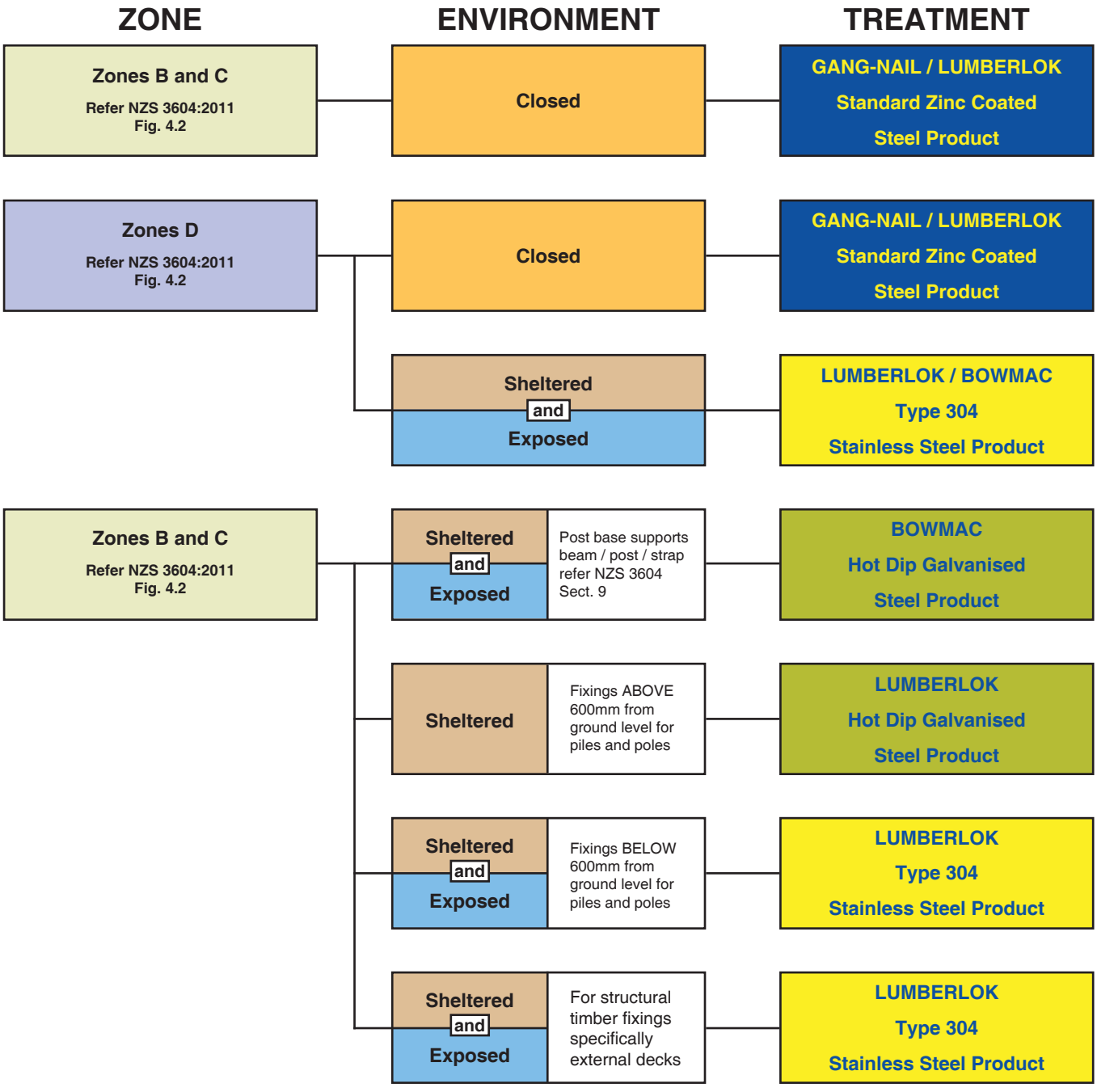


EXPOSED

Open to airborne salts and rain washed.

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

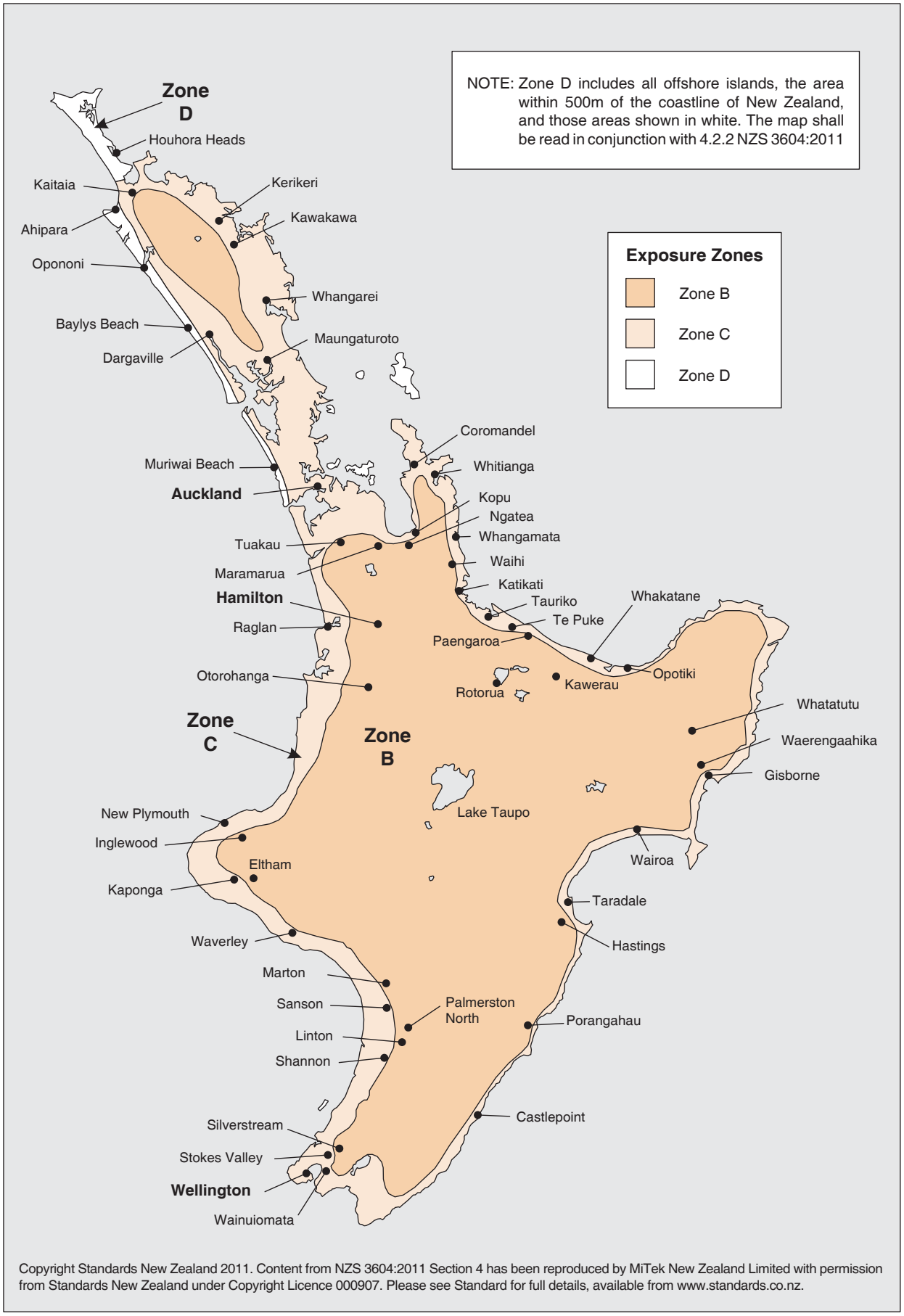
DURABILITY FLOW CHART



Product Key

- Standard Zinc Coated Steel Product
- Hot Dip Galvanised Steel Product
- Type 304 Stainless Steel Product

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.



Copyright Standards New Zealand 2011. Content from NZS 3604:2011 Section 4 has been reproduced by MiTek New Zealand Limited with permission from Standards New Zealand under Copyright Licence 000907. Please see Standard for full details, available from www.standards.co.nz.

Exposure zone map

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

Copyright Standards New Zealand 2011. Content from NZS 3604:2011 Section 4 has been reproduced by MiTek New Zealand Limited with permission from Standards New Zealand under Copyright Licence 000907. Please see Standard for full details, available from www.standards.co.nz.

Exposure zone map

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

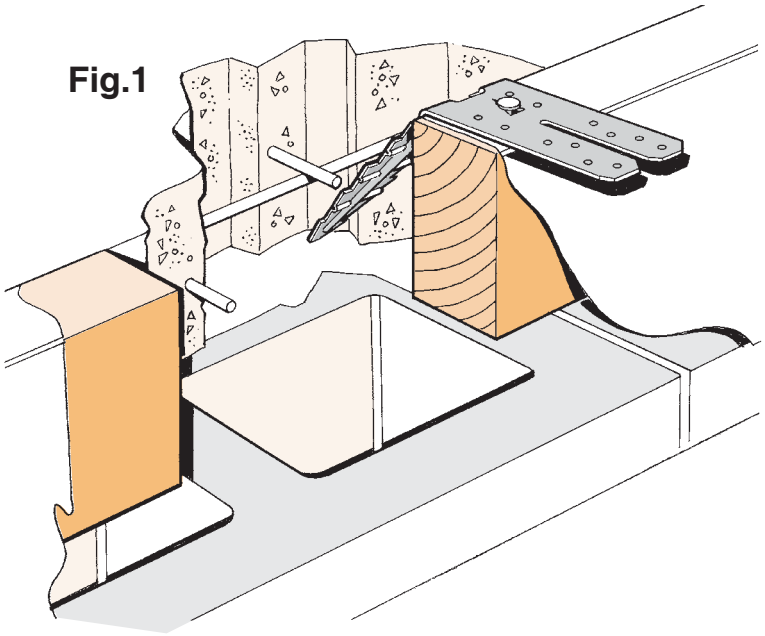
CONSENT ISSUED BC221264 - Page 230 of 359

LUMBERLOK®

BOTTOM PLATE FIXING ANCHOR

- ★ Eliminates the drilling of bottom plates
- ★ Makes the fixing of timber framework easier and quicker
- ★ Saves hand trowelling around cast-in anchor bolts or rods
- ★ Use at 900mm centres max.
- ★ Complies with Clause 7.5.12.2 NZS 3604:2011

Fig.1



1. Bottom Plate Fixing Anchors shall be fixed at 900mm centres max. to the boxing for concrete floor slabs, over a continuous vapour barrier. Each Fixing Anchor is nailed prior to concrete pour, and shall be left undisturbed until concrete has hardened ready for timber frames to be installed. (Fig.1).
2. When timber framing is in place, the Fixing Anchors are folded up and over the bottom plate. (Fig. 2).
3. Two LUMBERLOK Product Nails 30mm x 3.15 dia. shall then be driven into the side of the bottom plate and two additional nails applied through each of the lugs. Should a stud coincide with the position of a Fixing Anchor, nail as shown in Fig. 3.

4. A 75mm x 4 dia. concrete nail must be fixed adjacent to each Fixing Anchor, through the bottom plate into the concrete, at no less than 70mm from the concrete edge. When used as a Bracing Wall hold-down, a Fixing Anchor must be positioned within 150mm from the end of that wall. Bracing wall must not exceed 70 BU/m.

Fig. 3

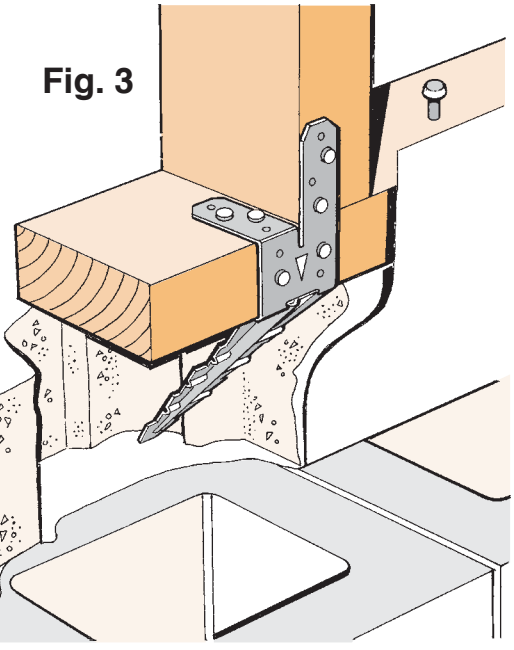
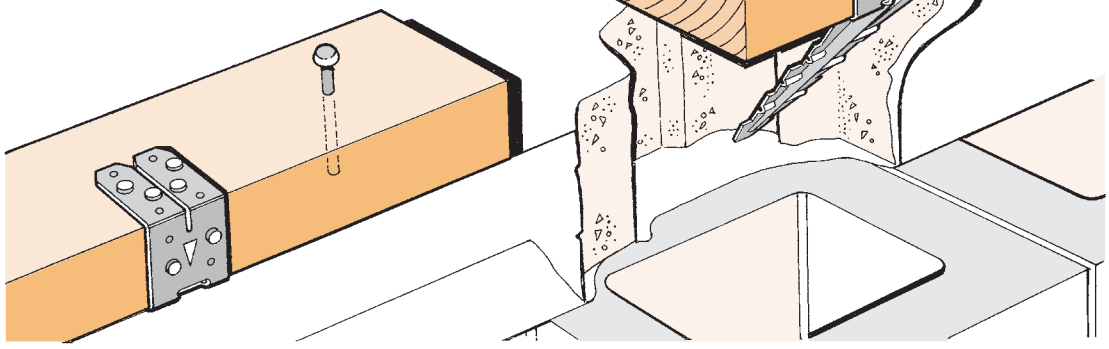
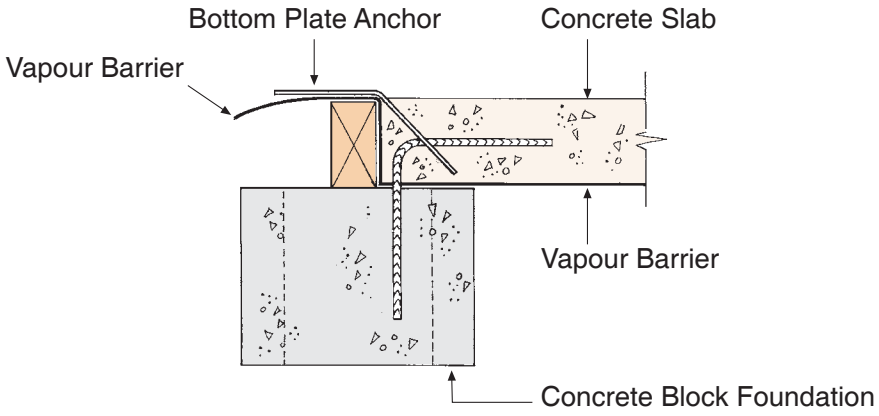


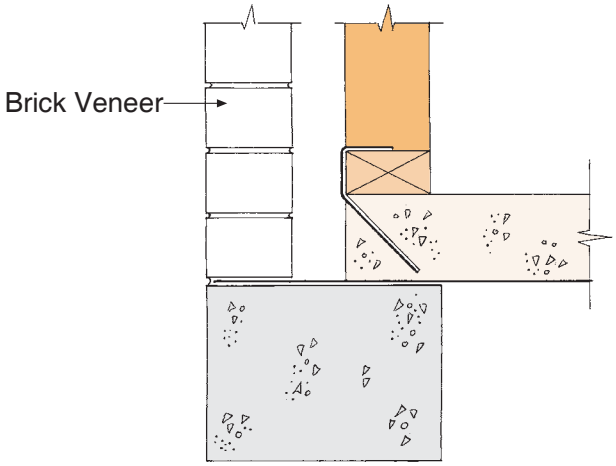
Fig. 2



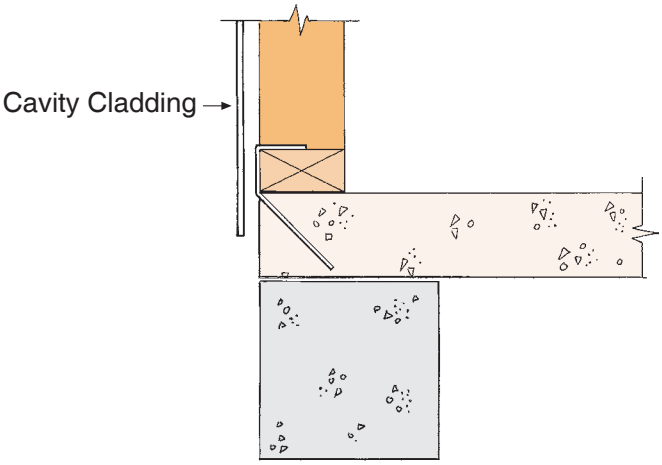
Available from leading Builders Supply Merchants throughout New Zealand

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.



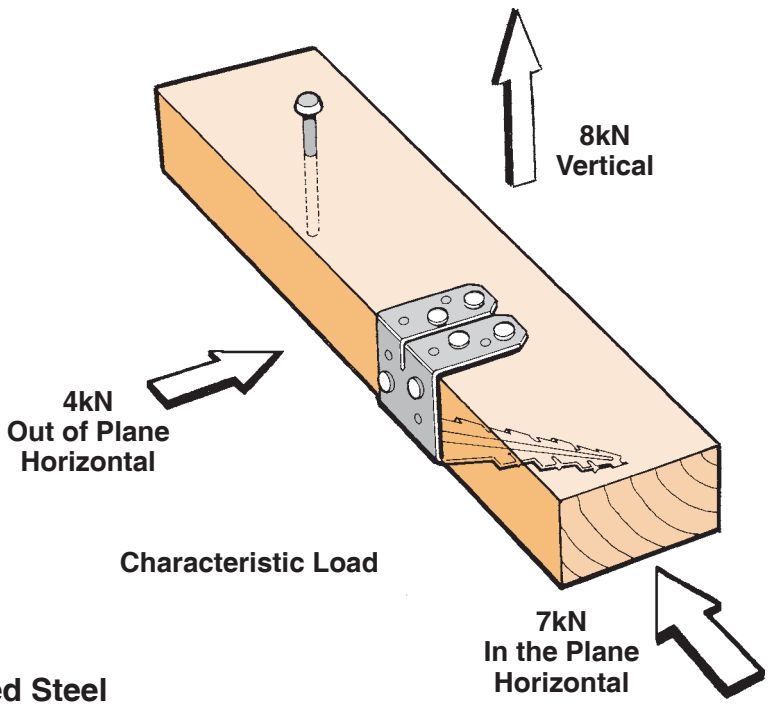


BRICK VENEER



CAVITY CLADDING

Design Loads
Concrete compressive strength 20MPa min.



Code: **BPA**
Material: **0.95mm G300 Z450 Galvanised Steel**
Code: **SSBPA**
Material: **0.9mm Stainless Steel 304-2B**
Packed: **50 per Carton**

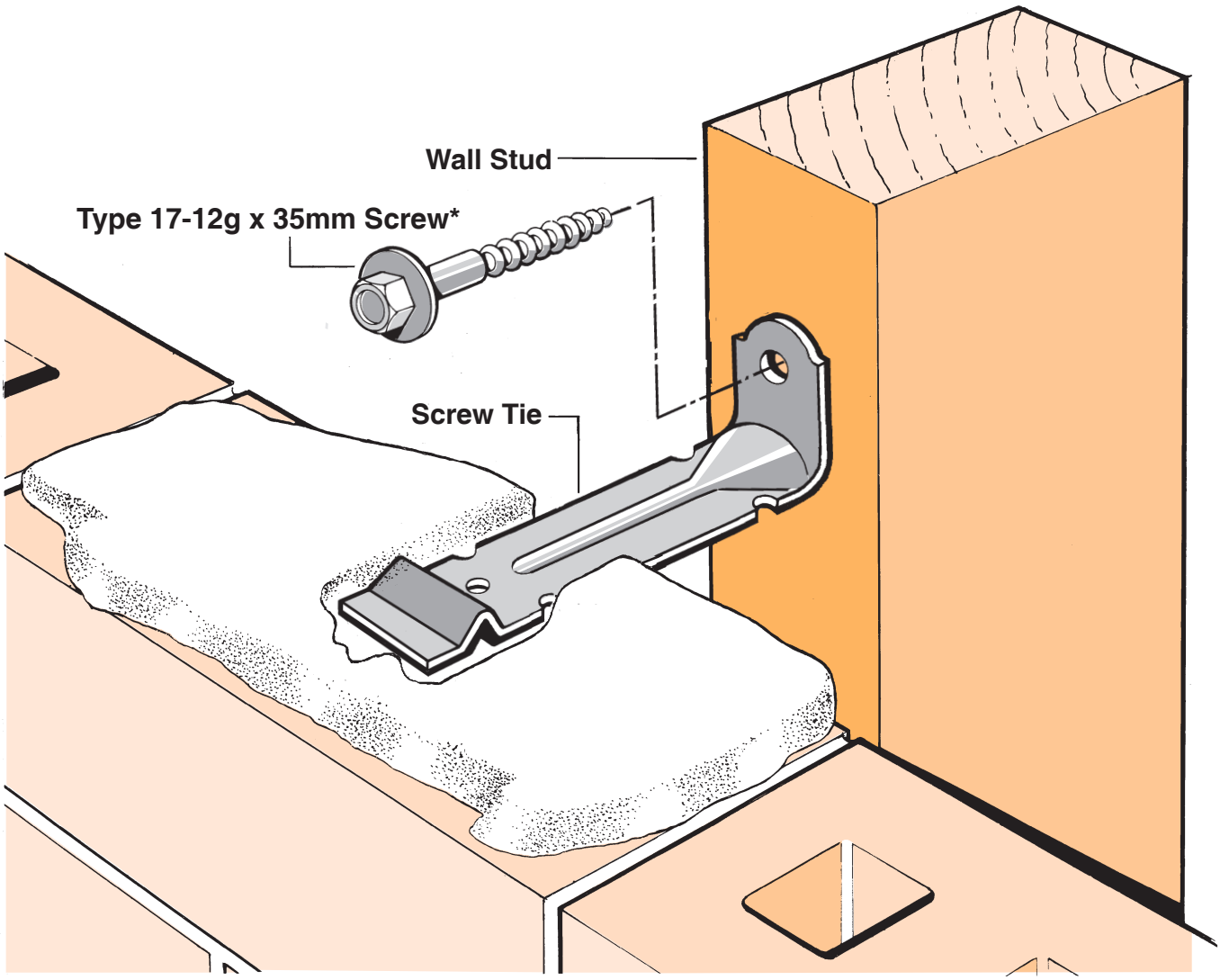
© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

LUMBERLOK®

SCREW TIES

FOR BRICK VENEER FIXING

- ★ Medium duty (EM) classification
- ★ Tested by BRANZ in accordance with AS/NZS 2699.1:2000
- ★ BRANZ test report No. ST0725 November 2007
- ★ Suitable for both ‘dry bedding’ and encapsulated mortar
- ★ Hot Dip Galvanised ties for Zones B & C, and Stainless Steel Grade 316 ties for Zone D meet NZS 3604:2011 Sect. 4 Durability
- ★ Available in 85mm and 105mm sizes



***NOTE:**
Use longer screws for fixing through Rigid Air Barrier (RAB). Maintain 35mm embedment in studs.

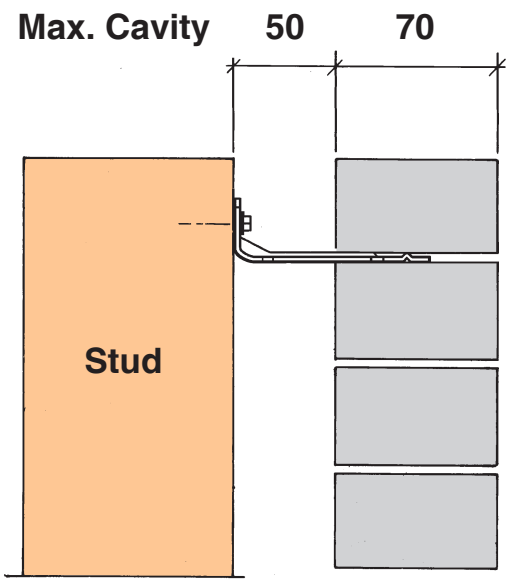
Available from leading Builders Supply Merchants throughout New Zealand

MiTek®

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

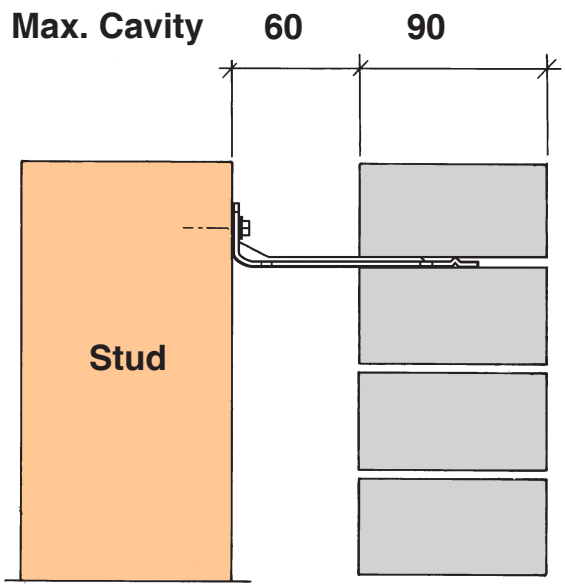
LUMBERLOK®

70 SERIES BRICK



Screw Tie Short (85mm)

90 SERIES BRICK



Screw Tie Long (105mm)

- ★ All brick work must be constructed in accordance with NZS 4210:2001 Masonry Construction:Materials and Workmanship. Screw Ties must be applied accordingly and are not to be hammered into timber framing.
- ★ Water shedding shoulder prevents transfer of the moisture from tie to building.
- ★ Nail hole for Oamaru Stone.
- ★ Angled neck encourages increased tie embedment in mortar.

Material: 1.2mm NZCC-SD Hot Dip Galvanised Steel
Screws: Type 17-12g x 35mm Hex Head Hot Dip Galvanised Screws
Packed: 250 ties per box including screws

Also available in Stainless Steel Grade 316 for Zone D.

MiTek New Zealand Limited
AUCKLAND
PO Box 58-014, Botany 2163
Phone: 09-274 7109
Fax: 09-274 7100
CHRISTCHURCH
PO Box 8387, Riccarton 8440
Phone: 03-348 8691
Fax: 03-348 0314
www.miteknz.co.nz
MiTek®
MITEK® LUMBERLOK® BOWMAC®

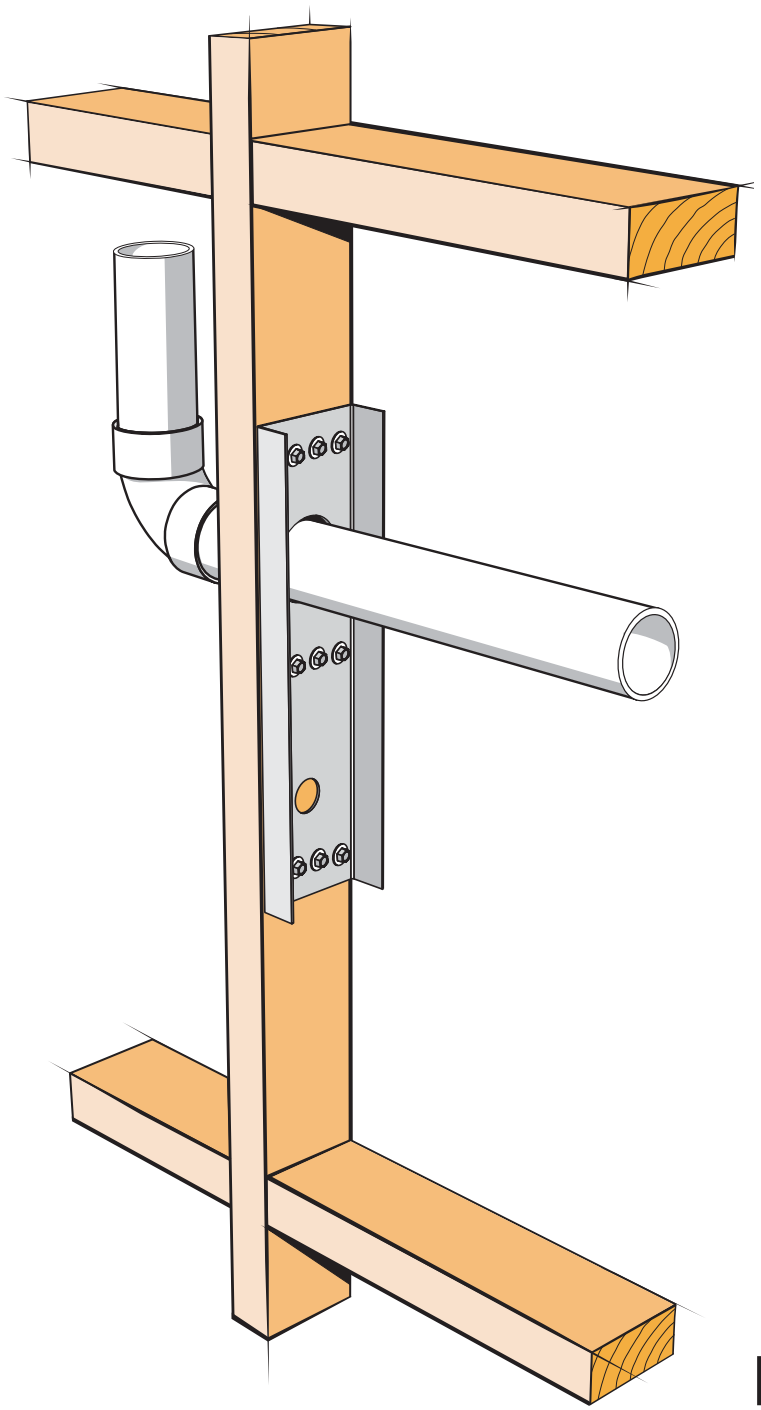
© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

CONSENT ISSUED BC221264 - Page 234 of 359

LUMBERLOK®

FRAMING STUD STIFFENER

- ★ For plumbing or vacuum system ducting through timber studs
- ★ Reinforces 90 x 45mm timber studs back to FULL STRENGTH!
- ★ Solution to include holes up to 60mm diameter
- ★ Refer Clause 8.5.1.6 NZS 3604:2011



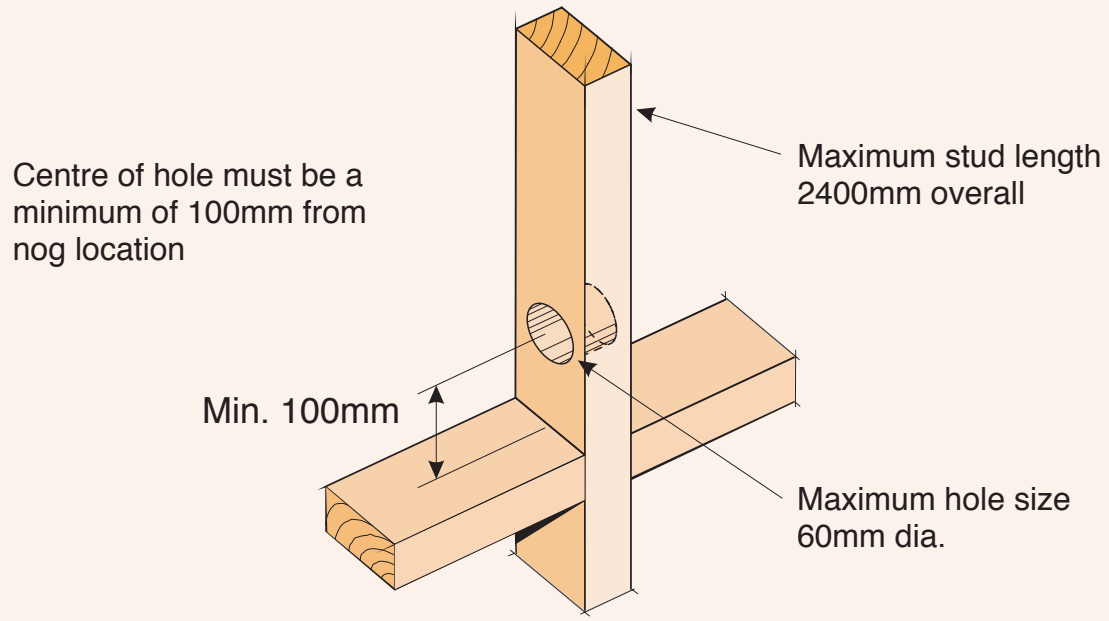
NZ Reg. Design
App. 408133 © 2006
MiTek New Zealand Ltd.

SCAN FOR INSTALLATION VIDEO

https://vimeo.com/117353342

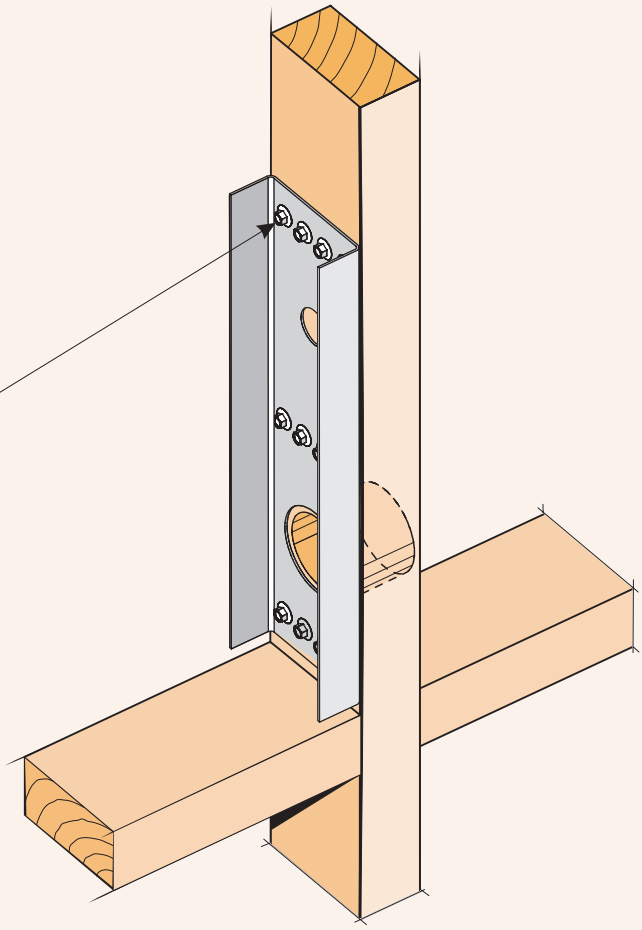
© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

LUMBERLOK®



Note: Use Stud Stiffener as template for drilling 60mm hole

Fix to side of stud with 3 rows of 4 x Type 17-14g x 35mm Hex Head Screws (supplied)



Code: **FSS**

Material: **1.55mm G300 Z275 Galvanised Steel**

Packed: **8 x Framing Stud Stiffeners per Carton**
100 x Type 17-14g x 35mm Hex Head Galvanised Screws

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

CONSENT ISSUED BC221264 - Page 236 of 359

LUMBERLOK®

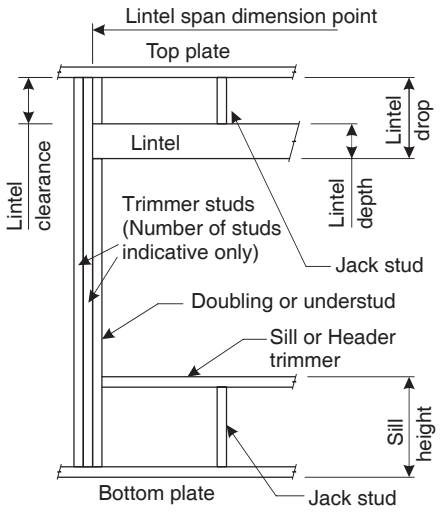
LINTEL FIXING SCHEDULE

ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12 NZS 3604:2011

NOTE:

- ★ 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.

DEFINITIONS



Lintel Supporting Girder Trusses						
Roof Tributary Area	Light Roof			Heavy Roof		
	Wind Zone			Wind Zone		
	L, M, H	VH	EH	L, M, H	VH	EH
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

Lintel Span (m)	Loaded Dimension (m) (See Fig. 1.3 NZS 3604:2011)	Light Roof Wind Zone					Heavy Roof Wind Zone				
		L	M	H	VH	EH	L	M	H	VH	EH
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	-	-

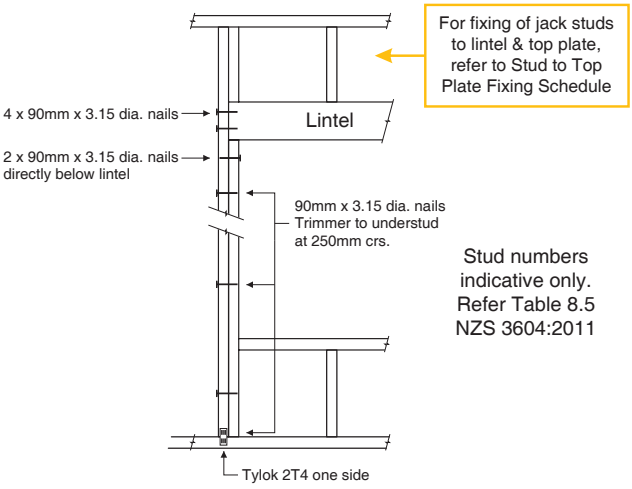
MiTek®

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

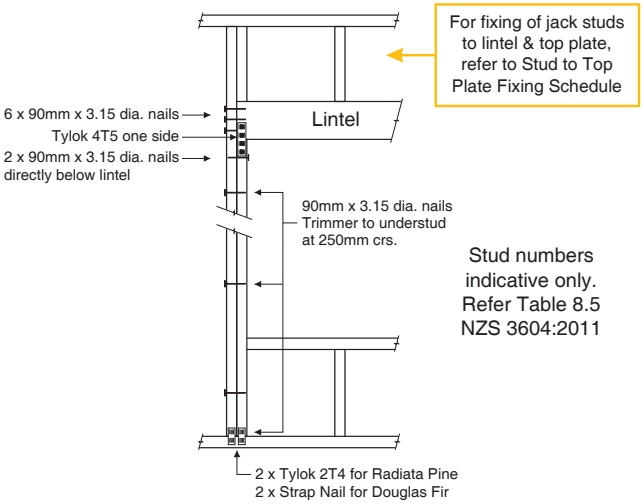
LUMBERLOK®

LINTEL FIXING OPTIONS

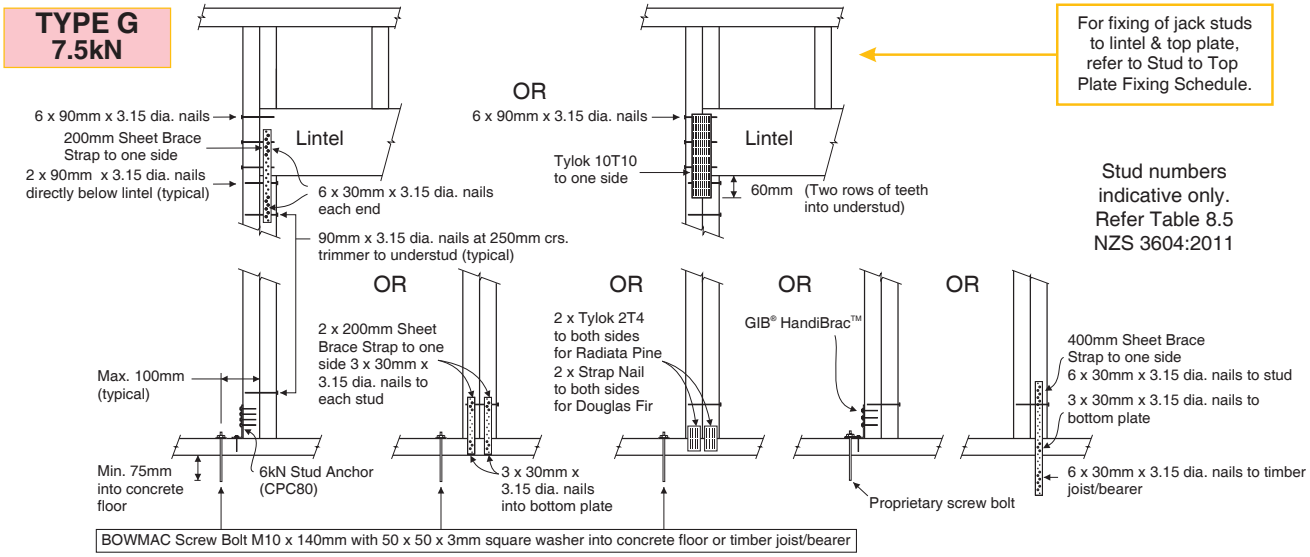
TYPE E 1.4kN



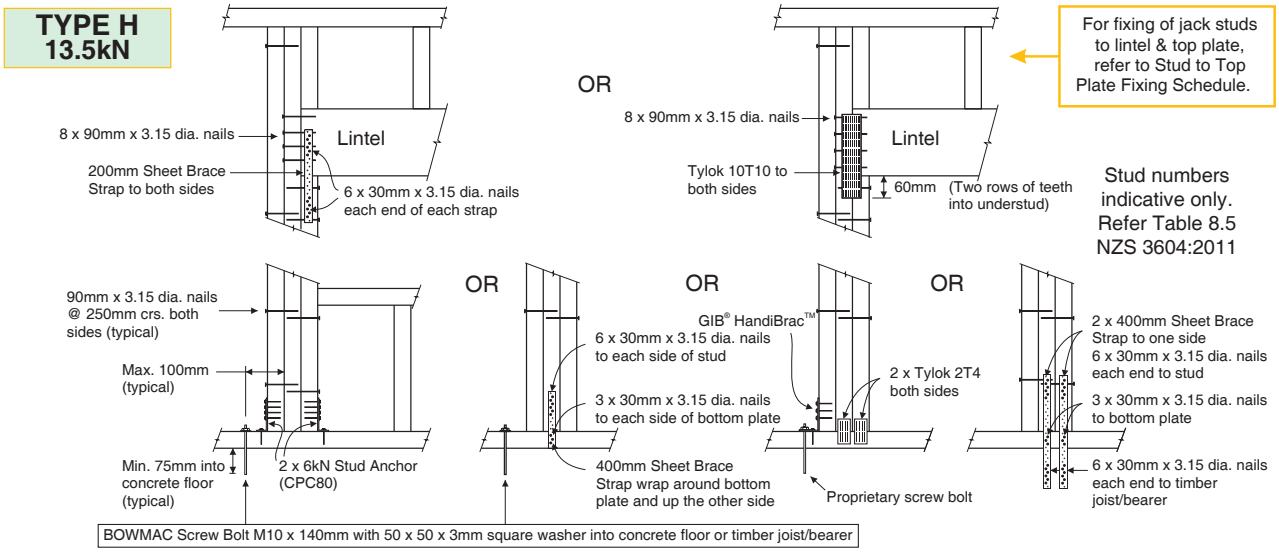
TYPE F 4.0kN



TYPE G 7.5kN



TYPE H 13.5kN

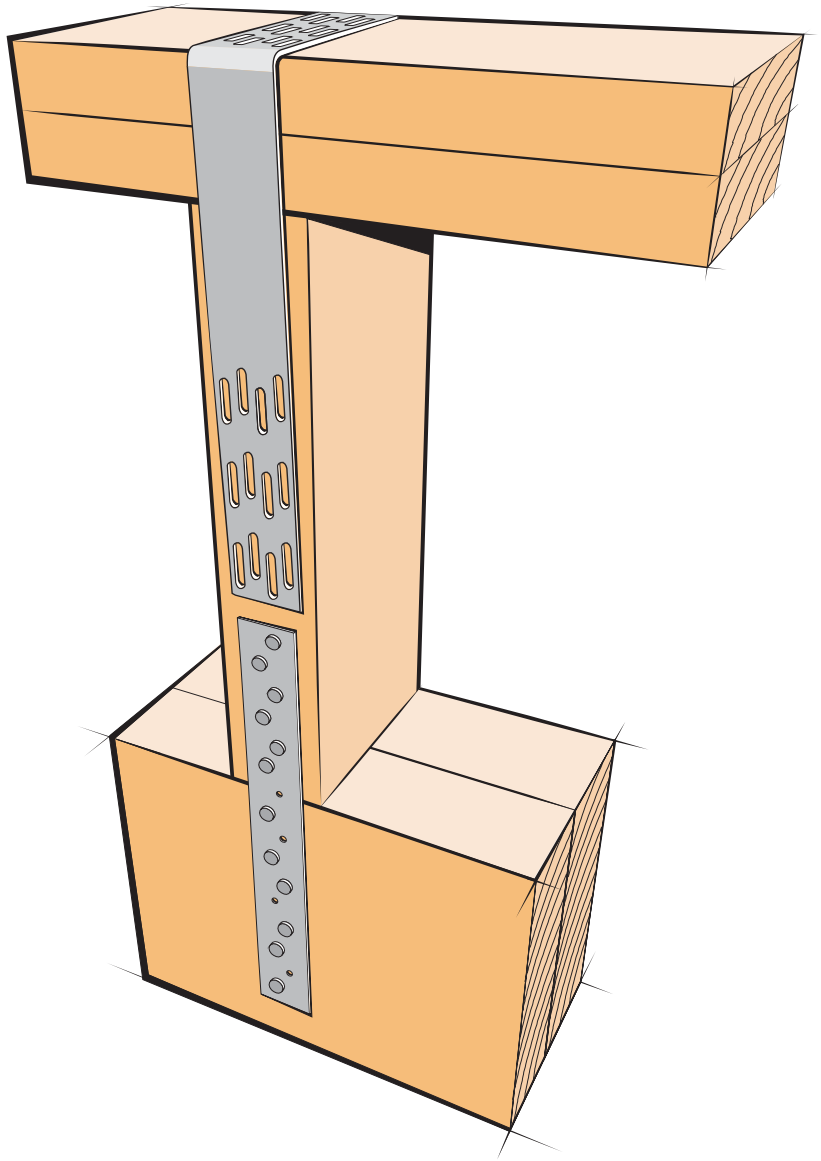


© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

CONSENT ISSUED BC221264 - Page 238 of 359

JACK STUD TO TOP PLATE & LINTEL FIXING

Provides a solution for all jack stud length fixing options

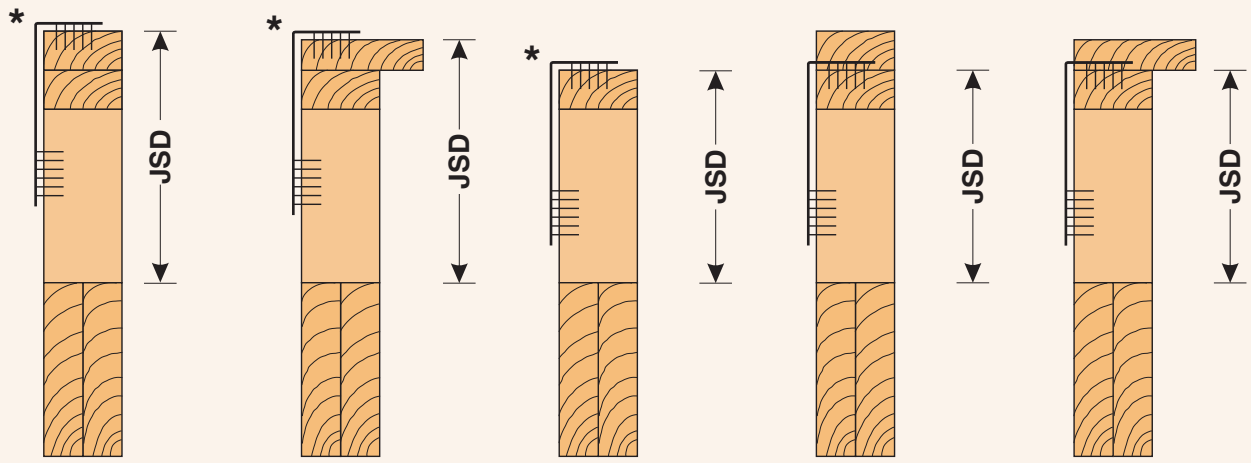


- ★ Covers the requirements for LUMBERLOK® Stud to Top Plate Fixing "Type B - 4.7kN" as required by LUMBERLOK® Lintel Fixing Schedule
- ★ Wall framing and connection details under girder trusses are not covered by this fixing solution and are subject to specific engineering design
- ★ All timber selections are as per NZS 3604:2011

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

FRAMING ARRANGEMENTS

Jack Stud Dimension Definition **(JSD)**

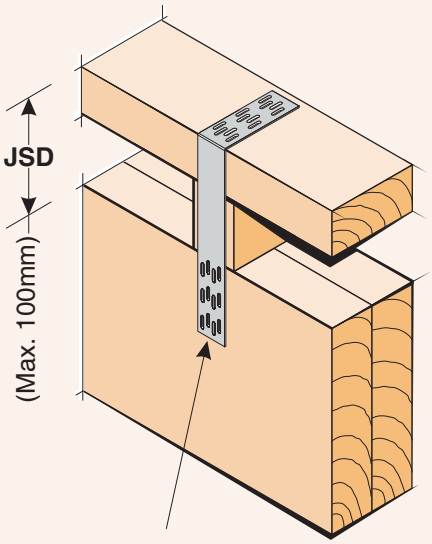


* Note: It is preferable for the top fixing to be located on the uppermost top plate or top plate packer to provide better fixing options for the truss connections

FIXING OPTIONS

FIXING 1

Jack Stud Dimension **(JSD)** up to a maximum of 100mm. Includes top plate fixed directly onto lintel i.e. no jack stud used.



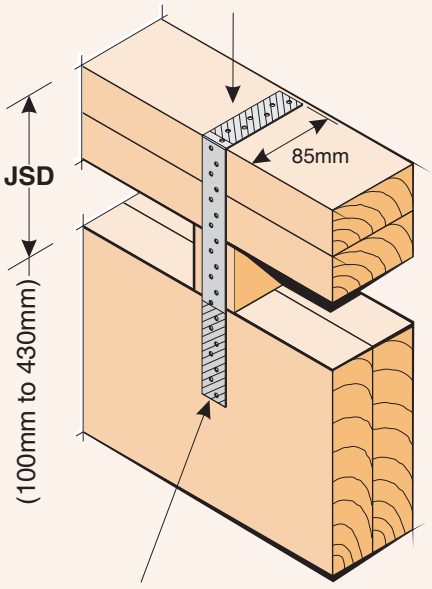
LUMBERLOK® Stud Strap on one face.

Note:
Fix jack stud with 2/ 90mm x 3.15 dia. nails from top plate and 2/ 90mm x 3.15 dia. skew nails to lintel (typical)

FIXING 2

Jack Stud Dimension **(JSD)** from a minimum of 100mm to a maximum of 430mm.

Fold at length of 85mm.
Fill 6 holes in shaded area with LUMBERLOK® Product Nails 30mm x 3.15 dia.



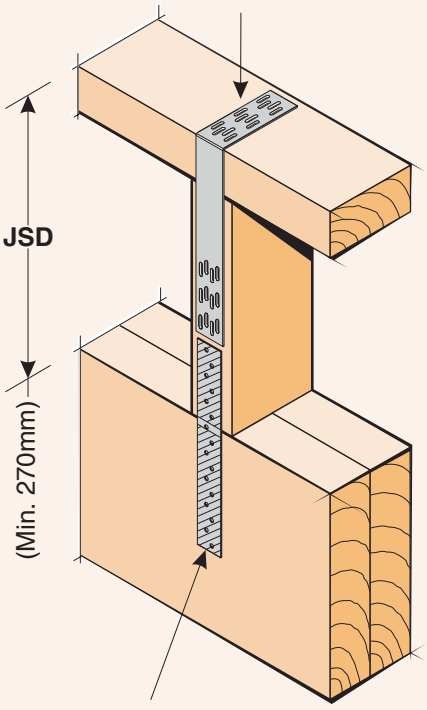
LUMBERLOK® Sheet Brace Strap on one face.
Fill 6 holes in shaded area with LUMBERLOK® Product Nails 30mm x 3.15 dia.

Note:
- JSD up to 230mm use Sheet Brace Strap 400mm.
- JSD from 230mm to 430mm use Sheet Brace Strap 600mm.

FIXING 3

Jack Stud Dimension **(JSD)** from a minimum of 270mm. No maximum dimension.

LUMBERLOK® Stud Strap on one face.



LUMBERLOK® Sheet Brace Strap 200mm on one face.
Fill 6 holes in both shaded areas of jack stud and lintel with LUMBERLOK® Product Nails 30mm x 3.15 dia.

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

CONSENT ISSUED BC221264 - Page 240 of 359

GIB HandiBrac®

Panel Hold-Down Bracket

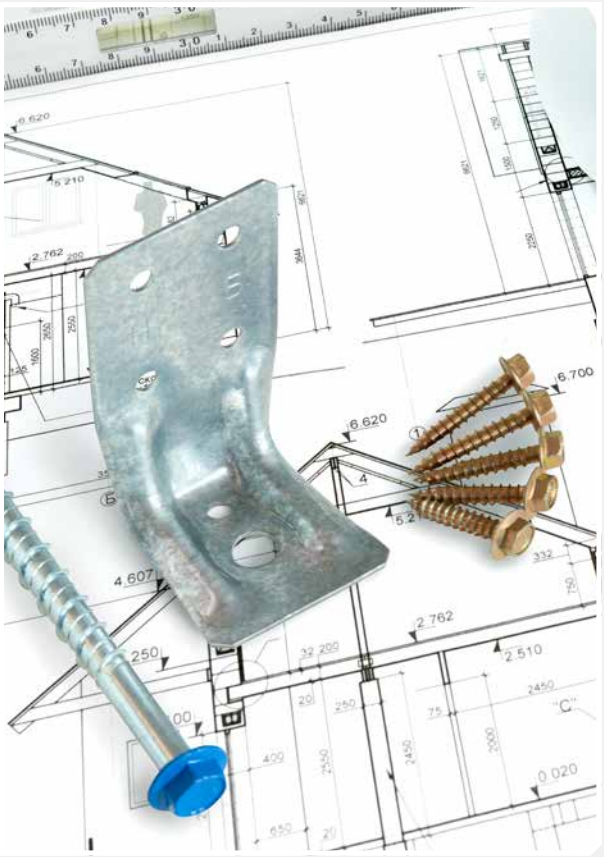
Developed in conjunction with MiTek™, the GIB HandiBrac® has been designed and tested by Winstone Wallboards for use in GIB EzyBrace® elements that require hold-downs. The GIB HandiBrac® is a substitute for bottom plate hold-down straps.

- 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.



CONSENT ISSUED BC221264 - Page 241 of 359

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 Ezy Brace® systems.

FIXING TO TIMBER FRAMED FLOORS

BOWMAC® screw bolt to achieve a characteristic uplift strength of 12kN.

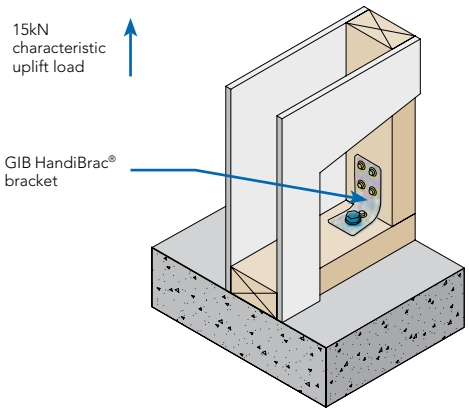
FIXING TO CONCRETE SLABS

BOWMAC® screw bolt to achieve a characteristic uplift strength of 15kN

PANEL HOLD-DOWN DETAILS

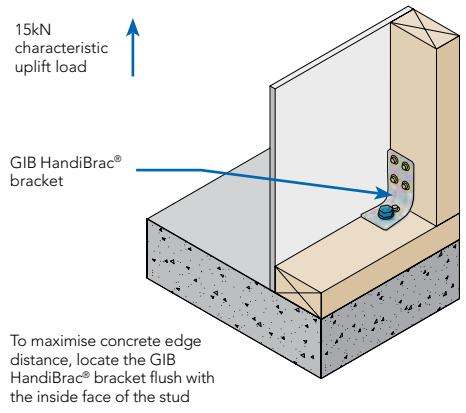
CONCRETE FLOOR – INTERNAL WALL

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



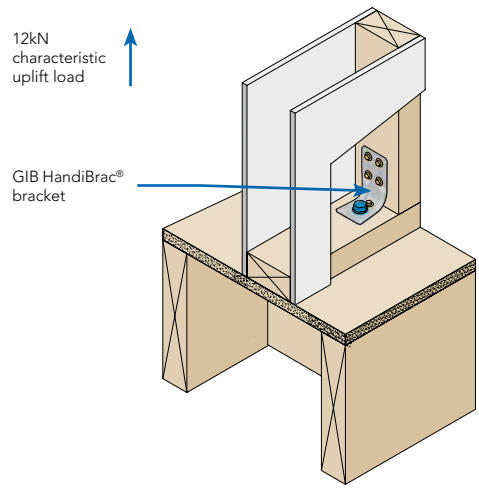
CONCRETE FLOOR – EXTERNAL WALL

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.



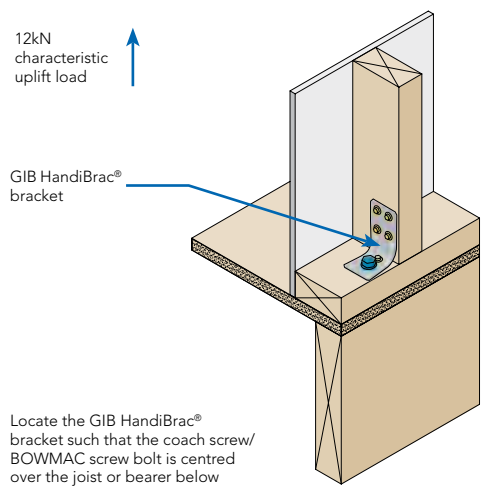
TIMBER FLOOR – INTERNAL WALL

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.

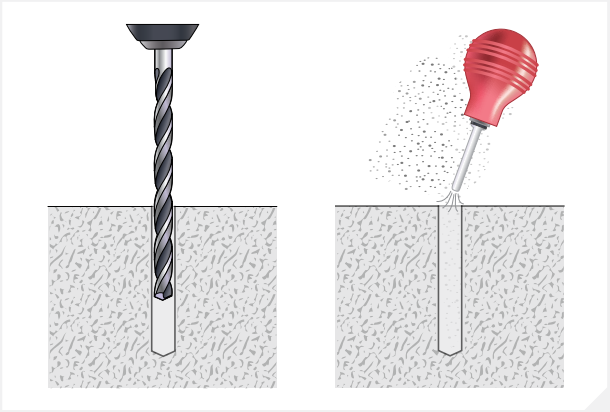


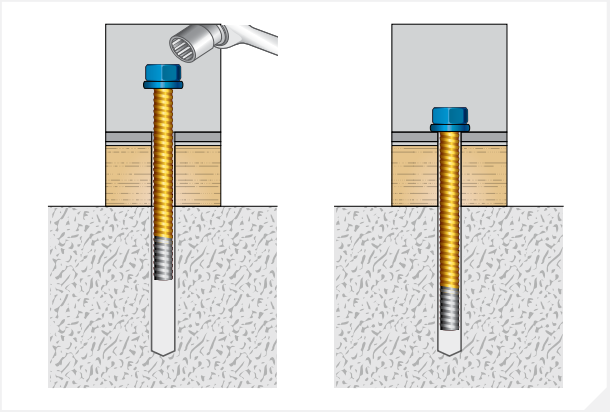
INSTALLATION OF GIB HANDIBRAC® BRACKET

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.

Copyright © Winstone Wallboards 2015

NZ Registered Design Application #420161

MANUFACTURER

GIB HandiBrac® is manufactured and distributed by MiTek New Zealand Ltd.

© Copyright 2015 MiTek Holdings, Inc. All rights reserved.

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

Christchurch Office
14 Pilkington Way, Riccarton 8440, Christchurch, New Zealand
P O Box 8387, Riccarton, New Zealand
Ph: 64-3-348 8691, Fax: 64-3-348 0314

www.miteknz.co.nz

CONSENT ISSUED BC221264 - Page 243 of 359

TOP PLATE JOINTING

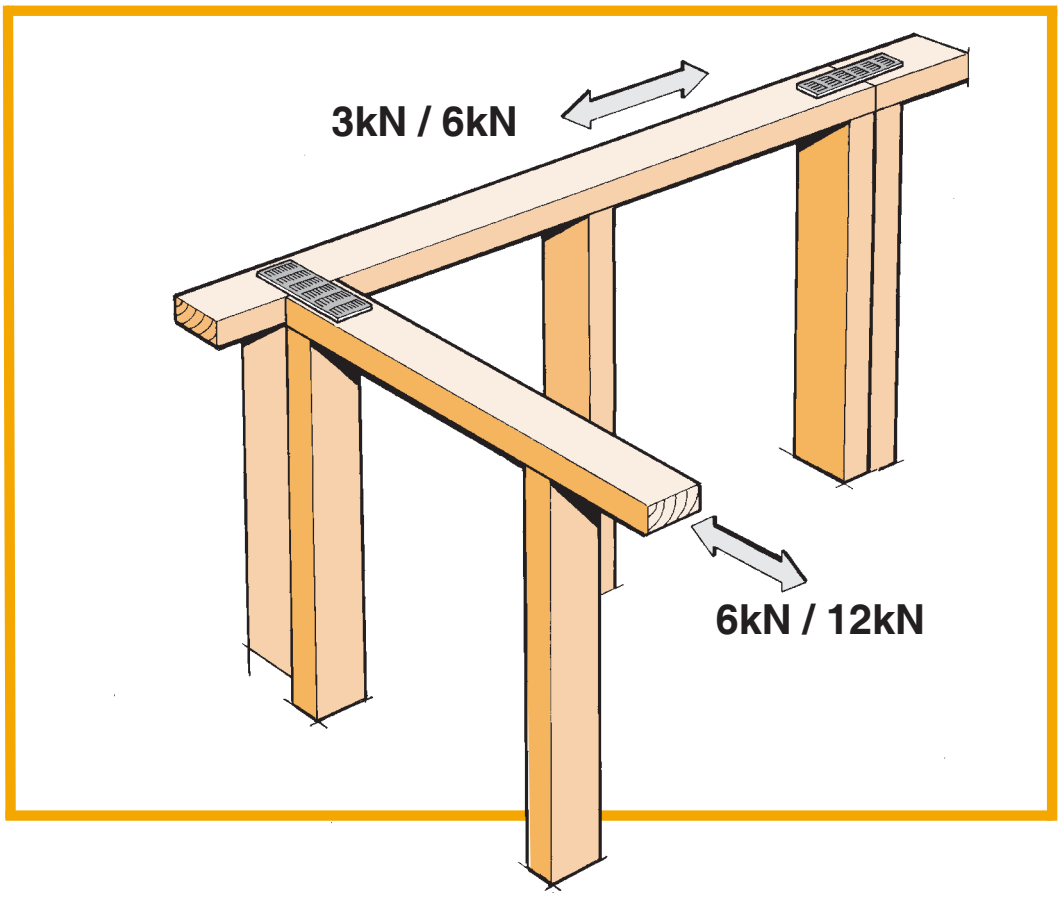
AS PER CLAUSE 8.7.3 NZS 3604:2011

Top Plates at Right Angles

Connection capacity	LUMBERLOK Connector
6kN	Tylok 6T10 **OR** PLATE-LOK
12kN	2 x Sheet Brace Straps fixed with 6 x LUMBERLOK Product Nails 30mm x 3.15 dia. per end per strap (24 nails total)

Top Plates in Line

Connection capacity	LUMBERLOK Connector
3kN	Tylok 6T5 **OR** Strap Nail
6kN	Tylok 6T10 **OR** PLATE-LOK



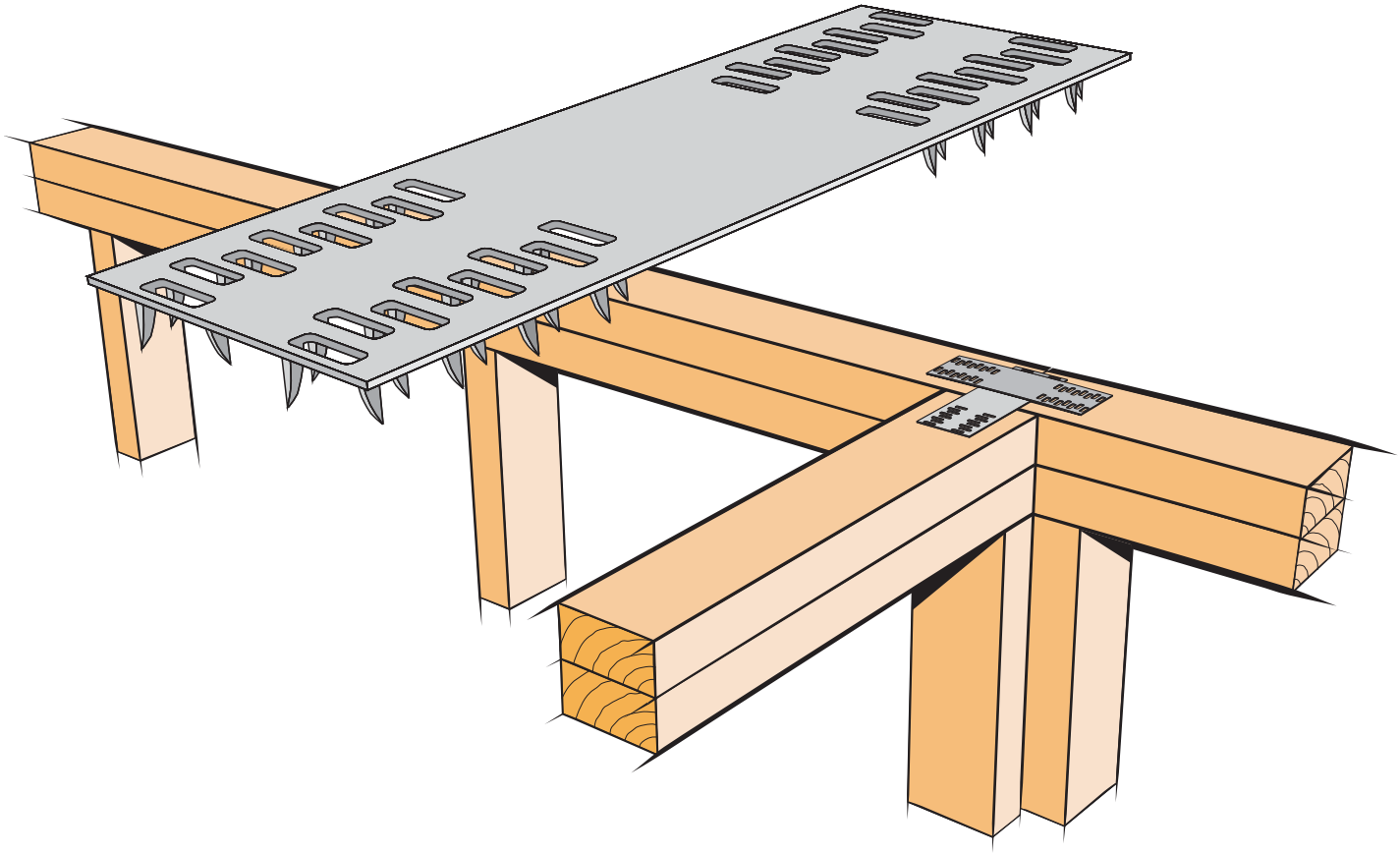
Available from leading Builders Supply Merchants throughout New Zealand

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

CONSENT ISSUED BC221264 - Page 244 of 359

LUMBERLOK

PLATE-LOK
6kN CAPACITY CONNECTOR



- ★ The LUMBERLOK PLATE-LOK is ideally suited for right angle wall connections with a unique clear centre section to allow easy overlapping
- ★ Suitable for use in SG8 Radiata pine/Douglas fir & LVL8 top plates
- ★ This brochure also provides simple guidelines for the interpretation of Clause 8.7.3 NZS 3604:2011 for top plate connections
- ★ The LUMBERLOK PLATE-LOK also provides a simple solution for a 6kN capacity connection where required by NZS 3604:2011

Code: **PLATELOK**
Material: **0.95mm G300 Z275 Galvanised Steel 150x50mm**
Packed: **100 per Carton**

MiTek®

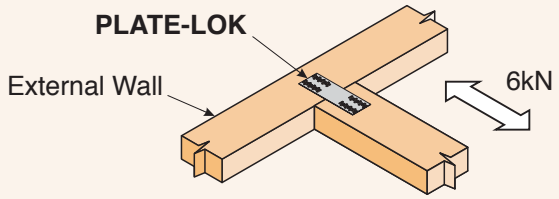
© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

TOP PLATE CONNECTIONS AS REQUIRED BY CLAUSE 8.7.3 NZS 3604:2011

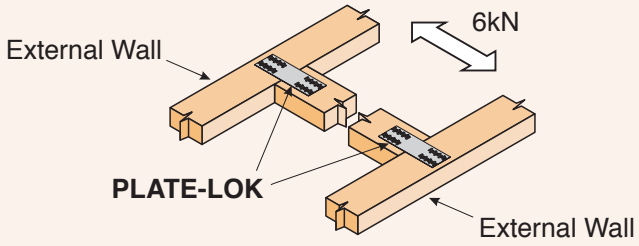
① Top plate joints for walls at right angles to external walls:

(a) Walls with bracing elements not exceeding 125 bracing units (BU) require a 6kN capacity connection to one external wall.

(b) Walls with bracing elements not exceeding 250 BU require a 6kN capacity connection to two external walls.

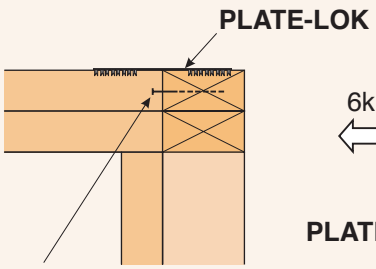


Wall bracing up to 125 BU

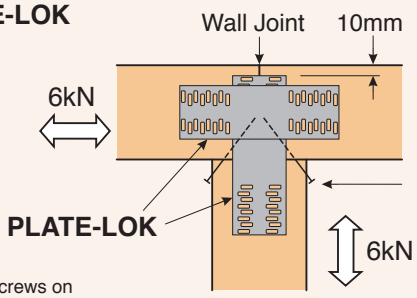


Wall bracing between 125 BU & 250 BU

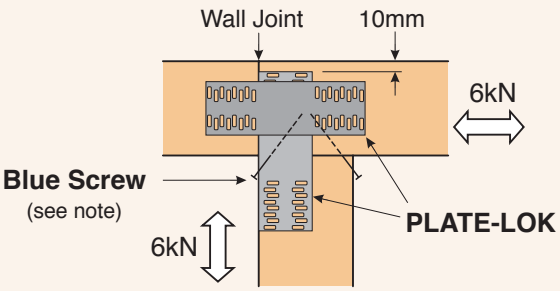
② Details of top plate joints using LUMBERLOK PLATE-LOK at "T" junction walls are shown below:



Note: Fix with a pair of LUMBERLOK Blue Screws on sides of top plate for Douglas fir and LVL8 only

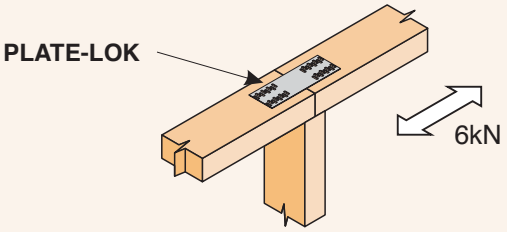


Centre Wall Joint

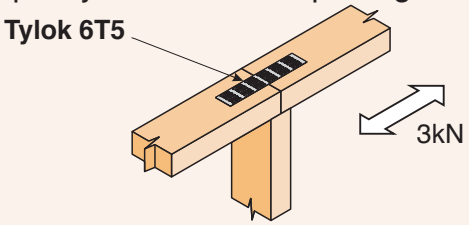


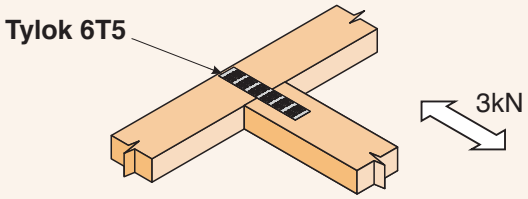
Side Wall Joint

③ Top plate joints for all walls in line that have wall bracing elements exceeding 100 BU or have a ceiling diaphragm attached require a 6kN capacity connection as per Figure 8.15 NZS 3604:2011.



④ Top plate joints for walls at right angles and in line that have either no bracing elements or are on a single storey building only with wall bracing demands not exceeding 100 BU require a 3kN capacity connection as per Figure 8.15 & 8.16 NZS 3604:2011.





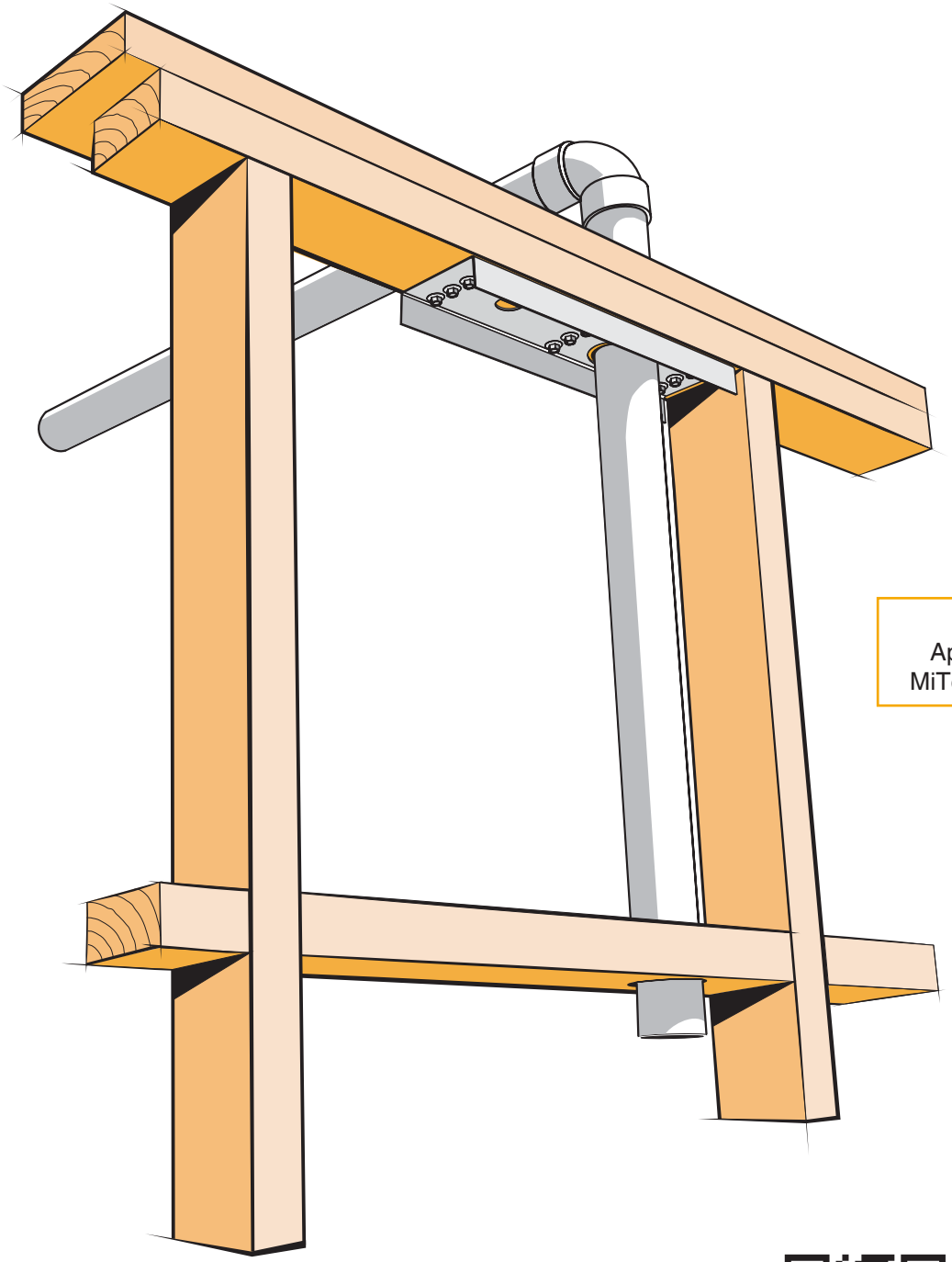
© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

CONSENT ISSUED BC221264 - Page 246 of 359

LUMBERLOK®

TOP PLATE STIFFENER

- ★ For plumbing or vacuum system ducting through top plates
- ★ Reinforces the top plate back to FULL STRENGTH!
- ★ Alternative solution to Figure 8.20 NZS 3604:2011

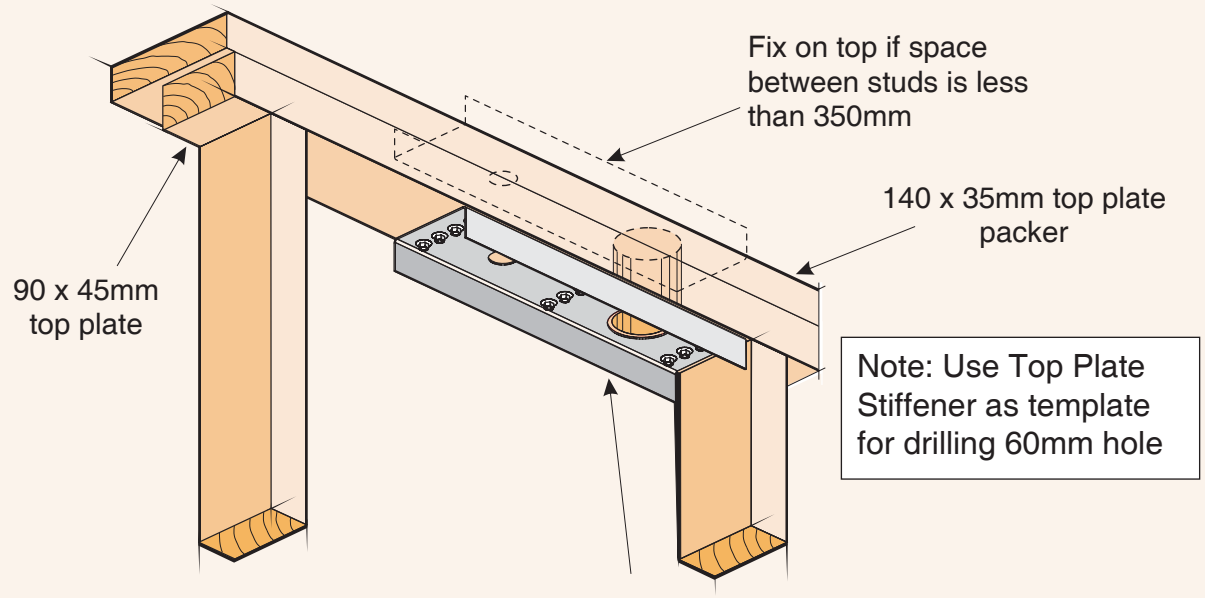


NZ Reg. Design
App. 408133 © 2006
MiTek New Zealand Ltd.

SCAN FOR INSTALLATION VIDEO

https://vimeo.com/117353342

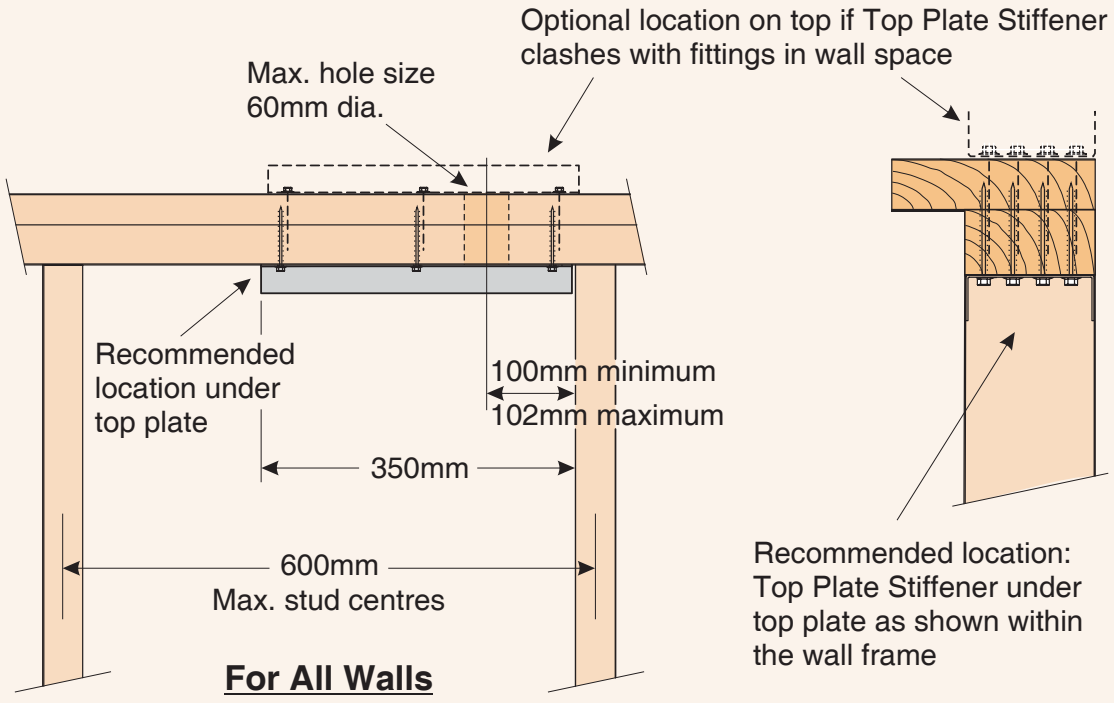
© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.



Note: Use Top Plate Stiffener as template for drilling 60mm hole

Note: For single top plate fix with Type 17-14g x 35mm Hex Head Screws (not supplied)

Fix up into top plate and into packer with 3 rows of 4 x Type 17-14g x 75mm Hex Head Screws (supplied). It may be advisable to drill pilot hole for each screw to assist installation



For All Walls

Recommended location: Top Plate Stiffener under top plate as shown within the wall frame

Code: **TPS**
Material: **1.55mm G300 Z275 Galvanised Steel**
Packed: **8 x Top Plate Stiffeners per Carton**
100 x Type 17-14g x 75mm Hex Head Galvanised Screws

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

CONSENT ISSUED BC221264 - Page 248 of 359

LUMBERLOK®

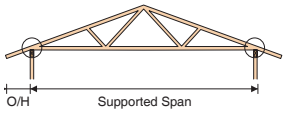
STUD TO TOP PLATE FIXING SCHEDULE

ALTERNATIVE TO TABLE 8.18 NZS 3604:2011

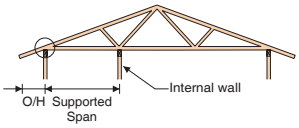
NOTE:

- ★ All fixings are designed to resist 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 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.

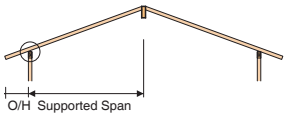
LOADED DIMENSION DEFINITION



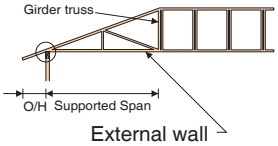
External wall
Standard truss



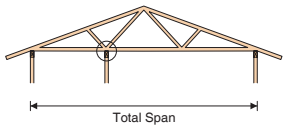
External wall
Internally supported truss



External wall
Rafter roof



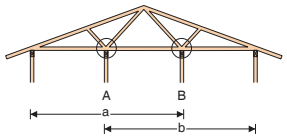
External wall
Jack truss



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 = $\frac{b}{2}$

FIXING SELECTION CHART

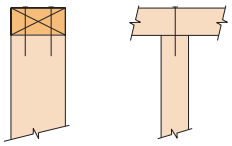
(Suitable for walls supporting roof members at 600, 900 or 1200mm crs.)
Wind Zones L, M, H, VH, EH, as per NZS 3604:2011

Loaded Dimension (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

FIXING OPTIONS

FIXING TYPE A 0.7kN

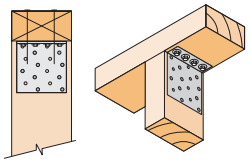
2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



FIXING TYPE B 4.7kN

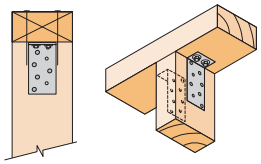
CHOOSE ANY OF THE 3 OPTIONS BELOW

2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



Plus
LUMBERLOK
6kN Stud Anchor
(CPC80)

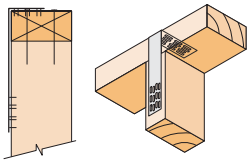
2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



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.

SCAN FOR SPECIFICATION VIDEO

https://vimeo.com/117353604

8.WALLS

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

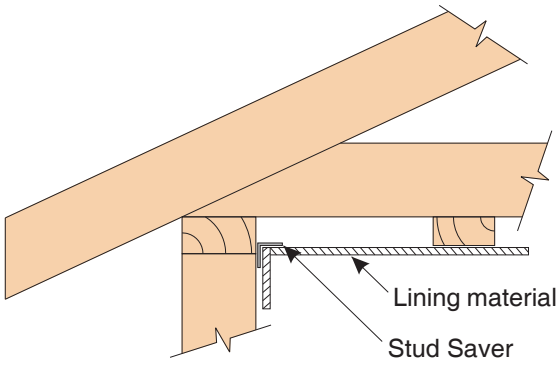
LUMBERLOK®

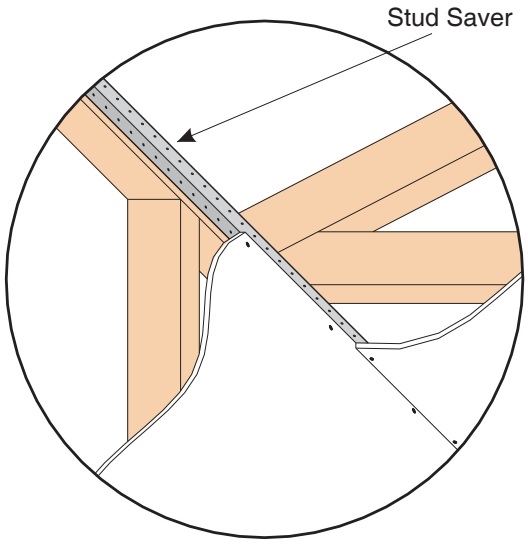
STUD SAVER

FOR CEILINGS

Patent No. 314494

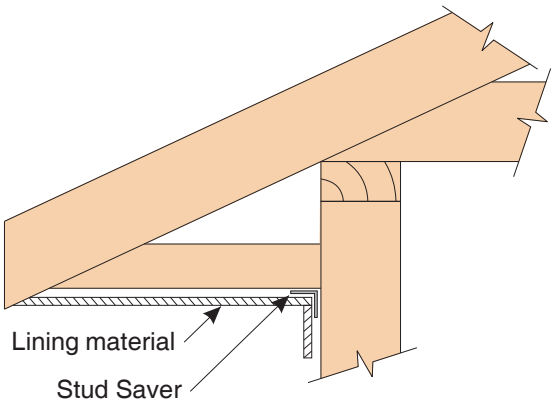
- ★ Alternative to top plate packers.
- ★ Can be adjusted in location to suit any size ceiling batten.
- ★ Can be located over internal walls at the required level to suit the ceiling line.
- ★ Easily fixed to wall plates and studs.
- ★ Reduces cracking along the ceiling wall corners.
- ★ Ceiling material simply attached by use of standard self tapping screws.
- ★ Supplied in 2400mm length.
- ★ Not for ceiling diaphragms.

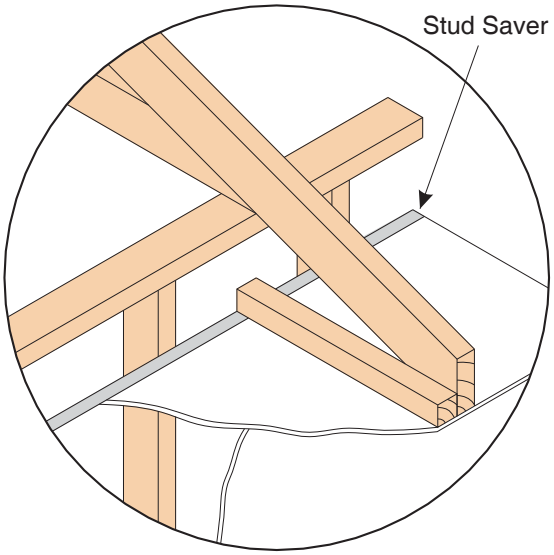




FOR SOFFIT & EXTERIOR CLADDING SUPPORT

- ★ Eliminates dwang/nog for wall lining support.
- ★ Eliminates ribbon plate for soffit sprockets and lining support.





Material: **0.75mm x 67mm G250 Z275 Galvanised Steel**

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

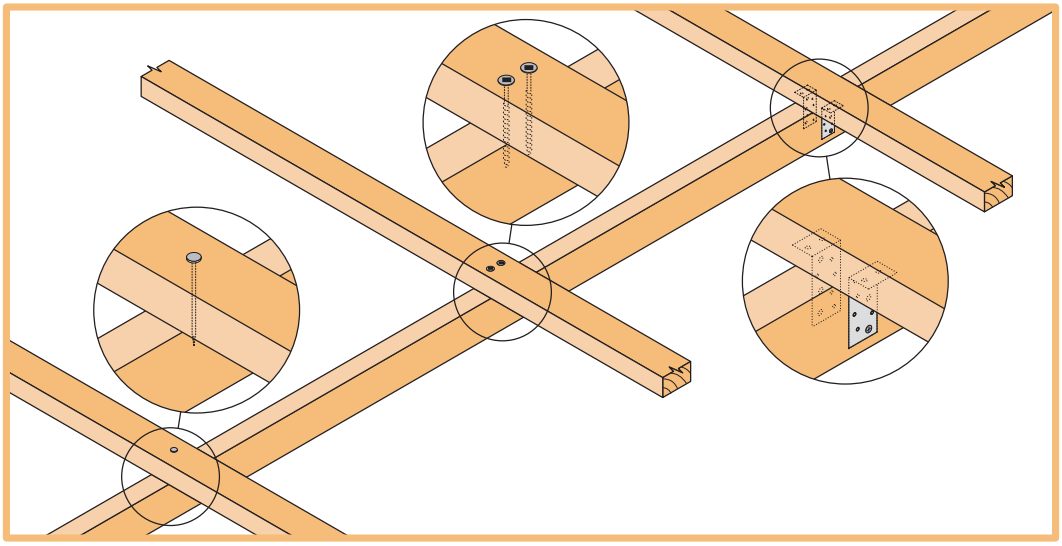
CONSENT ISSUED BC221264 - Page 250 of 359

PURLIN & BATTEN FIXING CHART

ALTERNATIVE SOLUTION TO NZS 3604:2011 TABLES 10.10 & 10.12

NOTE:

- ★ All purlin and batten sizes are as per NZS 3604:2011.
- ★ All fixings assume that the purlin and battens are installed on their flat over the top of the rafter or truss.
- ★ The minimum fixing requirements apply to all purlin locations within the roof area.
- ★ The LUMBERLOK BLUE SCREW where specified requires a minimum of 30mm penetration into rafter or truss i.e. it is suitable for rough sawn timber up to 50mm thick at 18% moisture content.



SELECTION CHART FIXING OPTIONS

(minimum fixing requirements)

ROOF WEIGHT	MAX. PURLIN SPAN (mm)	MAX. PURLIN CRS. (mm)	WIND ZONE				
			L	M	H	VH	EH
HEAVY ROOF Tile Battens	900	370	A	A	A	A	A
LIGHT ROOF Tile Battens	900	370	A	A	B	C	C
	1200	370	A	B	C	C	C
LIGHT ROOF Purlins	900	900	C	C	C	C	D
	1200	900	C	C	C	D	D
	1200	1200	C	C	D	E	E

Wind Zone:
As per NZS 3604:2011

L = Low Wind
M = Medium Wind
H = High Wind
VH = Very High Wind
EH = Extra High Wind

SCAN FOR INSTALLATION VIDEO

https://vimeo.com/117353340

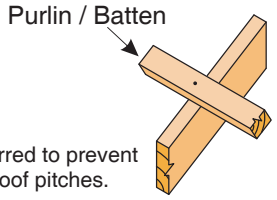
© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

STANDARD FIXING OPTIONS

FIXING TYPE A 0.55kN

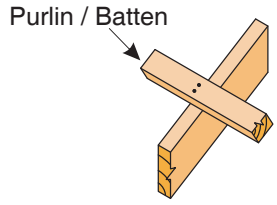
1 NAIL

Note: Two nails maybe preferred to prevent batten rolling over with high roof pitches.



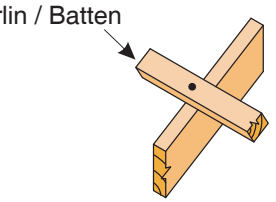
FIXING TYPE B 0.8kN

2 NAILS



FIXING TYPE C 2.4kN

1 BLUE SCREW



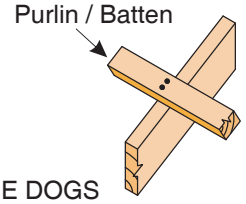
FIXING TYPE D 3.45kN

2 BLUE SCREWS

OR

2 SKEW NAILS plus 2 WIRE DOGS

(for purlin on edge)

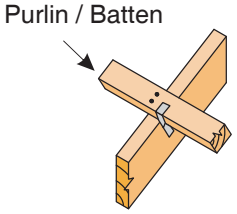


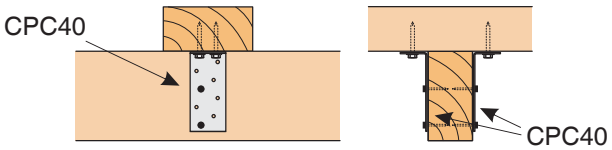
FIXING TYPE E 5.5kN

2 NAILS plus 1 CT200

OR

1 PAIR of CPC40





FIXING DEFINITIONS

NAIL = Either 90mm x 3.15 dia. power-driven nail or 100mm x 3.75 dia. hand-driven nail

BLUE SCREW = 80mm x 10 gauge LUMBERLOK BLUE SCREW

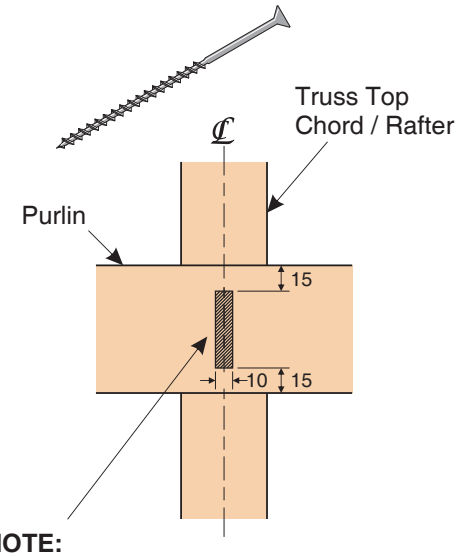
WIRE DOG = LUMBERLOK WIRE DOG either LH or RH

CT200 = LUMBERLOK Ceiling Tie CT200 bend over purlin, 4 x LUMBERLOK Product Nails 30mm x 3.15 dia. each end

CPC40 = LUMBERLOK CPC40 with 2 x Type 17 - 14g x 35mm Hex Head Screws per flange

FIXING TOLERANCES

LUMBERLOK BLUE SCREW



NOTE:

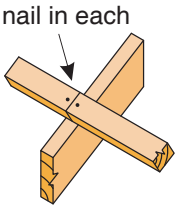
Locate fixings within the shaded area. Care to be taken to avoid over tightening of screws.

PURLIN / BATTEN SPLICE FIXING OPTIONS

FIXING TYPE A & B OVER PURLIN SPLICE

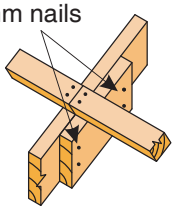
NOTE:

Skew nail when fixing to 35mm rafter or truss



FIXING TYPE C, D or E OVER PURLIN SPLICE

90 x 35mm block fixed to chord or rafter with 4 x 75mm nails



- TYPE C
  1 SCREW
  to each purlin
- TYPE D & E
  1 NAIL plus 1 SCREW to each purlin

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

CONSENT ISSUED BC221264 - Page 252 of 359

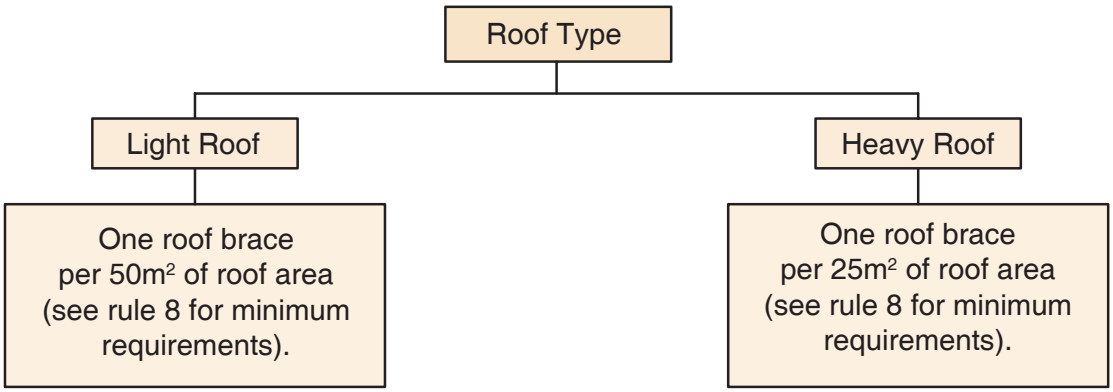
LUMBERLOK

ROOF BRACING SPECIFICATION

AS PER NZS 3604:2011

- ★ Covers roof bracing requirements 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 Roof 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.

SCAN FOR SPECIFICATION VIDEO

https://vimeo.com/117353345

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

Roof Bracing Options

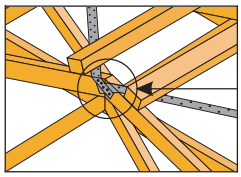
i) ROOF PLANE BRACE

Each roof plane brace can be:

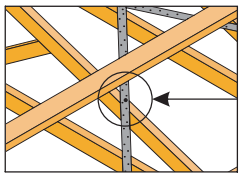
- A hip or valley rafter running continuously from ridge to the top plate in accordance with Clauses 10.2.1.3.2 or 10.2.1.3.3 NZS 3604:2011.

OR

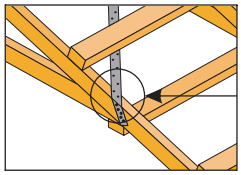
- A pair of tensioned and crossed LUMBERLOK Strip Brace running continuously from ridge to top plate installed as detailed below.



5 x 30mm x 3.15 dia. nails each end

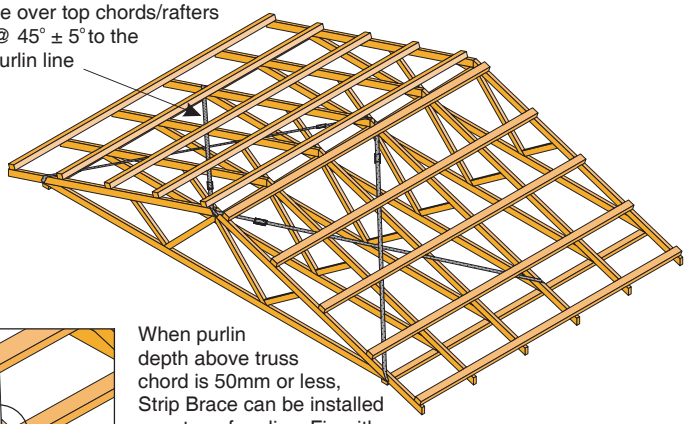


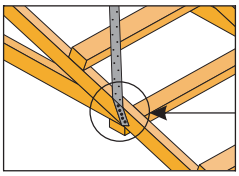
1 x 30mm x 3.15 dia. nail at crossing (after tensioning)



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

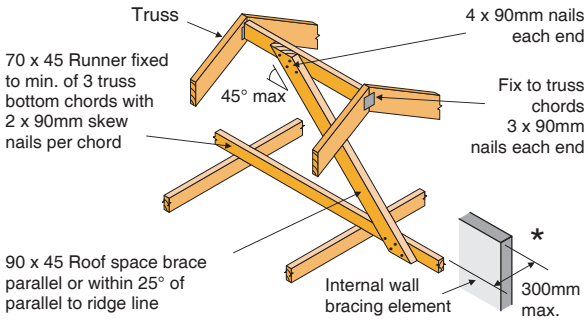




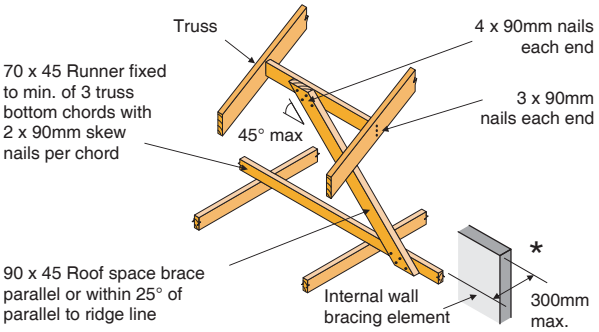
When purlin depth above truss chord is 50mm or less, Strip Brace can be installed over top of purlins. Fix with 1 x 30mm x 3.15 dia. nail at the purlin closest to the rafter/truss crossing

ii) ROOF SPACE BRACE

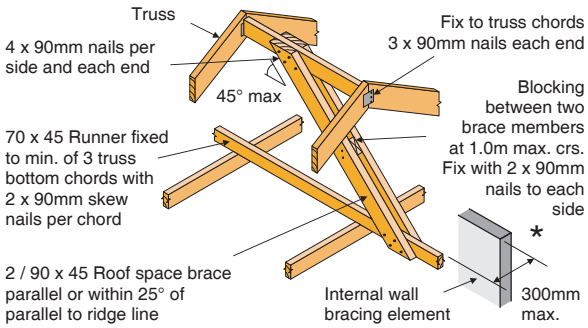
(A) Less than 2m long



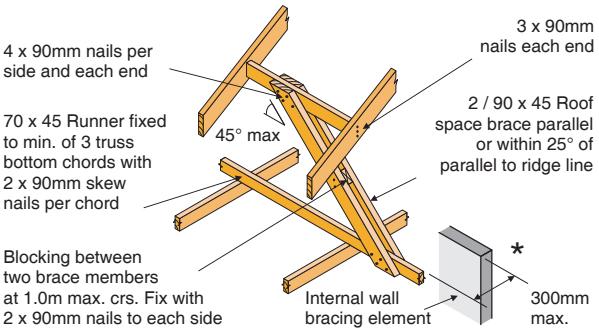
(C) Not directly under the ridge - less than 2m long



(B) More than 2m long (Max. 4.8m)



(D) Not directly under the ridge - more than 2m long



*Not required when a ceiling diaphragm complying with Clause 13.5 NZS 3604:2011 is used.

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

CONSENT ISSUED BC221264 - Page 254 of 359

GABLE END RAKING VERGE
OVERHANG OPTIONS

★ Covers raking verge using standard purlin overhang options.
★ Covers up to 750mm overhang using standard verge outriggers.
★ Covers up to 1200mm overhang using verge outrigger/purlin combination.

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

OVERHANG OPTIONS

- **All gable end loading parameters are based on the design considerations used in NZS 3604:2011 and cover heavy roof weight, extra high wind load and snow load Sg of up to 1.0kPa.**
- **All live load considerations as per AS/NZS 1170.**
- **All timber to be minimum grade SG8 as defined in NZS 3604:2011.**

CANTILEVER PURLIN OPTION

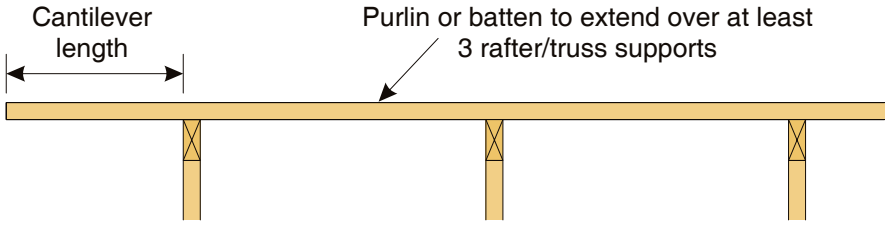


TABLE 1

PURLIN SIZE & ORIENTATION	MAX. CANTILEVER LENGTH (mm)	PURLIN CENTRES (mm)
45x45 ⊠	200	400
70x45 ⊠	300	900
90x45 ⊠	450	900

CANTILEVER OUTRIGGER OPTION

(Note: Maximum sidewall overhang of 750mm)
(See details on next pages)

TABLE 2

MAX. CANTILEVER LENGTH 750mm	OUTRIGGER SIZE & ORIENTATION	MAX. CANTILEVER LENGTH (mm)	OUTRIGGER CENTRES (mm)
	70x45 ⊠	750	600
		600	900
	90x45 ⊠	750	900
		600	1200
	90x45 ⊠	750	400
		600	600

CANTILEVER OUTRIGGER/PURLIN COMBINATION OPTION

(Note: Maximum sidewall overhang of 1200mm)
(See details on next pages)

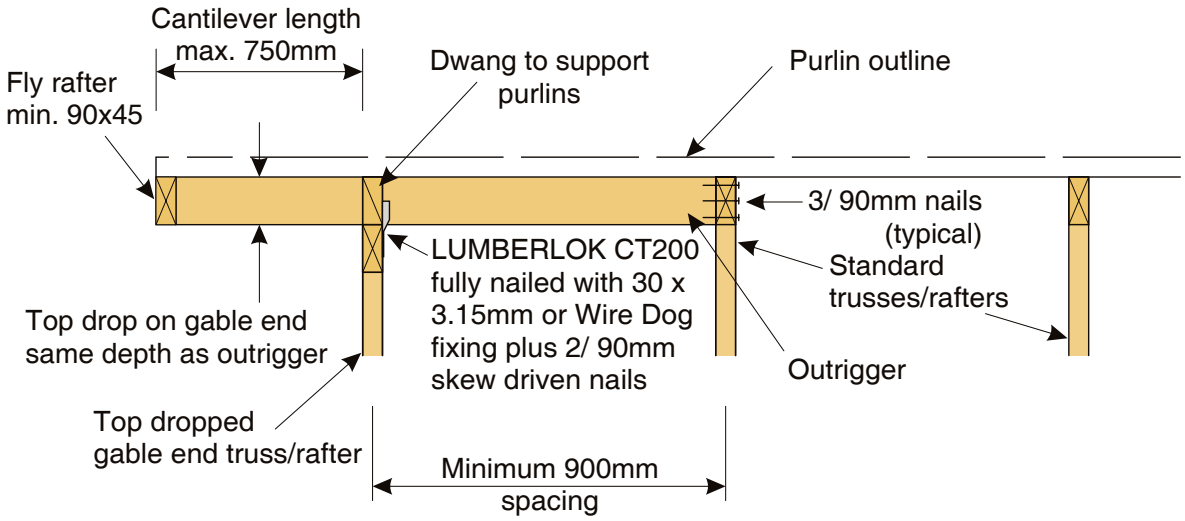
TABLE 3

MAX. CANTILEVER LENGTH 1200mm	OUTRIGGER SIZE & ORIENTATION	MAX. CANTILEVER LENGTH (mm)	OUTRIGGER CENTRES (mm)
	45x45 Purlin 90x45 Outrigger ⊠	1200	450
	70x45 Purlin 90x45 Outrigger ⊠	1200	700
	90x45 Purlin 90x45 Outrigger ⊠	1200	900

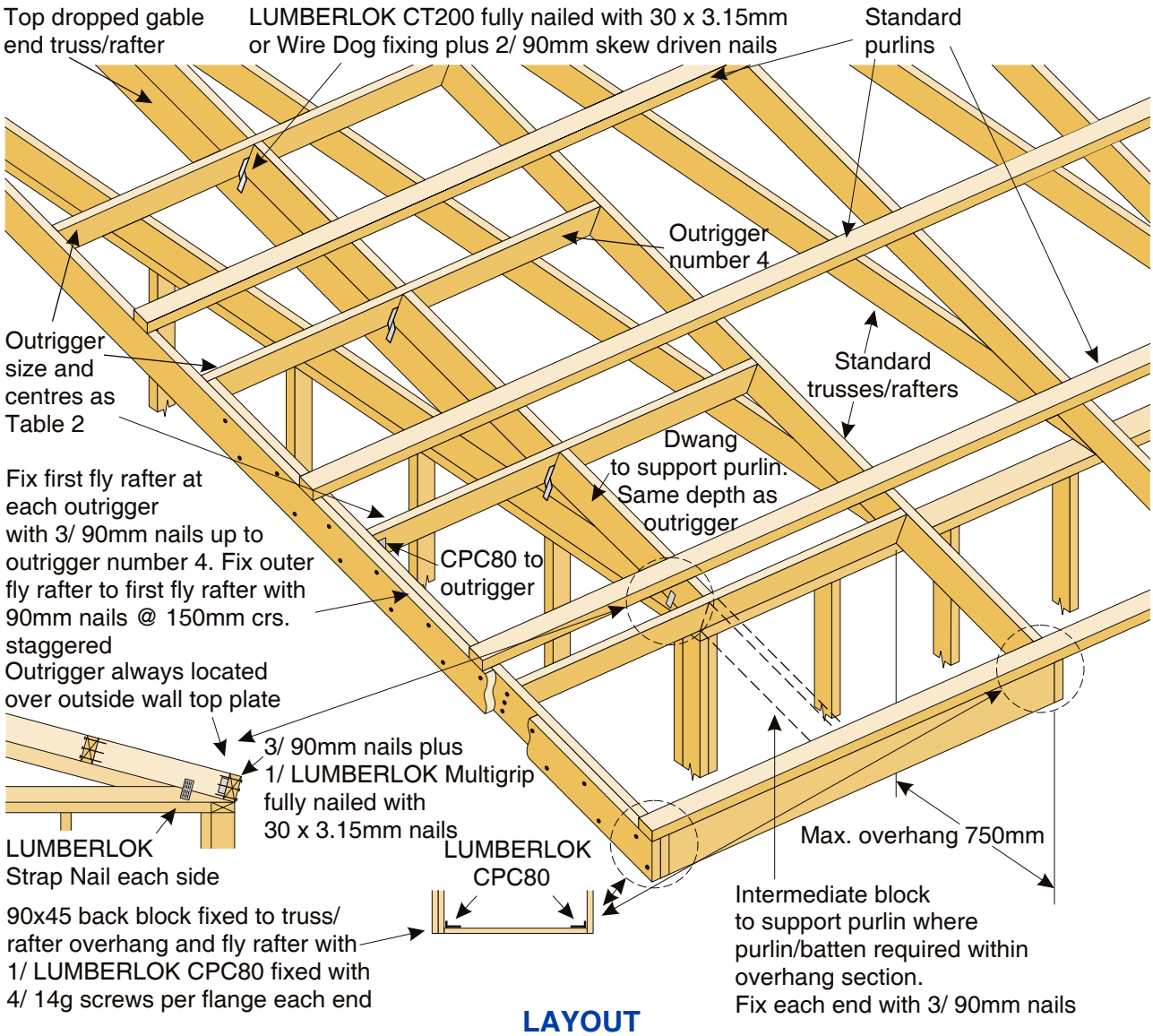
© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

CONSTRUCTION DETAILS FOR CANTILEVER OUTRIGGER OPTION

(SPANS & CENTRES AS PER TABLE 2)



CROSS SECTION

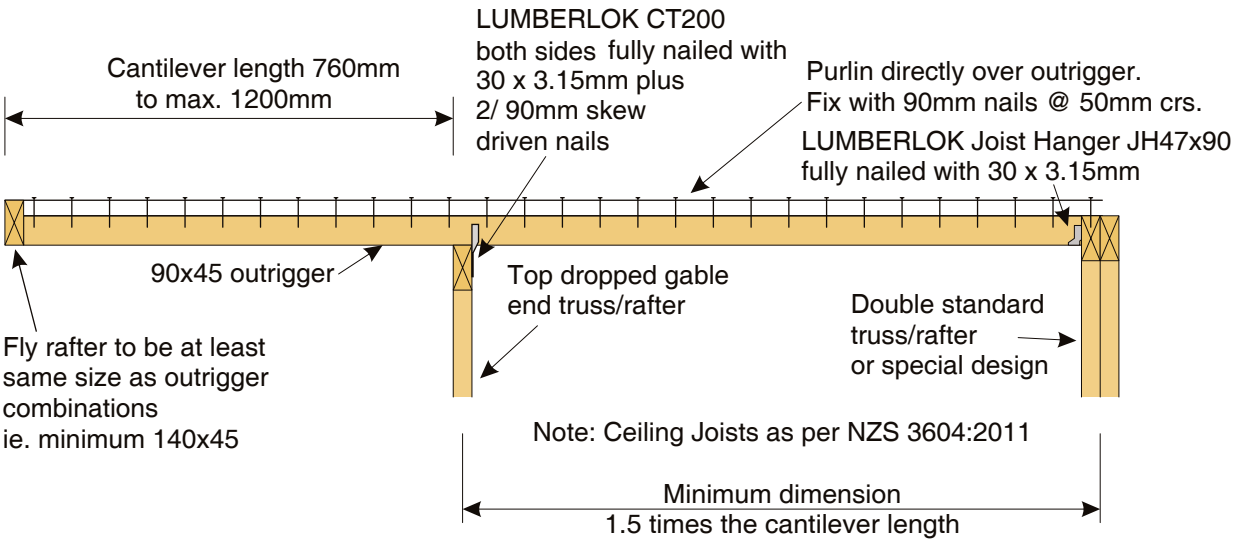


LAYOUT

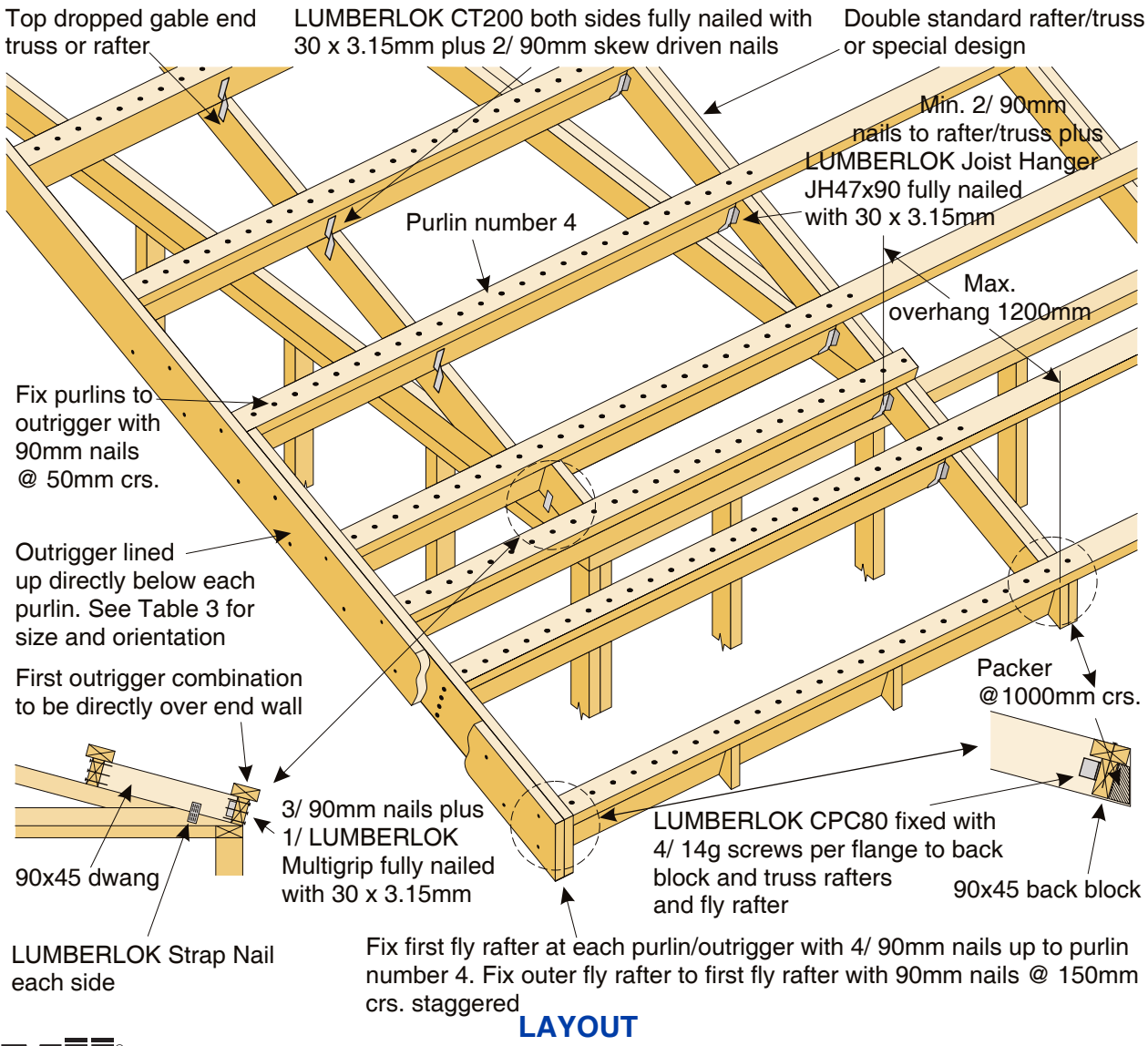
© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

CONSTRUCTION DETAILS FOR OUTRIGGER/PURLIN COMBINATION

(SPANS & CENTRES AS PER TABLE 3)



CROSS SECTION



LAYOUT

© Copyright 2017 MiTek Holdings, Inc.
All rights reserved.

APPENDIX 02 – ROOF UNDERLAY

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

CONSENT ISSUED BC221264 - Page 259 of 359

BC221264

Thermakraft™

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

CONSENT ISSUED BC221264 - Page 260 of 359

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

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.**

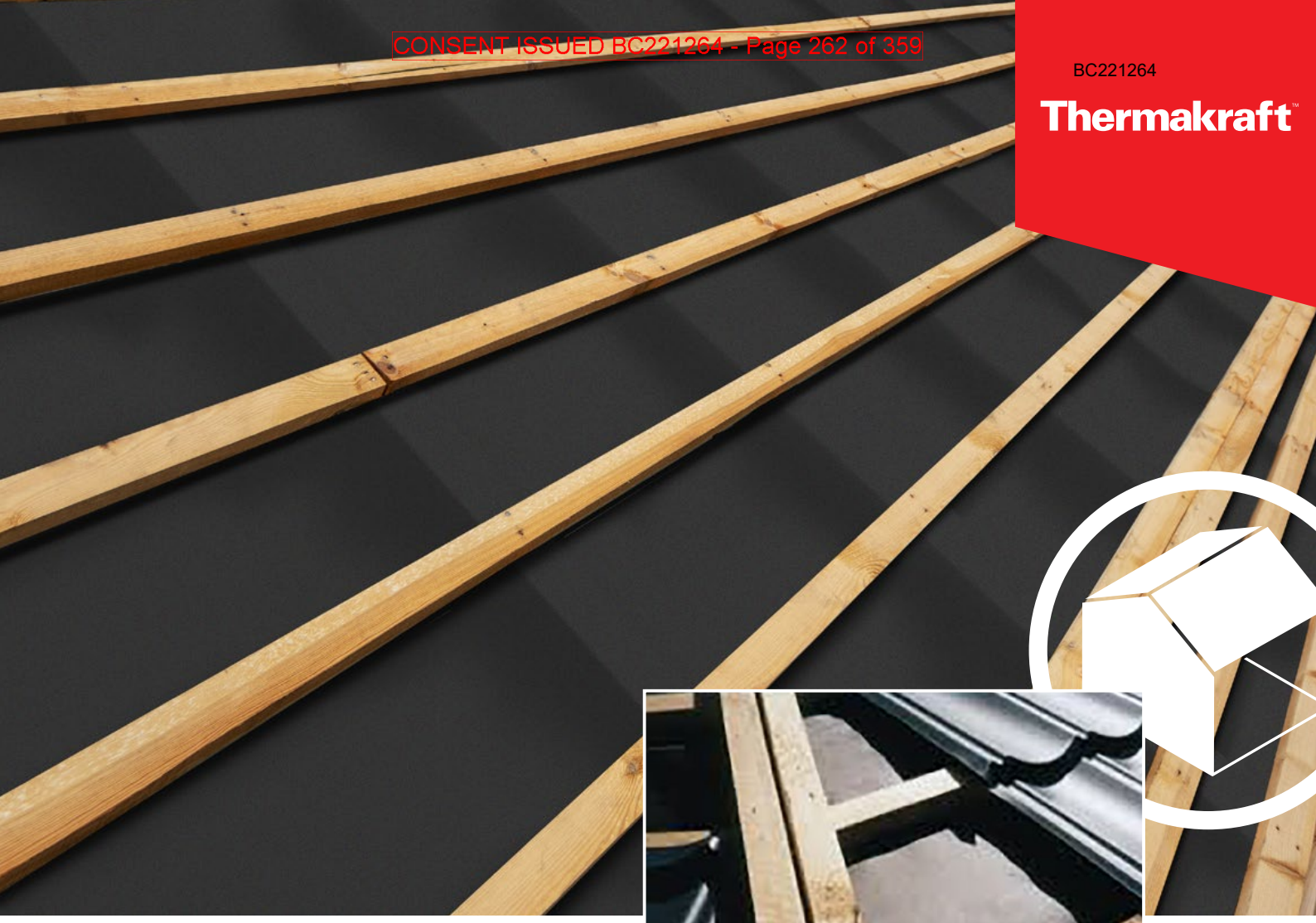
The recommendations contained in Thermakraft's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to any conditions contained in the Warranty. All product dimensions and performance claims are subject to any variation caused 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

CONSENT ISSUED BC221264 - Page 262 of 359

BC221264

Thermakraft™



Installation Guide

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.

Smarter products. Better buildings.
thermakraft.co.nz

Installation Guide

Application Method (Roofing)

Thermakraft 215 is a bituminous building underlay used on roofs in residential buildings.

- Thermakraft 215 can be used in direct fix or cavity fix for roof construction.
- Run NO longer than 10m.

Long-run metal roofing/vertical or horizontal installation method

- Fix using stainless steel 8-12mm staples or 20mm flat head clouts, or appropriate proprietary fastenings on timber framed structure. Fixing at 300mm centres. Fixing types and requirements for steel framed structure can be found in the MRM Code of Practice.
- Refer to table below to determine underlay support requirements.

Roof Pitch	Span	Underlay Support Required	
		Horizontally Installed	Vertically Installed
≥ 10°	> 1200mm	Yes	Yes
	≤ 1200mm	No	No
< 10° (Min 3°)	> 1200mm	Yes	Yes
	≤ 1200mm	No	Yes

- Thermakraft 215 upper sheet lapped over lower sheets (shiplap) to ensure water is shed to the outer face.
  Note: Thermakraft 215 can move downwards. To prevent this, it must be "Captured" by the fastenings at each purlin. Horizontal fix must not be used on purlin distance greater than 1100mm to allow for 150mm laps.
- Must be laid firmly (tight/taut) without creases. All laps either vertical or horizontal must be a minimum of 150mm lap.
- When underlay support is required, Thermakraft recommend using AUSMESH Safety Mesh, AUSNET hexagonal netting or Thermastrap 201.
- Thermakraft 215 can be installed above the battens or purlins for profiled metal roof claddings and otherwise in accordance with NZBC E2/AS1.
- If required to achieve a lap seal (refer to NZ Metal Roofing Code of Practice), use Thermakraft Aluband window sealing tape or Thermakraft White General Purpose Tape.
- Thermakraft 215 will provide temporary weather protection during construction, same day coverage recommended. DO NOT over expose the product to the weather or UV for more than 7 days in any roof applications.
- Thermakraft 215 may be unwound to the full length from the gutter to the ridge. However, when ridge ventilation is required Thermakraft 215 may be terminated or slit at the ridge purlin to allow a free passage of air.
- Thermakraft 215 must NOT overhang the gutter line by more than 20 mm, or if eaves flashings are used, terminate on the upper side of the flashing. More details can be found in the MRM Code of Practice.
- Flue penetrations must have a minimum distance of 50mm from Thermakraft 215 (refer to NZ Metal Roof and Wall Cladding Code of Practice 10.11.5).
- Thermakraft 215 must be free of tears and punctures, fit tightly and be lap taped around all penetrations (except flue penetrations), to provide drainage for any condensation, or surface water from leaks.

Note: Do not use Aluband on penetrations where Polybutene water pipes have been installed. Refer Pipe Manufacturers for instructions on sealing penetrations.

Concrete/Metal tile roofing

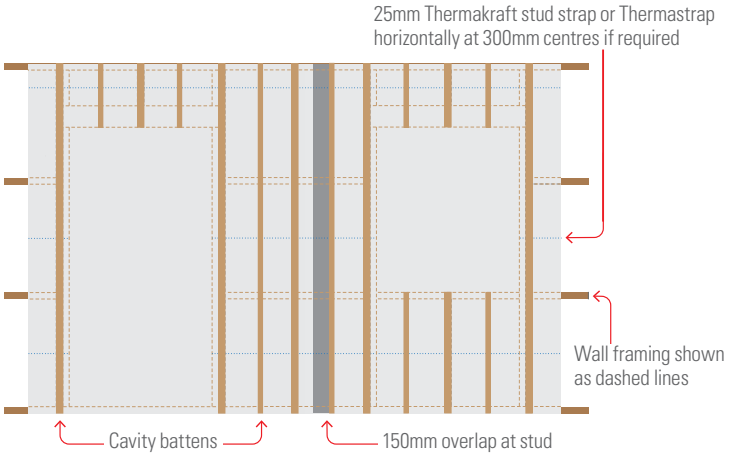
- Thermakraft 215 must be laid over rafters prior to fixing the tile battens. The maximum span between rafters for Thermakraft 215 is 1200mm. Masonry tile roofs must have antiponding boards in accordance with NZBC E2/AS1 Paragraph 8.2.5.
- Installed Thermakraft may be laid over the top of the antiponding boards and draped into the gutter by no more than 20mm. Antiponding boards must be treated in accordance with NZS 3604.
- Do NOT Run Thermakraft 215 longer than 10m in length.

Application Method (Wall)

- Fix Thermakraft 215 underlay with printed side facing the exterior.
- Fix to all exterior walls from below bearers to the top plate. Pull the Thermakraft 215 underlay tight and fix securely to the frame with fasteners such as galvanized Little Grippers, 6mm-8mm staples or 20mm large head galvanized clouts at 300mm centres horizontally and vertically. Additional fasteners should be used around each opening to be cut out. Fixing types and requirements for steel framed structure can be found in the MRM Code of Practice.

Installation Guide

- When fixing Thermakraft 215 underlay to Steel framing the same procedures applies, use adhesive spray or tape or flat head screws to fasten to the framing or thermal break, the exterior cladding fastenings will act as the permanent fixings.
- Cover all windows and door openings with Thermakraft 215 underlay.
- It is recommended that the Thermakraft 215 underlay is not cut and prepared for window installation until the arrival of the windows. minimum of 150mm lap is required at joins, all vertical laps must be made over studs. Horizontal laps to be laid ship lap style allowing water to be shed to the outer face of the membrane.
- When windows and doors are ready for installation, the Thermakraft 215 underlay covering the openings should cut at 45° and folded into the opening and securely fastened. Thermakraft window flashing tapes are recommended as the window flashing system.
  Note: In accordance with NZBC Acceptable Solution E2/AS1, wall underlay must be prevented from bulging into the drained cavity. Where stud spacing is greater than 450mm Thermakraft stud strap run horizontal at 300 centres is an acceptable means of prevention.
- Once installed, Thermakraft 215 must not be left exposed to the weather or UV for a maximum of 28 days. Thermakraft 215 underlays will provide temporary weather protection during construction allowing work to continue. Internal linings and insulation must not be installed until the exterior cladding is completed.
- Fastenings behind Brick Veneer Cladding must have an equivalent service life to that of Brick Veneer (50 years). Refer to NZS 3604.
- Make good any forced tears with Thermakraft window flashing tapes. Any large areas which require repair may be covered with a second layer of underlay, a lap of 150mm is required.
- For wall cavity systems where stud spacings are greater than 450mm centres, another means of restraint is required on the flexible underlay to prevent insulation bulge (refer to E2/AS1).
- Thermakraft 215 underlay must be installed by a licensed building practitioner.



Application Tips

- 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 a well ventilated area. Recommended minimum 7 days.

Handling and Storage

Thermakraft 215 underlay must be handled with care to prevent damage such as tearing and roll deformation. Due to the width of the product, care should be taken when installing in windy conditions.

The product must be stored under cover well away from direct moisture, rainfall contact and sunlight (UV). Care should be taken not stack other materials on top of the product.

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 1, November 2019

APPENDIX 03 – DEKTITE FLASHING

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

CONSENT ISSUED BC221264 - Page 266 of 359

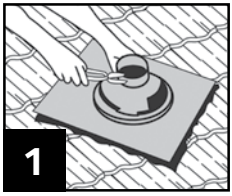
Dektite Aluminium

The best solution for stone chip and pressed metal tiles

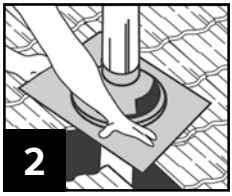
- ✔ The base is 99.9% pure grade aluminium making it strong, malleable and easy to install.
- ✔ Environmentally friendly, ideal where potable water is collected.
- ✔ The best solution for stone chip and pressed metal tiles.
- ✔ EPDM withstands temperatures from -50°C to 115°C and up to 150°C intermittently.

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°

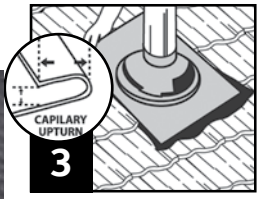
Installation Instructions:



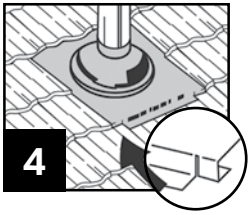
Trim Dektite cone to suit pipe size using sharp tin snips.



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 .

APPENDIX 04 – GERARD ROOF SPECIFICATION MANUAL

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

CONSENT ISSUED BC221264 - Page 268 of 359

BC221264

GERARD
Roofing Designed to Endure

New Zealand specification manual

Roofing Designed to Endure

CONSENT ISSUED BC221264 - Page 269 of 359

Contents

Gerard Roofs specification manual

New Zealand's steel roofing system

1.1 Products 5
1.1.1. Gerard Roof profiles 5
Gerard Stratos 6
Gerard Senator 6
Gerard Rockport 7
Gerard Alpine 7
Gerard Oberon 8
Gerard Heritage 8
Gerard Milano 9
Gerard Classic 9
1.1.2. Trims 10
1.2 Finishes 11
1.2.1 Textured finishes 11
1.2.2 Smooth finishes 11
1.2.3 Custom finishes to order 11
1.3 Colours & finishes 12
2.8 1.3.1 Textured finish colours 12
1.3.2 Types of finish by roof profile 12
1.3.3 Smooth finish colours 13
1.4 Product warranty 14
1.5 Environmental responsibility 15
1.6 CAD details available 15
1.7 Handling and storage 15
1.8 Product identification 15

2.0 Design considerations

2.1 Scope 18
2.2 Building code 18
2.3 Serviceable life 18
2.4 Other information sources 19
2.5 Alternatives 19
2.6 Materials 19
2.6.1 Panels and accessory materials 19
2.6.2 Installation materials 19
2.7 General information 20
2.7.1. Dissimilar metals/materials 20
Limitations on use 20
2.8.1. Corrosive environments 20

3.0 Substrate & installation overview

3.1 Preparation of structure 22
3.1.1 Rafters and valley boards 22
3.2 Battens 22
4.6 3.2.1 Batten setout 22
3.2.2 Batten/rafter fastening 23
3.3 Roofing underlay 23
3.4 Valleys 23
3.5 Solar brackets 23
3.6 Panel installation 23
3.6 Panel installation continued 24

4.0 Standard roof details

4.1 Batten spacing – Eave 26
4.2 Ridge installation 26
4.3 Valleys 28
4.4 Hips 30
4.4.1 Installation of roof trim on hip junction with wooden battens 30
4.5 Barge/Gable ends 31
4.5.1 Installation of roof trim over a wooden fascia with batten 31
4.5.2 Installation of roof trim over a metal fascia with and without batten 31
Wall flashings 32
4.6.1 Side flashings 32
4.6.2 Step - Pitch flashings 32
4.6.3 Soft edge apron flashings 33
4.7 Wall Stop Ends 33
4.8 Change in pitch 34
4.9 Penetrations 35
4.9.1 Pipes 35
4.9.2 Chimneys 35
4.9.3 Roof windows 35
4.9.4 Solar panels 35
4.10 Extra high wind zone installation 36

5.0 Components & fixing patterns

5.1 Gerard Roofs components 38
5.2 Gerard Stratos installation 40
5.3 Gerard Senator installation 41
5.4 Gerard Rockport installation 42
5.5 Gerard Alpine installation 43
5.6 Gerard Oberon installation 44
5.7 Gerard Heritage installation 45
5.8 Gerard Milano installation 46
5.9 Gerard Classic installation 47

CONSENT ISSUED BC221264 - Page 270 of 359

New Zealand's ingenious pressed steel roofing system

A Gerard roof is made up of individual lightweight pressed steel panels secured using a unique fixing system that effectively locks them together to form a single structural unit. The result is a roof that's stylish, copes with severe weather and lasts a very long time.

Invented in New Zealand ...

In 1957 New Zealand innovator Lou Fisher saw an opportunity to create a new kind of roof.

Disappointed with the limitations of solid tile and the utilitarian look of long-run corrugated iron roofs, he invented the steel tile roof and established a trusted brand that would grow to become Gerard Roofs.

... proven all over the world

The company continues to lead through ongoing product development and relentless attention to quality standards. Over the years Gerard Roofs' products have been fine-tuned to endure in all living situations and are now used in over 120 countries.

The Gerard roof you put over your head has not only been proven throughout New Zealand, but in some of the most extreme climates and environments on the planet

1.1 Products

1.1.1. Gerard Roof profiles

The roof has profound effect on the look of most homes

An attractive roof is a significant architectural feature. The roof usually accounts for around a third of the overall visual appearance of a home and will have a noticeable influence on its style and street appeal.

Gerard Roofs' profiles complement a range of styles

For many people, choosing a roof is primarily about looks. Homes are a reflection of individuality and their roofs a prominent feature. Unlike most other roofing types Gerard offers a system of choices that enables you to determine the right 'look' rather than having to accept a pre-defined one.

Applicable to traditional or contemporary architecture

Whether you're imagining traditional style or something following the latest trends, Gerard Roofs have profiles to meet the brief. Milano, for example, is reminiscent of the enduring ridged roofs of the Mediterranean; by contrast, a profile like Rockport offers a slimmer, squarer more contemporary pattern.

Gerard Rockport

Gerard Stratos

Gerard Senator

Gerard Alpine

Gerard Classic

Gerard Milano

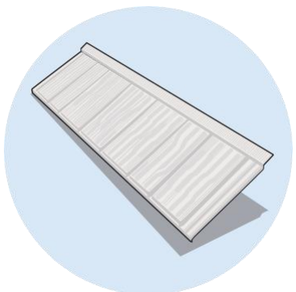
Gerard Oberon

Gerard Heritage

CONSENT ISSUED BC221264 - Page 271 of 359

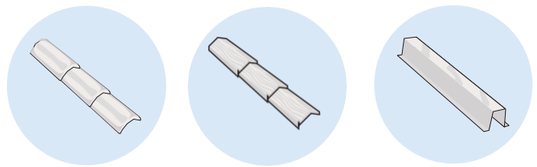
Gerard Stratos

Combining a flat plane with continuous but irregular grooves gives Gerard Stratos a recurring but slightly organic pattern that works with many styles of home.



Pitch – min./max.	15-90°
Overall length	1320 mm
Length of cover	1250 mm
Width of cover	370 mm
Upstand	27 mm
Roof cover/panel	0.46 m^2
Panels/m^2	2.2
Weight/panel Textured	3.0 kg
Weight/panel Smooth	2.1 kg
Weight/m^2 Textured	6.6 kg
Weight/m^2 Smooth	4.7 kg

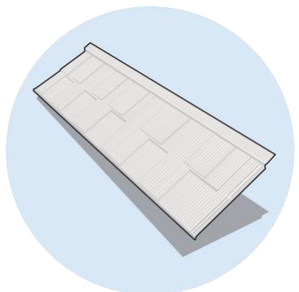
Gerard Stratos is compatible with all three Gerard trims – **Barrel, Angle** and **Box**.



Dimensions and weights given are nominal.

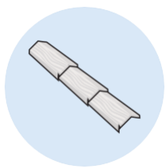
Gerard Senator

A profile with a modern look and subtle raised detailing. Senator is known for the simplicity and uniformity it brings to contemporary and traditional homes.



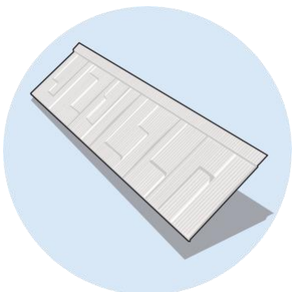
Pitch – min./max.	15-90°
Overall length	1320 mm
Length of cover	1250 mm
Width of cover	368 mm
Upstand	16 mm
Roof cover/panel	0.46 m2
Panels/m^2	2.2
Weight/panel Textured	3.0 kg
Weight/panel Smooth	NA
Weight/m^2 Textured	6.6 kg
Weight/m^2 Smooth	NA

Gerard Senator is compatible with **Angle** trim.



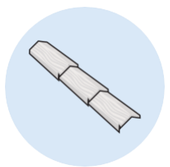
Gerard Rockport

Among Gerard's flattest profiles, Rockport lends your roof a sleek, linear look and is often used on clean, simple architecture with a modern bias.



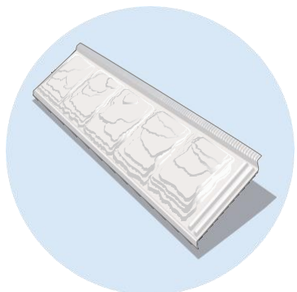
Pitch – min./max.	15-90°
Overall length	1330 mm
Length of cover	1250 mm
Width of cover	368 mm
Upstand	20 mm
Roof cover/panel	0.46 m^2
Panels/m^2	2.2
Weight/panel Textured	3.0 kg
Weight/panel Smooth	NA
Weight/m^2 Textured	6.6 kg
Weight/m^2 Smooth	NA

Gerard Rockport is compatible with **Angle** trim.



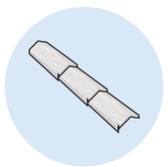
Gerard Alpine

Inspired by the look of Welsh slate the Gerard Alpine profile lends a smooth, sleek linear look while surface detailing adds a slightly rustic overtone.



Pitch – min./max.	15-90°
Overall length	1335 mm
Length of cover	1260 mm
Width of cover	368 mm
Upstand	17 mm
Roof cover/panel	0.46 m^2
Panels/m^2	2.2
Weight/panel Textured	2.9 kg
Weight/panel Smooth	NA
Weight/m^2 Textured	6.4 kg
Weight/m^2 Smooth	NA

Gerard Alpine is compatible with **Angle** trim.



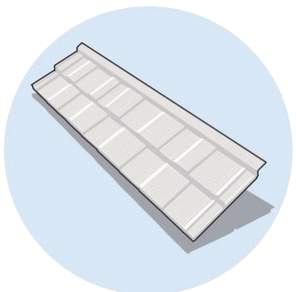
Dimensions and weights given are nominal.

CONSENT ISSUED BC221264 - Page 272 of 359

BC221264

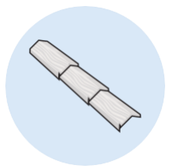
Gerard Oberon

The depth and dimension of Oberon make it most responsive to changes in light. It is often seen on substantial homes alongside dressed stone and natural timbers.



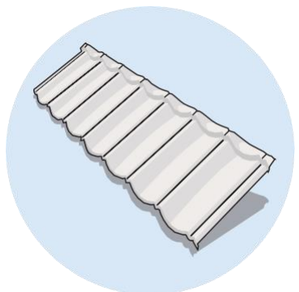
Pitch – min./max.	20-90°
Overall length	1310 mm
Length of cover	1230 mm
Width of cover	320 mm
Upstand	20 mm
Roof cover/panel	0.39 m²
Panels/m²	2.54
Weight/panel Textured	2.8 kg
Weight/panel Smooth	NA
Weight/m² Textured	7.1 kg
Weight/m² Smooth	NA

Gerard Oberon is compatible with **Angle** trim.



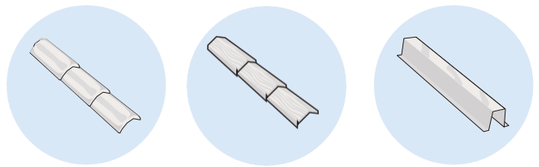
Gerard Heritage

The scalloped shapes of this profile bring a look that's similar to heavyweight tiles. The advantages of pressed steel mean this profile is often chosen as a substitute.



Pitch – min./max.	12-90°
Overall length	1330 mm
Length of cover	1257 mm
Width of cover	369 mm
Upstand	28 mm
Roof cover/panel	0.46 m²
Panels/m²	2.2
Weight/panel Textured	2.9 kg
Weight/panel Smooth	2.1 kg
Weight/m² Textured	6.4 kg
Weight/m² Smooth	4.7 kg

Gerard Heritage is compatible with all three Gerard trims – **Barrel, Angle** and **Box**.

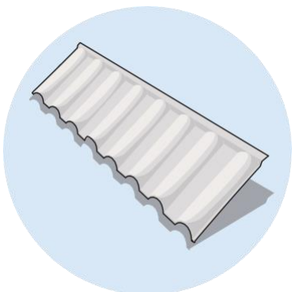


Dimensions and weights given are nominal.

Products and specifications

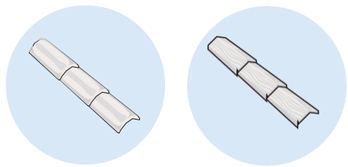
Gerard Milano

With balanced arches and flats found in traditional design, Gerard Milano is a timeless profile that creates clean, elegant and classical looking roofs.



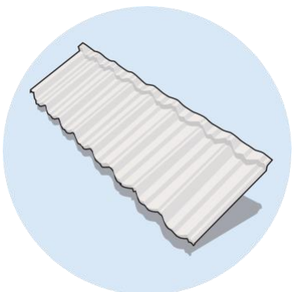
Pitch – min./max.	12-90°
Overall length	1330 mm
Length of cover	1215 mm
Width of cover	368 mm
Upstand	24 mm
Roof cover/panel	0.45 m²
Panels/m²	2.2
Weight/panel Textured	2.9 kg
Weight/panel Smooth	NA
Weight/m² Textured	6.4 kg
Weight/m² Smooth	NA

Gerard Milano is compatible with **Barrel** and **Angle** trims.



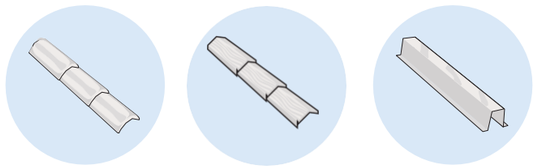
Gerard Classic

Gerard Classic is a geometric profile with shapes and angles that accentuate light and shadow to emphasise its corrugations and create a look of strength and definition.



Pitch – min /max.	12-90°
Overall length	1320 mm
Length of cover	1257 mm
Width of cover	369 mm
Upstand	28 mm
Roof cover/panel	0.46 m²
Panels/m²	2.2
Weight/panel Textured	2.9 kg
Weight/panel Smooth	2.1 kg
Weight/m² Textured	6.4 kg
Weight/m² Smooth	4.7 kg

Gerard Classic is compatible with all three Gerard trims – **Barrel, Angle** and **Box**.



Dimensions and weights given are nominal.

CONSENT ISSUED BC221264 - Page 273 of 359

1.1.2. Trims

Gerard Roof trims

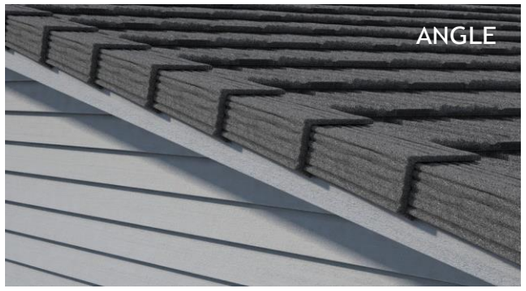
Trim is an essential roofing element, for performance as well as appearance; roof trims create a weatherproof seal at roof junctions and are an important part of the integrity of the roofing system.

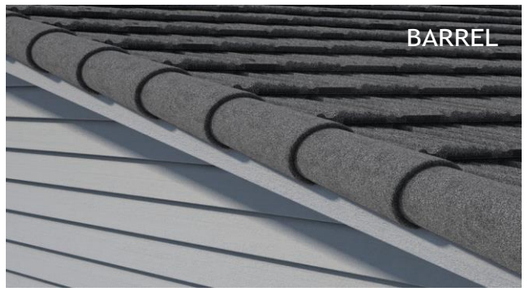
There are three types of roof trim – Angle, Barrel and Box. Each roof profile is compatible with one or more of these as shown in the chart on the right.

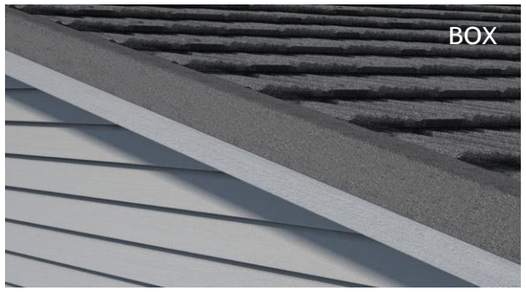
Gerard's roof trim component system is designed to be fully integrated. The finish of Gerard trims can be chosen to exactly match the finish of a Gerard roof or chosen in a contrasting colour to create a specific effect.

	Angle trim	Barrel trim	Box trim
Stratos	✓	✓	✓
Senator	✓		
Rockport	✓		
Alpine	✓		
Oberon	✓		
Heritage	✓	✓	✓
Milano	✓	✓	
Classic	✓	✓	✓

Gerard Roof Profiles With Corresponding Trims







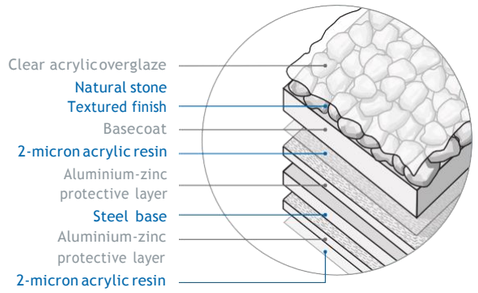
1.2 Finishes

Choice of surface finishes

Some Gerard roof profiles allow you to choose either a textured or Smooth finish on the surface of your roof.
Both have their merits and both come in a range of contemporary colours. The decision is usually influenced most by the architectural style of the home and the intended colour scheme.

1.2.1 Textured finishes

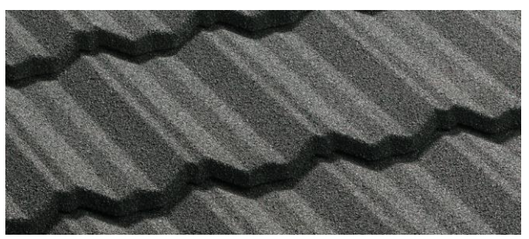
Naturally coloured mineral fragments, or ceramic coated stone fragments, fused to aluminium-zinc steel in layers of acrylic resin and over-glaze.



Textured finish advantages:

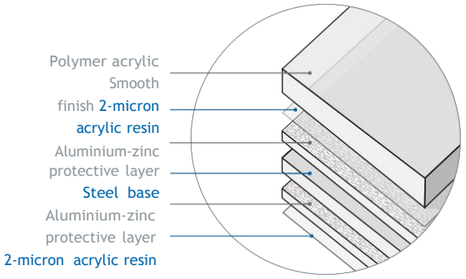
- Additional protection from the elements
- Natural stone colours are almost entirely fade-free
- Gerard textured finishes have longer warranty

A textured stone finish is inclined to look a little more substantial yet visually softer than a Smooth finish.



1.2.2 Smooth finishes

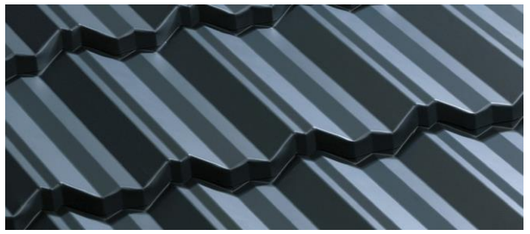
45-micron thick topcoat of ultra-tough polymer acrylic applied after the shape has been pressed into the aluminium-zinc steel (preventing surface micro-cracks).



Smooth finish advantages:

- Less expensive than a textured finish
- Smooth surface with clearer detail
- Just like ordinary coloured steel but much more durable

Smooth finishes tend to produce a smoother, crisper look accentuating patterns and details more.



1.2.3 Custom finishes to order

Custom finishes can be created for special projects by request.

A Gerard Smooth finish can be made to match any colour sample. We also have the ability to develop a custom textured finish – for example, we could work with stone that's native to your location.

To find out more contact Gerard Roofs on 0800 100 244.

CONSENT ISSUED BC221264 - Page 274 of 359

BC221264

Products and specifications

1.3 Colours & finishes

1.3.1 Textured finish colours

Midnight

Black / Ebony

Charcoal

Black / Ebony

Eclipse

Black / Ebony

Onyx

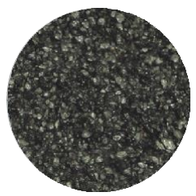
Greyfriars / Greyfriars

Ashwood

Sandstone Grey / Sandstone Grey

Rainforest

Karaka / Karaka



Greenstone

Karaka or River Gum / Karaka

Ravine

Karaka / Karaka

Teak

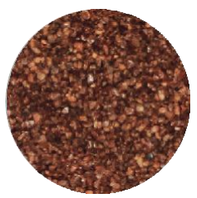
Lignite / Lignite

Pepper

Ironsand / Ironsand

Terracotta

Scoria / Scoria



Cedar

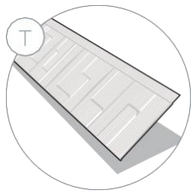
Lignite or Scoria / Lignite

The name below each colour swatch title is the Colorcote® / Colorsteel® equivalent.
These are useful for matching accessories like fascia or aluminium joinery
as the names are often referred to as a colour standard.

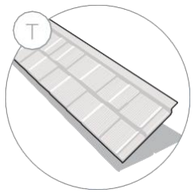
1.3.2 Types of finish by roof profile

Textured finishes and colours are available for all Gerard roof profiles.

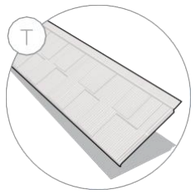
Gerard Alpine



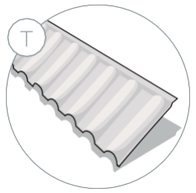
Gerard Rockport



Gerard Oberon



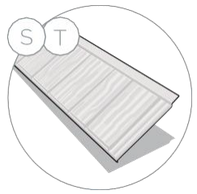
Gerard Senator



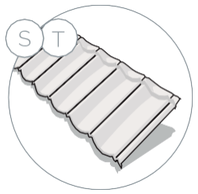
Gerard Milano

Smooth finishes and colours are available for the three Gerard profiles shown below.

Gerard Classic



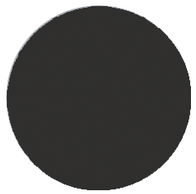
Gerard Stratos



Gerard Heritage

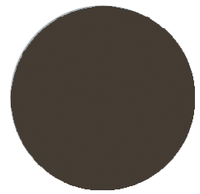
The name below each colour swatch title is the Colorcote® / Colorsteel® equivalent.
These are useful for matching accessories like fascia or aluminium joinery
as the names are often referred to as a colour standard.

1.3.3 Smooth finish colours



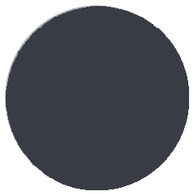
Obsidian

Black / Ebony



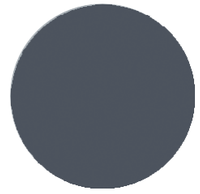
Graphite

Ironsand / Ironsand



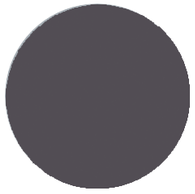
Castle Grey

Windsor Grey / Windsor Grey



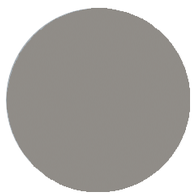
Ocean Blue

New Denim Blue / New Denim Blue



Smoke Grey

Greyfriars / Greyfriars

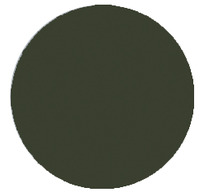


Pearl Grey

Sandstone Grey / Sandstone Grey

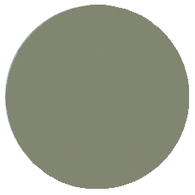
Chalk

Cloud / Pacific Cloud



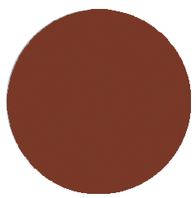
Dark Green

Karaka / Karaka



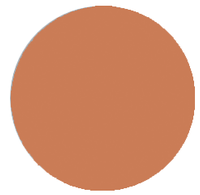
Mint Green

Mist Green / Mist Green



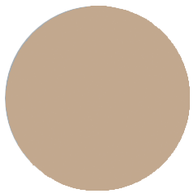
Russet

Scoria / Scoria



Marseille Clay

Terracotta / Terracotta



Morocco

Beige / *No equivalent*

The name below each colour swatch title is the Colorcote® / Colorsteel®equivalent.
These are useful for matching accessories like fascia or aluminium joinery
as the names are often referred to as a colour standard.

CONSENT ISSUED BC221264 - Page 275 of 359

1.4 Product warranty

Gerard's warranty addresses homeowners' two main concerns:

1. That the roof remains weatherproof
2. That the coating remains sound

Complicated rules simplified

Warranties are complex but we've narrowed the variables affecting Gerard Roofs' warranty cover down to two questions:

Is the building sited in a corrosive environment?

Does the roof have a Smooth or a textured finish?

On the right is a chart showing the terms of the warranty according to the circumstances of the individual building.

In each situation the warranty is pro-rata with cover diminishing over time.

There are two warranty environment zones: Standard and Corrosive. Warranty cover is longer in the standard environment zone.

A Corrosive Environment is defined as anywhere within 750m of breaking surf.

Gerard Roofs' warranty applies to all Gerard manufactured products, even if installed in extreme corrosive conditions.

Installation is assured

Be reassured that Gerard roofs are only installed by Gerard Certified Roofers.

Each GCR is responsible under law to make good any problems in the unlikely event they arise.

Visit www.gerardroofs.co.nz to download a sample of the full warranty document.

The chart shows the duration of both aspects of roof cover, according to the type of texture and the corrosiveness of the environment.

Weatherproofing		
Weatherproofing cover with textured finish roof	50 years pro-rata	25 years pro-rata
Weatherproofing cover with Smooth finish roof	50 years pro-rata	15 years pro-rata
Surface coating		
Textured Coating cover	20 years pro-rata	10 years pro-rata
Smooth Coating cover	15 years pro-rata	5 years pro-rata

Products and specifications

BC221264

1.5 Environmental responsibility

A Gerard pressed steel roof is an environmentally responsible choice.

Pressed steel roofing generates minimal manufacturing, construction site and demolition waste.

A pressed steel roof is lighter than its concrete or clay equivalent, which means transportation is more energy-efficient. It requires less framing support, which also saves resources. Steel is endlessly recyclable too.

Gerard Roofs is conscious of its environmental footprint and was New Zealand's first roofing manufacturer to be awarded ISO 14001 environmental accreditation.

TELARC REGISTERED™
Environment ISO 14001

1.6 CAD details available

CAD details for commonly encountered roof details in a number of common formats can be found at www.gerardroofs.co.nz/designtech

At the time of publication these details cover:

- Eaves
- Gables
- Ridges
- Roof-to-wall (transverse)
- Hips
- Roof-to-wall (parallel)
- Valleys

Gerard Roofs' CAD library is an expanding online resource that will be added to periodically as new details become available.
Check www.gerardroofs.co.nz/designtech to see the latest available versions.

Specific details for unusual or challenging areas can be requested by contacting Gerard Roofs on 0800 100 244.

1.7 Handling and storage

Gerard panels and accessories must be transported and handled with care to avoid damaging the pre-finished surfaces.

Long term storage of panels and accessories must be under dry, ventilated cover. For short term storage on site, panels and accessories must be stored flat off the ground, no more than two pallets high.

Handling and storage of all materials supplied by Gerard Roofs, whether on or off site, is under the control of the Gerard Certified Roofer.

Other materials must be handled and stored in accordance with the relevant manufacturer's instructions.

1.8 Product identification

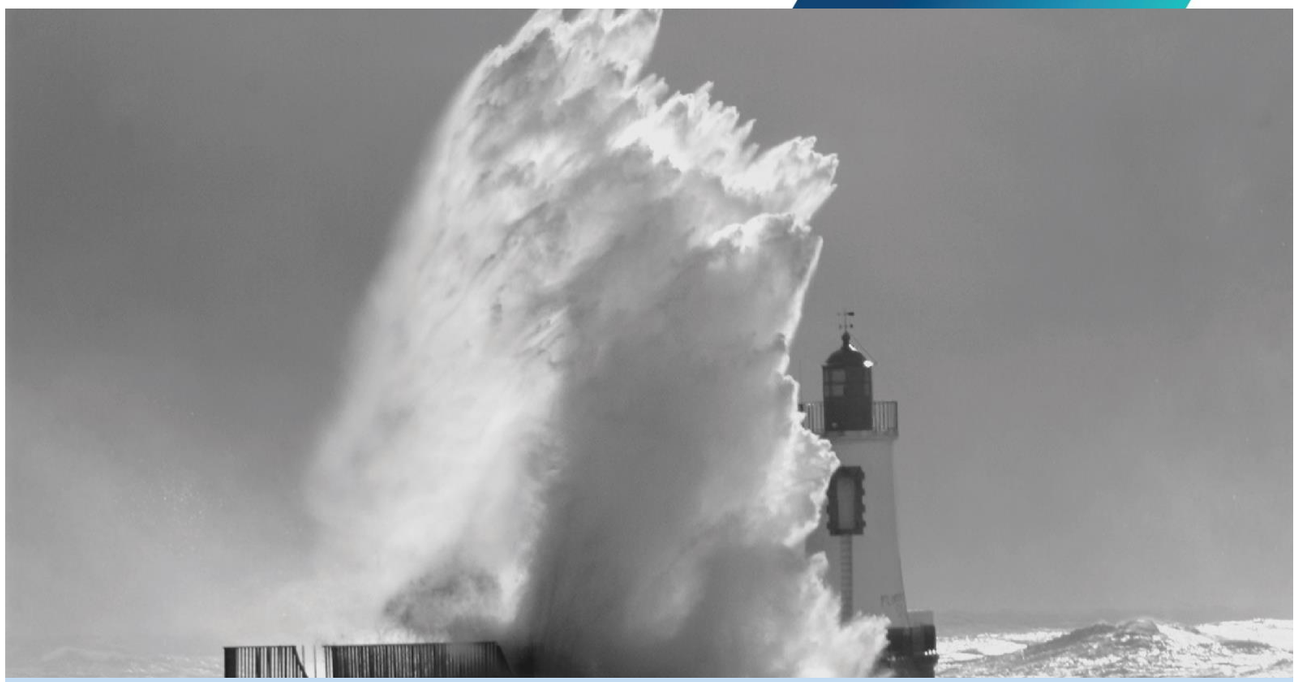
Gerard Roofs print a run number, date and time of production on the reverse side of each panel. Pallets have pallet cards that show the run number, date of production and colour code markings; this allows identification of batch colours.

The steel supplier also prints a code which allows identification of the parent coil.

Reverse side of the panel.

CONSENT ISSUED BC221264 - Page 276 of 359

BC221264



2.0 Design considerations

This section contains general information you need to keep in mind when designing buildings with Gerard Roofs. The numbered sections (2.1; 2.2; etc.) correspond to the equivalent parts of the Gerard Roofs website specification area (www.gerardroofs.co.nz/designtech). Any details and diagrams can be downloaded from there.

CONSENT ISSUED BC221264 - Page 277 of 359

2.1 Scope

This specification covers the supply and fixing of:

- Materials
- General information
- Limitations of use
- Service of life
- Workmanship - pre-roofing requirements
- Timber battens.
- Roofing underlay
- Valleys
- Gerard Roofs - pressed metal tiles/panels
- Trim, standard, barrel and angle
- Wall flashings
- Fixings/fasteners
- Incompatible materials
- Extra high wind zone variations
- Solar panels

2.2 Building code

The following standard specifications should be adhered to in both materials and workmanship.

NZS 2295	Roofing underlays
NZS 4217	Standard for pressed metal tile roofs
NZS 3604:2011	Code of practice for light timber framed buildings, not requiring specific design
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles - galvanising of nails
E2/AS1	New Zealand Building Code clause E2 External moisture
AS1397:2011	AS 1397-2011 continuous hot-dip metallic coated steel sheet and strip - coatings of zinc and zinc alloyed with aluminium and magnesium.
AS/NZS 1530	pt. 3:1999. Fire standard

NZ Building Code sections B1,B2,E2, G12

2.3 Serviceable life

Durability (B2)

Without recoating, the Gerard Roofs products will meet the provisions of NZBC B2.3(C) for 15 years, when used and maintained.

Structure (B1)

When installed according to the manufacturers recommendations the Gerard Roofs products will allow provisions of NZBC B1.3.1, B1.3.2 and B1.3.4 to be met for the relevant provisions of B1.3.3.

External moisture (E2)

When correctly used and installed, the Gerard products meet the requirements of the NZ Building Code E2/AS1

Live loads

During installation and subsequent construction process or maintenance, walking load must be positioned to the front of the panel where the panel is supported by a batten.

Wind zones

On new roofs when fixed to battens sized and installed according to NZS 3604:2011 Gerard Roofs systems are suitable for use in all NZS 3604:2011 building wind zones up to and including extra high.

Spread of fire (C3)

The coating of the roof is <1mm thickness and applied directly to a non-combustible substrate. There was no spread of flames when tested to AS/NZ 1530.pt3.

BC221264

2.0 Design considerations

Water supplies (G12)

Rainwater collected from the Gerard Roofs systems will meet the provisions of NZBC G12.3.1, providing the surface coating is maintained as directed.

It is recommended that a potable water collection system is not installed until 3 good rainfalls have washed the new roof surface free of building debris and surface coating surfactants.

Snow

The Gerard Roofs products are suitable for use where buildings are designed for a 1kPa snow loading.

2.4 Other information sources

NZ MRM Code of Practice.

2.5 Alternatives

No alternatives or substitutions permitted.

2.6 Materials

2.6.1 Panels and accessory materials

The roofing panels and accessories are made by Gerard Roofs.

The base material is aluminium-zinc coated steel - 0.39 mm, AZ150 of AS1397:2011.

Panels are finished in either a granulated textured or Smooth paint finish.

Submissions

An actual product sample should be sighted to confirm colour choice before material orders are placed/accepted.

2.6.2 Installation materials

1. Roofing underlay shall be either a bitumen impregnated Kraft or synthetic underlay. Kraft underlays are covered by NZS2295 while synthetic roofing underlays are approved by Acceptable Solution documentation from the suppliers.
2. Battens of rough sawn radiata pine type timber meeting suitable dimensions (table 02, page 22) with H1.2 protection.
3. Ridge, hip, gable and wall flashings shall be supplied as standard products from Gerard Roofs.
4. Valleys may be used as supplied pre-finished in 2.4 metre lengths by Gerard Roofs or made to order out of pre-painted 0.55 mm G300 AZ150 aluminium-zinc coated steel in a matching colour from a sheet metal fabricator. If made to order, valleys should have similar dimensions to those supplied by Gerard Roofs.
5. Valleys must be painted to the same colour as the roof panel if not pre-finished.
6. Hip end caps to be installed where necessary to stop ingress of moisture or bird-life.
7. All nails in panels should be 50 mm galvanised and coated to meet AS/NZS 4680 specification (Zn 390 g/m^2). Galvanised nails are used for ridge hip caps 30 mm, all other trim or flashings 50 mm.

CONSENT ISSUED BC221264 - Page 278 of 359

BC221264

2.7 General information

Profile	Minimum pitch
Stratos	15°
Senator	15°
Rockport	15°
Alpine	15°
Oberon	20°
Heritage	12°
Milano	12°
Classic	12°

Minimum Roof Pitches For Gerard Roof Profiles

For full specifications - refer to individual panel profile data (pages 6-9) dimensions, coverage, weights etc.

2.7.1. Dissimilar metals/materials

When two different metals are in contact and moisture is present, one metal is relatively protected while the other suffers accelerated corrosion. A similar effect often occurs with water flowing over different metals.

This form of corrosion is commonly found:

- Where water is discharged from copper or brass systems over a galvanised or aluminium-zinc coated steel roof.
- Where unpainted lead flashings are applied directly to aluminium-zinc coated steel products.
- Where fasteners are incompatible with the roofing material.
- Any electrical contact between dissimilar metals should be avoided, e.g. wet leaves making contact between copper gutters and aluminium-zinc coated steel roof panels.

Note: Special consideration should be given when replacing existing roofs as some roof claddings use unsuitable materials for flashing such as lead.

2.8 Limitations on use

2.8.1. Corrosive environments

The Gerard system must not be used in high alkaline environments (such as intensive animal shelters or other buildings with high ammonia concentrations); contact with fresh concrete or plaster must be avoided. The roofing must not be used in contact with permanently damp materials, nor on or near industrial buildings in which corrosive processes occur, nor over swimming pools.

Directing water-flow to minimise potential corrosion

More active metals → **More noble metals**

Zinc > Aluminium-Zinc Coated Steel > Aluminium > Steel > Lead > Copper > Stainless Steel

This chart lists commonly used metals in a 'Galvanic Series'. If any two of these metals are in damp contact or a run-off situation, the metal further to the left will sacrifice itself to protect the metal further to the right. Therefore the simple rule to remember is that you can run water from left to right, but not from right to left. For example zinc to copper is alright, but copper to zinc is not. Specific advice should be sought from Gerard Roofs regarding use of dissimilar metals.

3.0 Substrate & installation overview

Information for the design and specification of the sub-structure of a Gerard roof; rafters, battens, underlays and fixings are covered in detail. The numbered points (3.1; 3.2; etc.) correspond to the equivalent parts of the Gerard Roofs website specification area (www.gerardroofs.co.nz/designtech). Any details and diagrams can be downloaded from there.

CONSENT ISSUED BC221264 - Page 279 of 359

3.1 Preparation of structure

3.1.1 Rafters and valley boards

Rafters and valley boards are to be correctly installed by the builder before roofing can start.

Refer to Gerard Roofs Technical Note - Builder Check List, on the Gerard Roofs website.

Where an exact number of complete panel courses is not possible, the top row of panels should be trimmed to fit and then bent up beneath the ridge flashing.

3.2 Battens

Select batten size to suit rafter or truss spacing. Battens are to be treated to H1.2 and graded on site.

Truss spacing (mm)	Batten size (mm)	Situation
900	40 x 50	Standard
1200	50 x 50	Occasional
1500	50 x 65 on edge	Unusual
1800	50 x 75 on edge	Unusual

Table 02 Batten/Spacing

3.2.1 Batten setout

Stratos, Heritage, Classic, Milano, Rockport and Alpine profiles

A row of battens fixed directly behind the fascia with the second batten 330mm up the truss. Subsequent battens are spaced at 370mm (or as specified for profile and coating finish). The final, top row of panels is 365mm or less, depending on whether the top row needs cutting due to rafter length.

Senator

A row of battens fixed directly behind the fascia with the second batten 330mm up the truss. Subsequent battens are spaced at 368mm. A centre support batten (40x50 mm) positioned 185 mm behind the front face of the panel batten is installed and held in place with a single batten nail. Panels are not fastened to this support batten. The final top row of panels should be 365mm or less, depending on whether the top row needs cutting due to rafter length.

NB. The second batten up from the facia is left out to allow the roofing underlay to maintain an angle above horizontal.

Oberon

A row of battens fixed directly behind the facia with the second batten 280 mm up the truss. Subsequent battens are spaced at 160mm. The final top row of panels is 155mm or less, depending on whether the top row needs cutting due to rafter length. Panels are not fastened to intermediate support battens.

NB. The second batten up from the facia is left out to allow the roofing underlay to maintain an angle above horizontal.

Eaves panels at gutter fascia

Panels should extend into the gutter by 40mm. This may vary slightly depending on the rafter length and roof pitch.

Roof profile	Batten spacing	
	Textured	*Smooth*
Stratos	370mm	371mm
Senator*	368mm	
Rockport	368mm	
Alpine	368mm	
Oberonˆ	320mm	
Heritage	369mm	370mm
Milano	368mm	
Classic	369mm	370mm

Table 03 Batten Set-Out

**Centre batten 185 mm, second batten from eave not installed*
ˆCentre batten 160 mm, second batten from eave not installed

3.0 Substrate & installation overview

BC221264

3.2.2 Batten/rafter fastening

Gerard Roofs require that all 40 x 50 mm battens fastened to rafters at 900 mm centres are to be fastened with 2 x 90 mm gun nails in all wind zones up to and including the very high wind zone.

In extra high wind zones a screw fastener must be used for all batten rafter junctions.

This meets or exceeds the requirements of NZS3604:2011

Wind zone	900 rafter 50x40 mm	1200 rafter 50x50 mm
Low 32m/s	S	S
Medium 37m/s	S	S
High 44m/s	S	T
Very high 50m/s	S	T
Extra high 55m/s	T	T
SED +55m/s*	Contact GR	Contact GR

Table 04 Fasteners for Panel Battens -Wind Zones – NZS3604.

S = 2 x 90 mm x 3.15 mm nails (0.8kN)
T = 80 mm x 10g screw (2.4kN)

**In SED Specific design situations refer to Gerard Roofs Technical Notes on installation in SED wind areas.*

3.3 Roofing underlay

Must comply with standard NZS 2295 - Pliable and Permeable Building Underlays. Roofing underlay is installed under the battens but over the bottom batten.

Roofing underlay should be installed horizontally with a minimum overlap of 75 mm.

All vertical laps to be taken past rafters and lap by a minimum of 150 mm.

The Roofing underlay is self-supporting up to 1200 mm and does not need mesh.

3.4 Valleys

Valley trays should be made from 0.55 mm AZ150 coated steel. Typically the steel will be pre-painted. Install valleys in a weatherproof workmanlike manner. Do not fix through valleys. Where more than one valley length is used in one run, have an overlap of at least 150mm. Tag valleys at the top edge of the valley join to eliminate valley creep.

3.5 Solar brackets

Gerard Roofs have proprietary solar brackets which can be installed at the time of roofing or later. These brackets do not require holes to be cut into the surface of the panels offering complete weather security.

Refer to Gerard Roofs for more information.

3.6 Panel installation

Care must be taken when handling, cutting, bending and installing to avoid damage to the surface. In particular, the paint finish must be kept clean.

Use rubber soled work shoes during installation and protective/synthetic padding on bending equipment.

Where work is still to be carried out on upper storey dormer windows or walls, panels can be left off to avoid damage or fallout from paint or plaster coatings. Alternatively, a plank embedded into 3 sand bags along its length can be used on top of the panel, with the sand bags placed over the support batten near the nose of the panel.

Where work is progressing above installed panels, dust sheets must be used held down with sand bags.

CONSENT ISSUED BC221264 - Page 280 of 359

BC221264

3.6 Panel installation continued

Heritage, Classic and Milano

Heritage, Classic and Milano can be installed to a minimum of 12° and may be laid left to right or right to left. All laps to be the same way on each plane.

Stratos

Stratos can be installed to a minimum of 15° and may be laid left to right or right to left. The laps must be laid facing away from prevailing winds or line of vision. All laps should be the same way on each plane. Courses must be staggered in a random pattern to avoid patterning as you progress up a hip, or gable.

Senator, Alpine and Rockport

Senator, Alpine and Rockport can be installed to a minimum of 15°. These profiles may only be laid in a single direction, as follows:

- Senator and Alpine – left to right only
- Rockport – right to left only

Courses of all three should be laid in a random pattern, with staggered start points.

Senator should be installed with an intermediate batten at 185mm to support roof traffic.

Oberon

Oberon can be installed at a minimum of 20° and should be laid right to left. Reference can be made to the individual profile fixing pattern pages at the back of this specification manual. Courses must be staggered in a random pattern for Oberon, to avoid patterning as you progress up a hip or gable.

Eaves

At eaves, the front rows of panels are fixed to the battens alongside the fascia by driving nails through the top face into the eave batten. These nails are positioned at points of low water run off. Eaves nails for Smooth finish have a synthetic washer installed under the nail head, eaves nails on textured finishes are sealed with the touch up kit basecoat and chip.

Nailing panels

Successive rows of panels are fixed by driving 50mm nails through the centre of the panel nose into the face of the battens. These nails are spaced as shown/ described in the individual profile fixing pattern pages at the back of this specification manual.

Only Gerard Roofs approved nails should be used in the installation of panels and accessories.

Valleys

Panels are cut at the same angle as the valley, at appropriate points, and bent down into the valley; they must not touch the valley tray. At the ridge, panels are cut and bent up under ridge accessories.

Ridge, Hip, Gable and Wall flashings

Only factory produced flashings and trim as supplied by Gerard Roofs may be installed. Panels are turned up by a minimum of 40 mm and covered by Gerard Roofs accessories to the prescribed coverage. Special flashings can be formed and coated to order.

Wall roof lower junctions

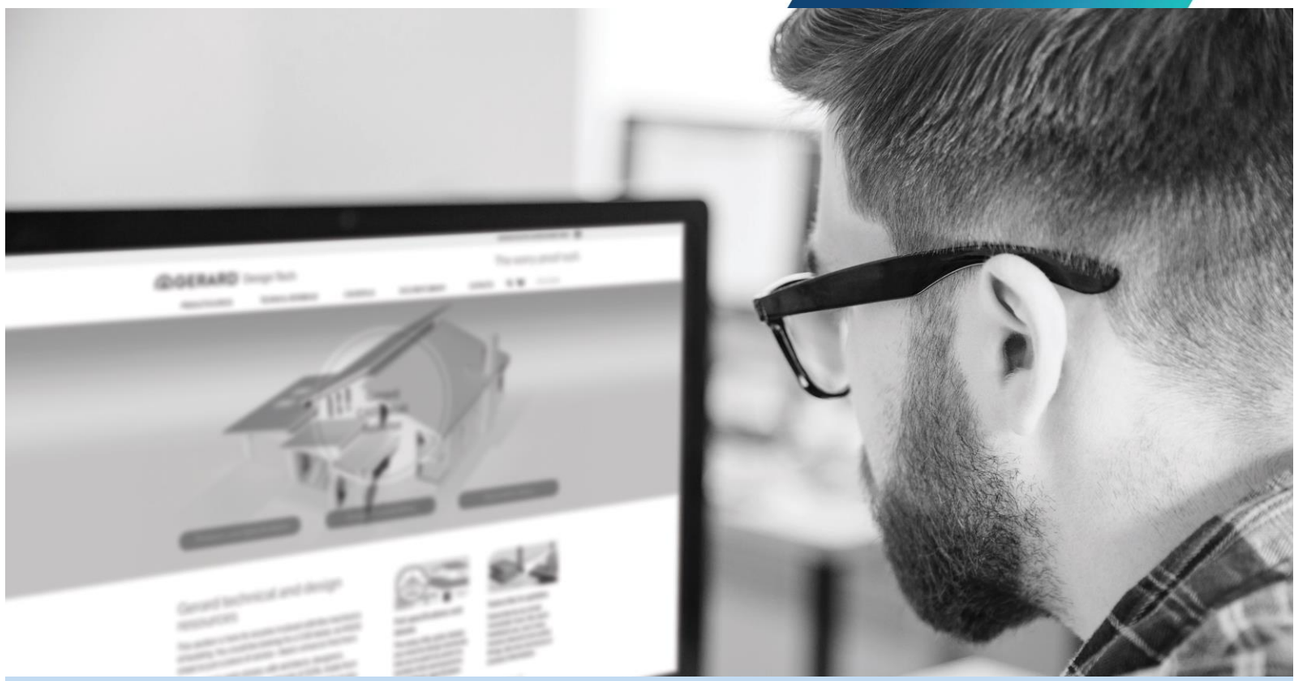
Gerard roofs have proprietary PVC stop end flashings that direct roof/wall run off water into the rain water gutter system.

Membrane areas

If flat membrane areas such as Butynol overlap onto product surfaces, these can be painted with the touch up kit or base coated and granite textured.

Weather sealing

Proprietary or custom made rubber or metal flashings require neutral-cure silicone or MS sealants acceptable to Gerard Roofs to be used for weather-sealing services penetrating the roof. Sealant shall be applied between the flashing and panel surface and mechanical fasteners (rivets, Tek screws) installed to permanently fix the flashing in place.



4.0 Standard roof details

This section contains the common junction details and information you need to design and specify buildings with Gerard Roofs. The numbered sections (4.1; 4.2; etc.) correspond to the equivalent parts of the Gerard Roofs website specification area (www.gerardroofs.co.nz/designtech). Any details and diagrams can be downloaded from there.

4.1 Batten spacing – Eave

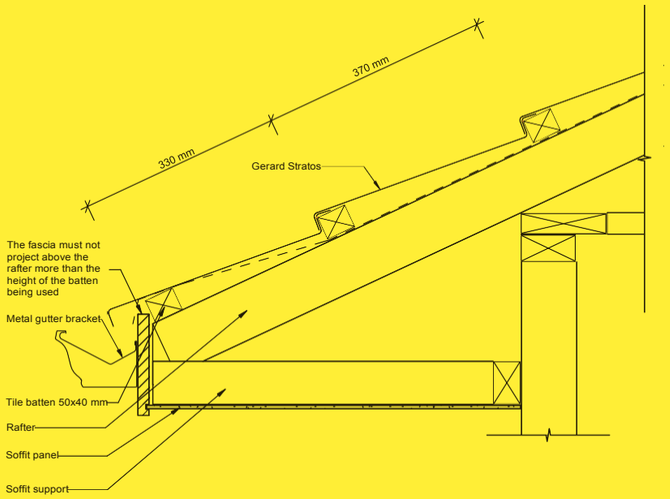


Fig 001 - Gerard Eave

4.2 Ridge installation

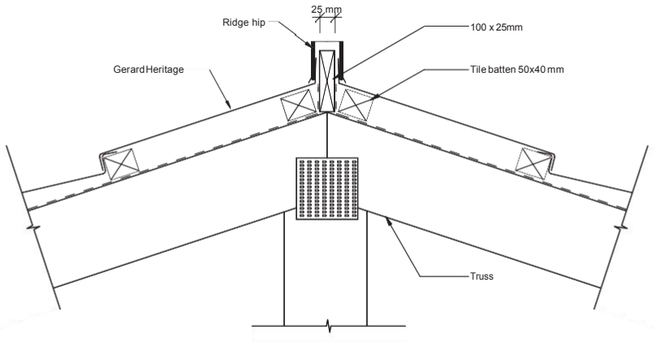


Fig 002 - Gerard Box Trim Ridge Board/Batten - Truss

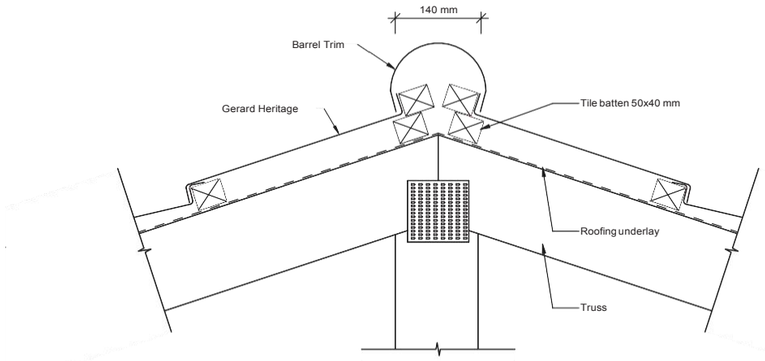


Fig 003 - Gerard Barrel Trim Ridge Board/Batten - Truss

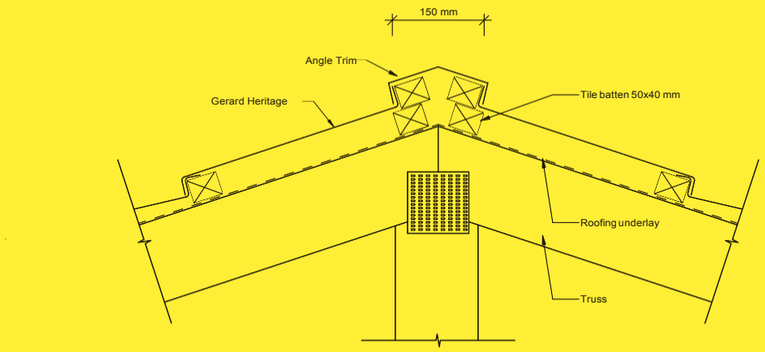


Fig 004 - Gerard Angle Trim Ridge Board/Batten - Truss

CONSENT ISSUED BC221264 - Page 282 of 359

4.3 Valleys

Gerard Roofs provide valley trays in two widths, a 160mm Combination Valley and a 250mm E2 Wide Valley for use where required by specification.

Valleys must be supported by valley boards; these should be installed with nogging where necessary.

The nogging should have at least 25 mm clearance beyond where the valley sits so battens have sufficient support and nailing width.

Panels above valleys should be turned down to within 5 mm of the valley tray but must not touch the tray.

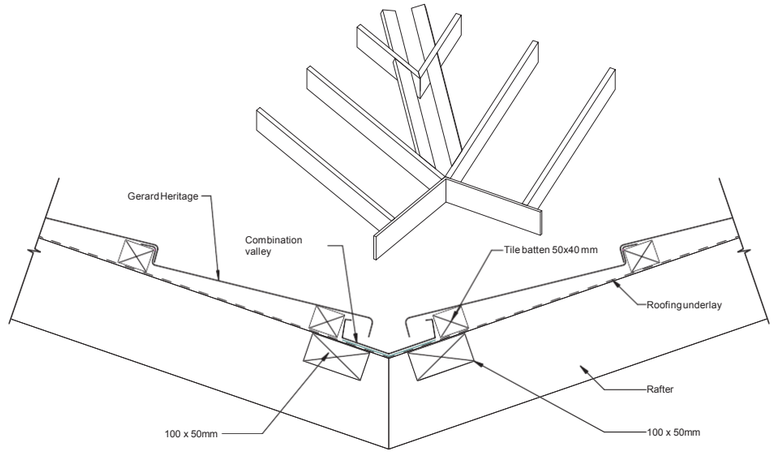


Fig 005 - Gerard Combination Valley

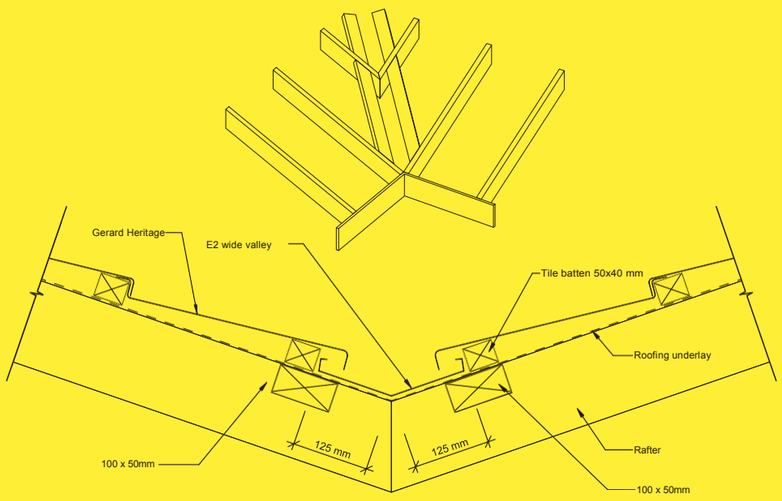


Fig 006 - Gerard E2 Wide Valley

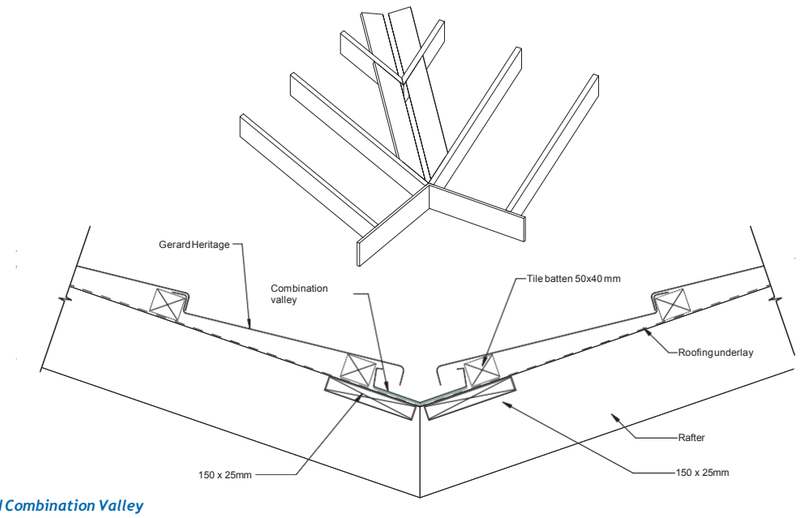


Fig 007 - Gerard Combination Valley

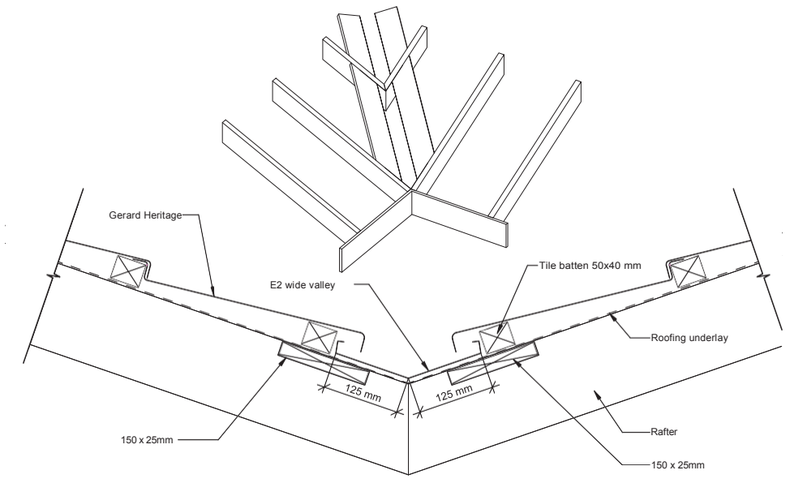


Fig 008 - Gerard Valley - E2 Wide Valley

CONSENT ISSUED BC221264 - Page 283 of 359

4.4 Hips

4.4.1 Installation of roof trim on hip junction with wooden battens

Roof panels that butt up to hip battens should be turned up by 40 mm; roof trims must cover battens and overlap panels below by a minimum of 35 mm.

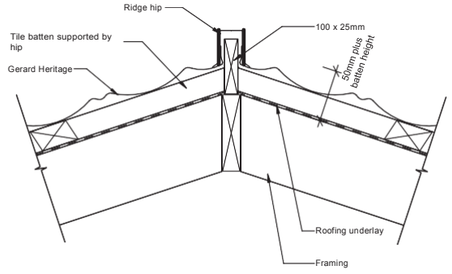


Fig 009 - Gerard Heritage Hip - Box Trim

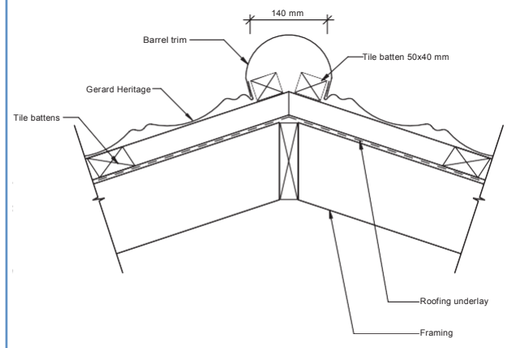


Fig 010 - Gerard Heritage Hip - Barrel Trim

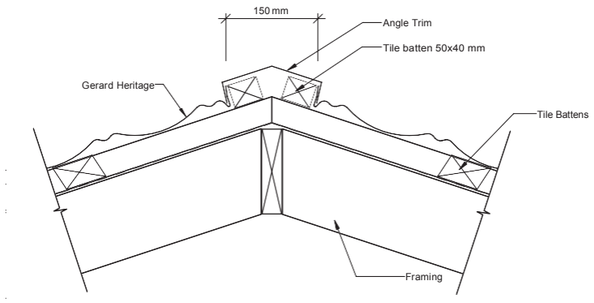


Fig 011 - Gerard Heritage Hip - Angle Trim

4.5 Barge/Gable ends

4.5.1 Installation of roof trim over a wooden fascia with batten

Roof panels that butt up to edge battens should be turned up by 40 mm; roof trims must cover battens and overlap panels below by a minimum of 25 mm.

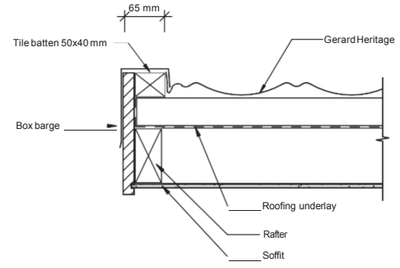


Fig 012 - Gerard Heritage Gable End - Box Barge

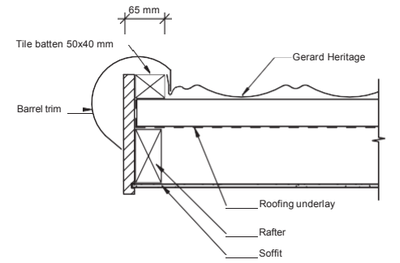


Fig 013 - Gerard Heritage Gable End - Barrel Trim

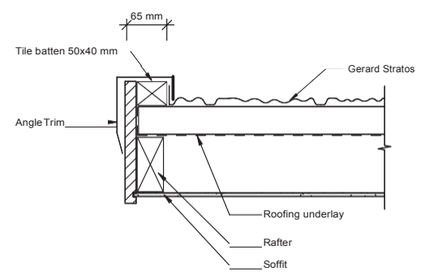


Fig 014 - Gerard Stratos Gable End - Angle Trim

4.5.2 Installation of roof trim over a metal fascia with and without batten

Roof panels that butt up to edge battens should be turned up by 40 mm; roof trims must cover battens and overlap panels below by a minimum of 25 mm.

Roof trims should be riveted to the metal facia.

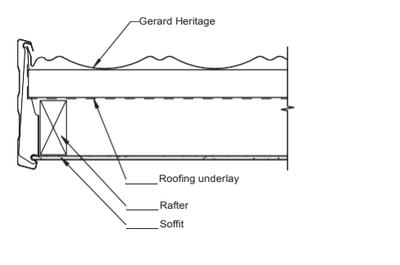


Fig 015 - Gerard Heritage Fascia - Box Trim

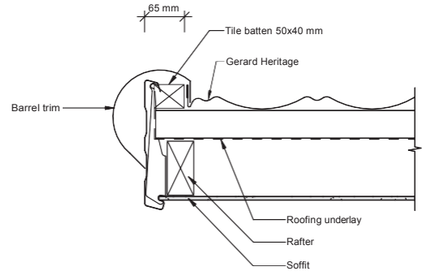


Fig 016 - Gerard Heritage Fascia - Barrel Trim

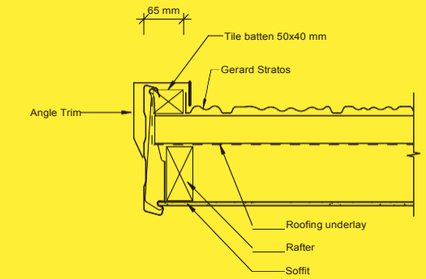


Fig 017 - Gerard Stratos Fascia - Angle Trim

CONSENT ISSUED BC221264 - Page 284 of 359

4.6 Wall flashings

There are several types of wall flashings that may be used with various thicknesses of wall claddings.

Gerard Roofs manufacture most of these without hooks or hems which then requires 100 mm coverage of the section hidden behind the wall cladding.

4.6.1 Side flashings

Side flashings are general purpose flashings suitable for use with most wall claddings.

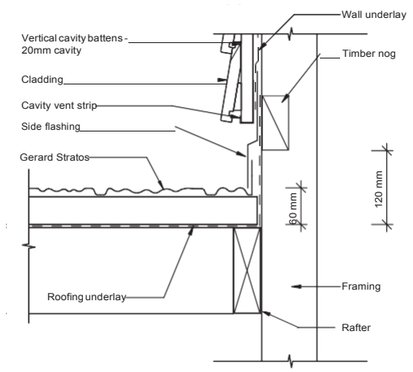


Fig 018 - Gerard Stratos Wall Parallel - Side Flashing

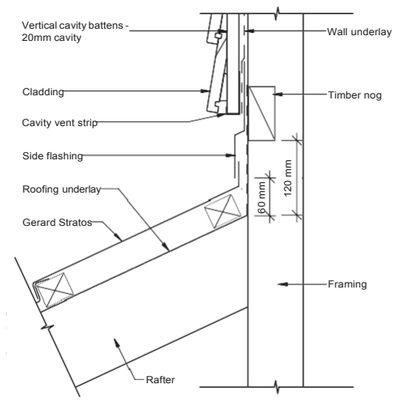


Fig 019 - Gerard Wall Transverse - Side Flashing

4.6.2 Step - Pitch flashings

Pitch flashings are a special system for thicker wall claddings like brick veneer. The transverse wall flashing is folded to closely match the roof pitch allowing the corner junctions to mitre neatly.

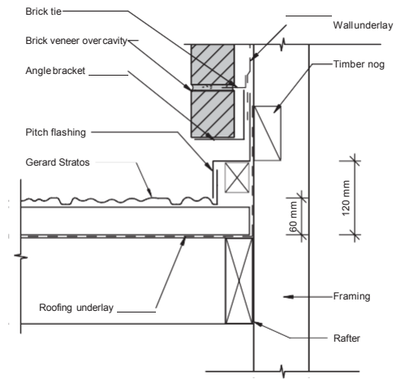


Fig 020 - Gerard Stratos Wall Parallel - Pitch Flashing

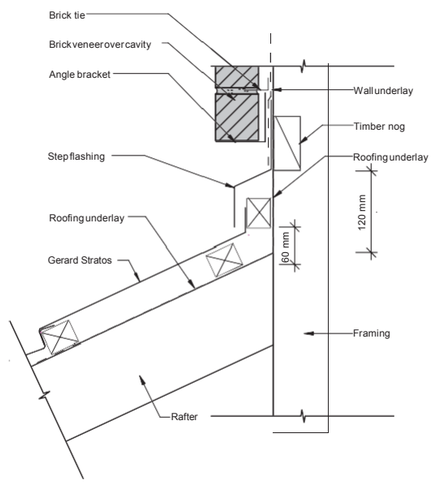


Fig 021 - Gerard Wall Transverse - Step Flashing

4.6.3 Soft edge apron flashings

Soft edge apron flashings are general purpose flashings suitable for most wall claddings. The soft edged aluminium is moulded down to meet the surface of the panel.

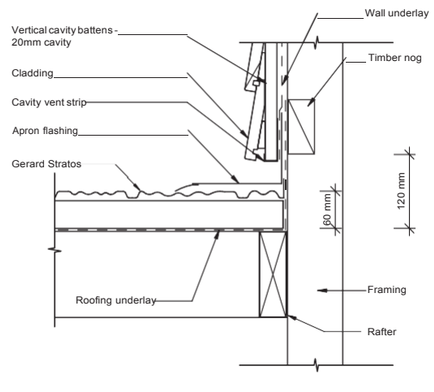


Fig 022 - Gerard Stratos Wall Parallel - Apron Flashing

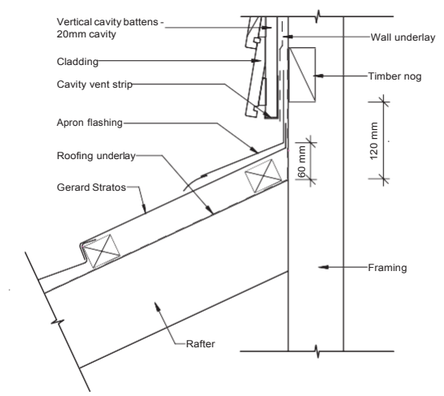


Fig 023 - Gerard Transverse - Apron Flashing

4.7 Wall Stop Ends

Gerard Roofs proprietary PVC Stop Ends direct water away from the roof and wall and into the rain water collection gutters. There are left and right versions.

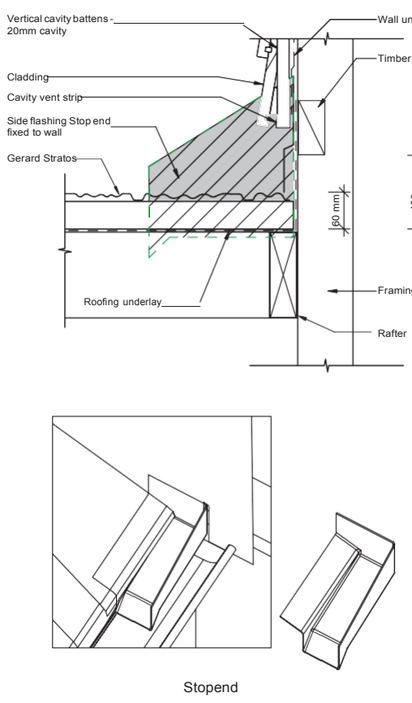


Fig 024 - Gerard Wall Parallel - Stop End Wall

CONSENT ISSUED BC221264 - Page 285 of 359

4.8 Change in pitch

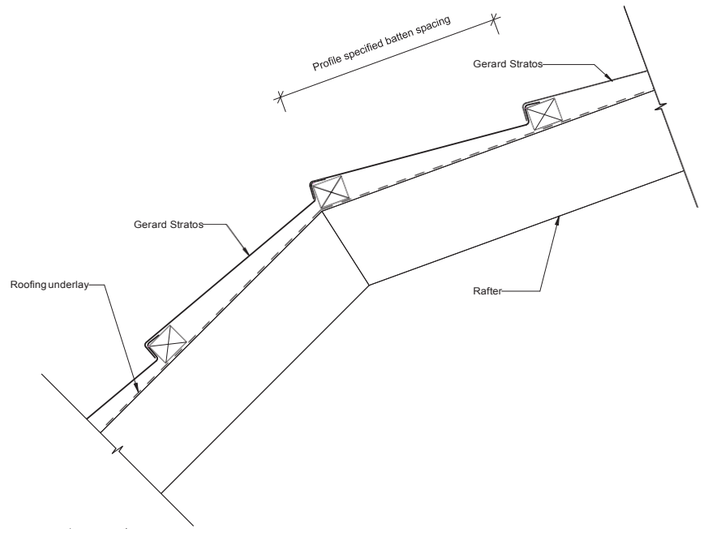


Fig 025 - Gerard Change in Pitch - Low Pitch to High Pitch
A batten is located at the point where the roof line changes pitch. If an exact number of courses of full panels is not practical a panel may be bent to suit.

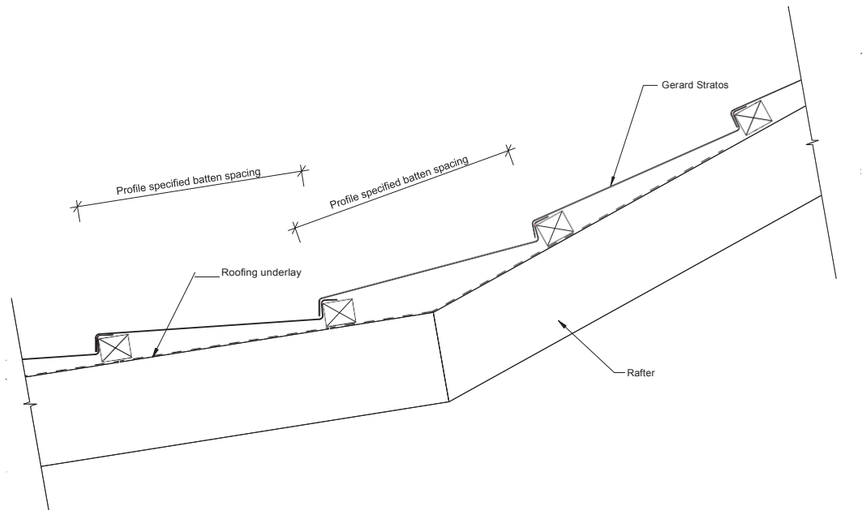


Fig 026 - Gerard Change in Pitch
A batten is located at the point where the roof line changes pitch. If an exact number of courses of full panels is not practical a panel may be bent to suit.

4.9 Penetrations

4.9.1 Pipes

Pipe penetrations should be flashed using an EPDM flexible sleeve/boot or similar, such as Aquaseal. The edge of the EPDM flexible sleeve/boot should be fixed at 45° to horizontal.

4.9.2 Chimneys

Chimneys require specific flashings depending on the type and width of the chimney.

Cylindrical chimneys may be flashed with a large EPDM rubber sleeve similar to pipe flashings.

Rectangular chimneys require a back flashing. For chimneys up to 600 mm wide this may be made of flat sheet supplied by Gerard Roofs, AZ150 pre-painted steel, aluminium, or a supported butyl membrane.

Chimneys exceeding 600mm in width

For chimneys and other penetrations wider than 600mm an internal gutter should be used to create a fall to the edges of the penetration.

This requires a cricket flashing or slope to direct water to the edges using a supported butyl membrane.

Where the chimney is situated at the eave an internal gutter should be installed around the side to allow water to exit into the eave's rainwater system.

Angled internal gutters should be formed using butyl rubber or other inert material such as aluminium. These should be installed by suitably qualified Licensed Building Practitioners (LBPs).

4.9.3 Roof windows

Refer to specific roof window supplier's installation instructions. Typically this will involve cutting and bending panels up to the perimeter of the roof window in a manner that supports installation of the proprietary flashings supplied by the roof window manufacturer.

4.9.4 Solar panels

Refer to specific solar panel supplier's installation instructions. Note that these should allow for fastening directly to the rafters and not to the roof panel battens. Penetrations of the support must be appropriately flashed to ensure weather security, e.g. an EPDM flexible sleeve/boot.

CONSENT ISSUED BC221264 - Page 286 of 359

BC221264

4.10 Extra high wind zone installation

Refer to *Table 04 Fasteners for Panel Battens - Wind Zones - NZS3604.* (Page 23)

Gerard Roofs fixing patterns do not change for extra high wind zones.

Gerard Roofs can provide a wall flashing that retains the panel turn up and offers greater wind-blown rain protection. This is an extended side flashing that has a soft edge to contour the panel surface and a hem at the top section that is mandatory for roofs in extra high wind zones.

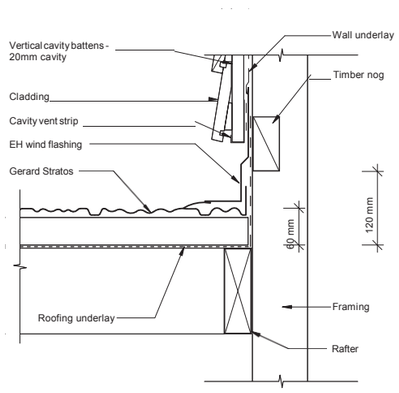


Fig 027 - Gerard Stratos Parallel - EH Wind Wall Flashing

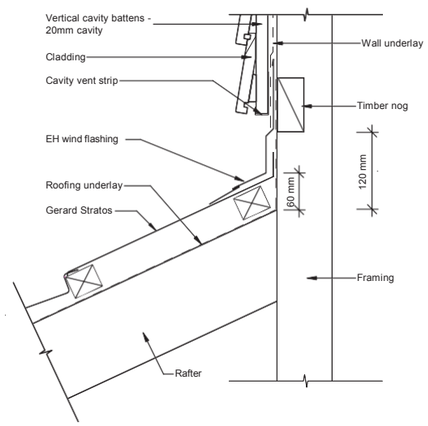


Fig 028 - Gerard Wall Transverse - EH Wind Wall Flashing

5.0 Components & fixing patterns

This section contains useful installation information for very detailed specification. You'll find a complete list of Gerard Roofs componentry and specific layout and fixing instructions for each of the eight Gerard Roof profiles. The information contained in this section is also contained in individual product profile sheets available for download at www.gerardroofs.co.nz/designtech

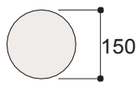
CONSENT ISSUED BC221264 - Page 287 of 359

BC221264

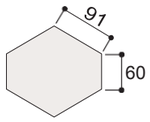
5.1 Gerard Roofs components

To accompany their eight roof profile panels – Stratos, Senator, Rockport, Alpine, Oberon, Milano, Heritage and Classic – Gerard Roofs produces a full range of accessories.

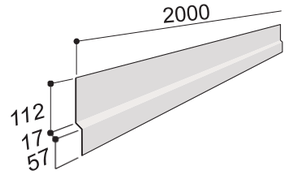
All components are produced in the same way, from the same steel and, where appropriate, coated to match the roof profile panels themselves using the same materials and techniques to ensure complete synergy for performance and aesthetics.



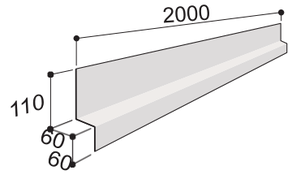
Barrel Trim End



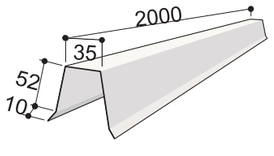
Angle Trim End



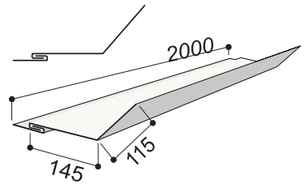
Side Flashing



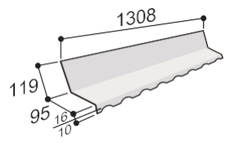
Pitch Flashing



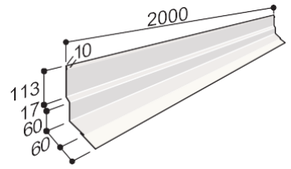
Box Trim



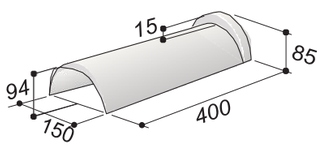
Apron Flashing



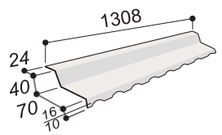
Milano Wall Flashing



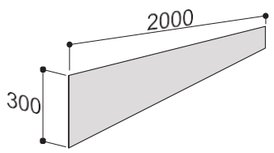
EH Wind Wall Flashing



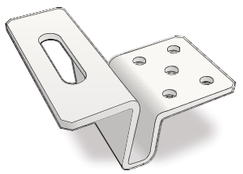
Barrel Trim



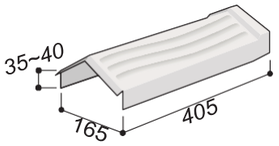
Milano Ridge Flashing



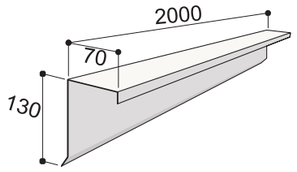
Flat Sheet 300 (Also 400 and 490)



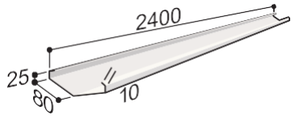
Solar Brackets



Angle Trim



Box Barge

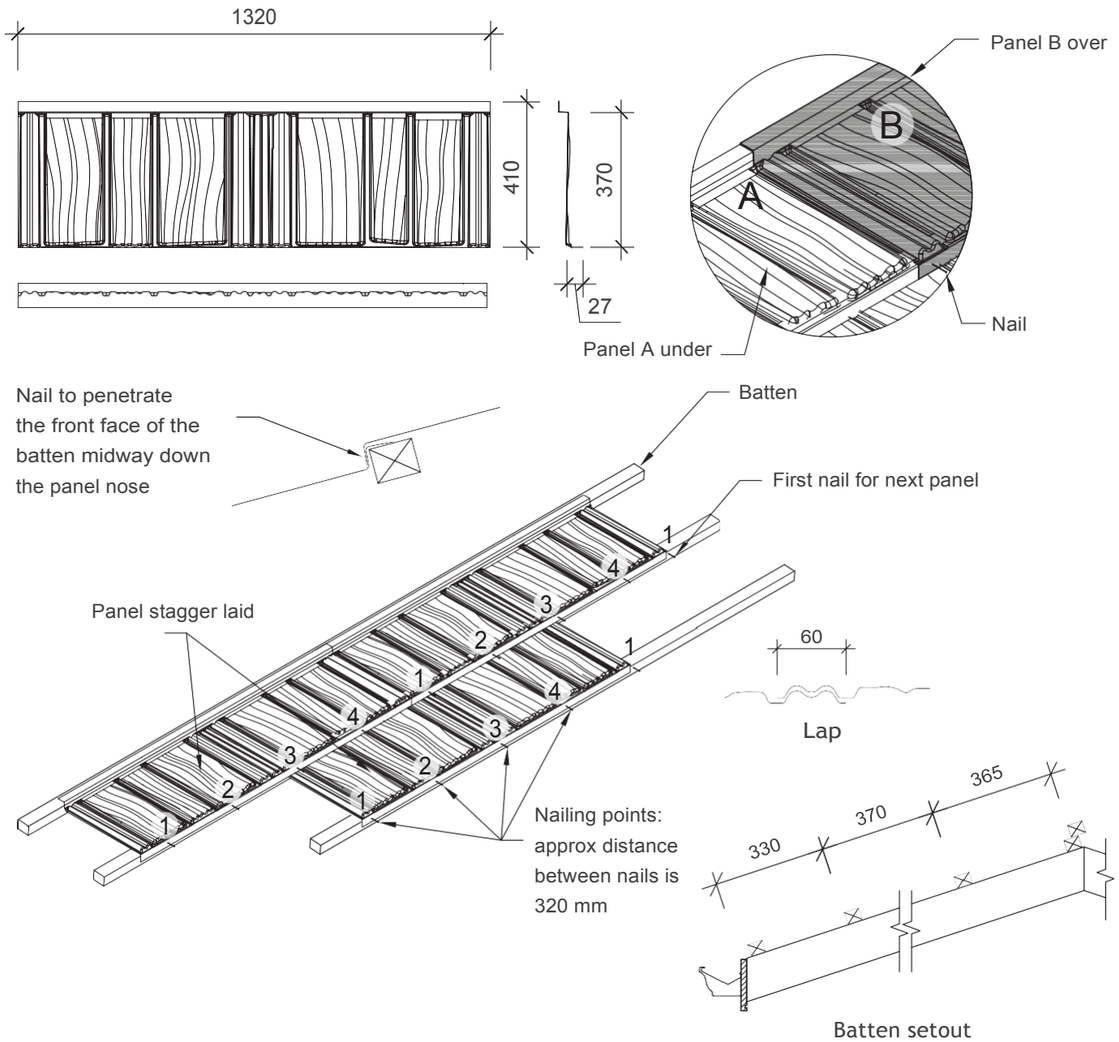


Combination Valley

CONSENT ISSUED BC221264 - Page 288 of 359

5.2 Gerard Stratos installation

Panel installation instructions & nailing positions



Fixing

- The nose of each panel is held down at 5 points.
- This comprises 4 nails as per the diagrams plus the nailed overlapping panel.

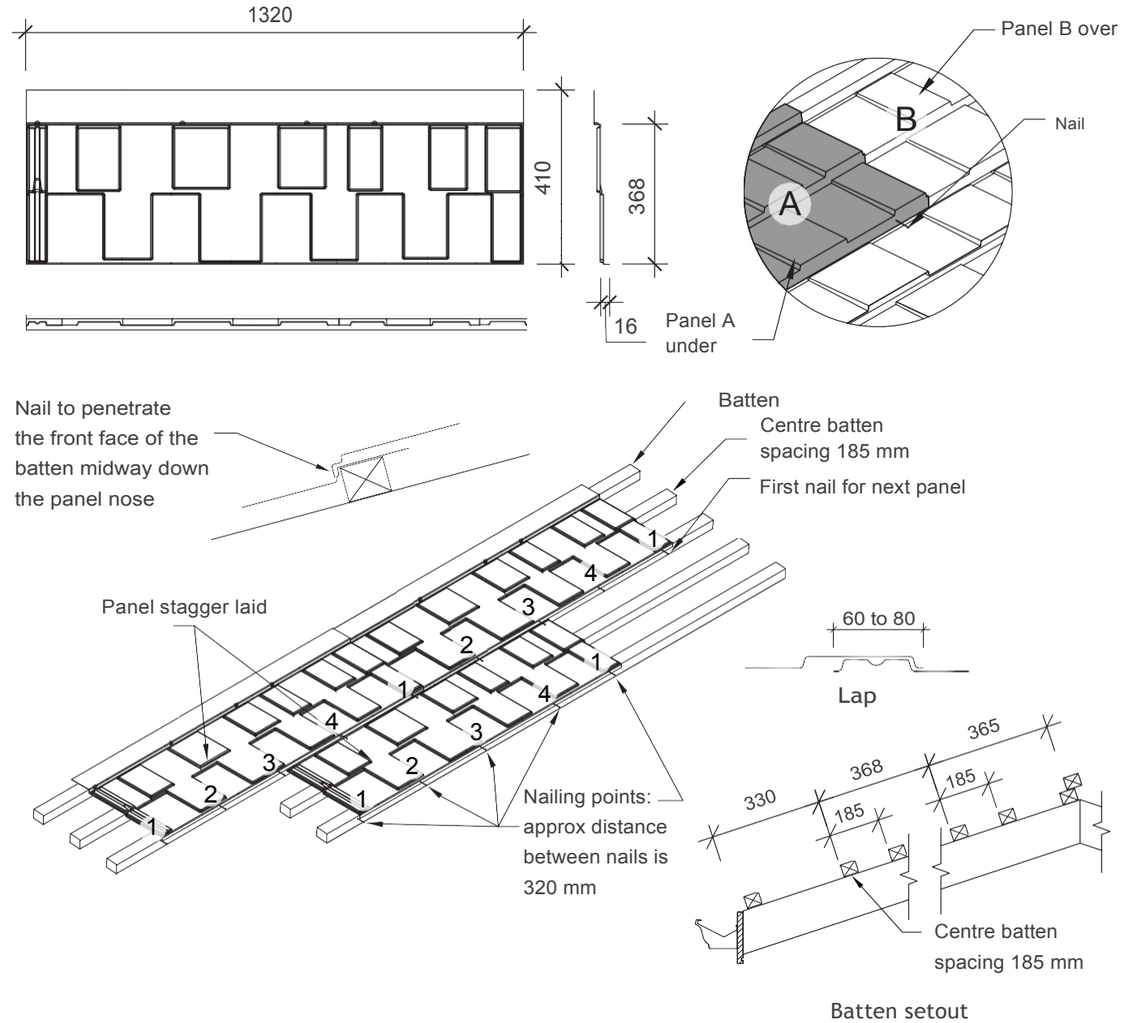
Fastening Panels in Cyclone Areas

- Where a building has been designed outside the scope of NZS 3604. Gerard panels (tiles) on buildings with a wind load design of above 3.8 kPa should be fastened at approx 160 mm spacing (each module).

Dimensions and weights given are nominal.

5.3 Gerard Senator installation

Panel installation instructions & nailing positions



Fixing

- The nose of each panel is held down at 5 points.
- This comprises 4 nails as per the diagrams plus the nailed overlapping panel.

Fastening Panels in Cyclone Areas

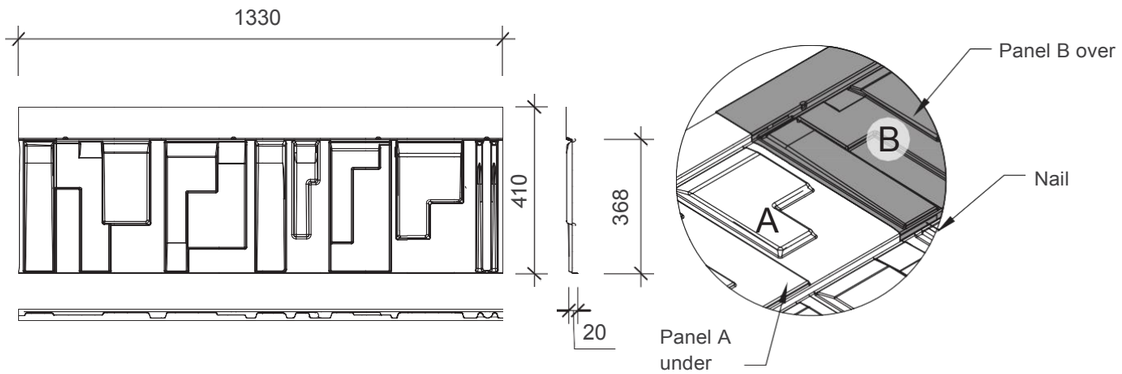
- Where a building has been designed outside the scope of NZS 3604. Gerard panels (tiles) on buildings with a wind load design of above 3.8 kPa should be fastened at approx 160 mm spacing (each module).

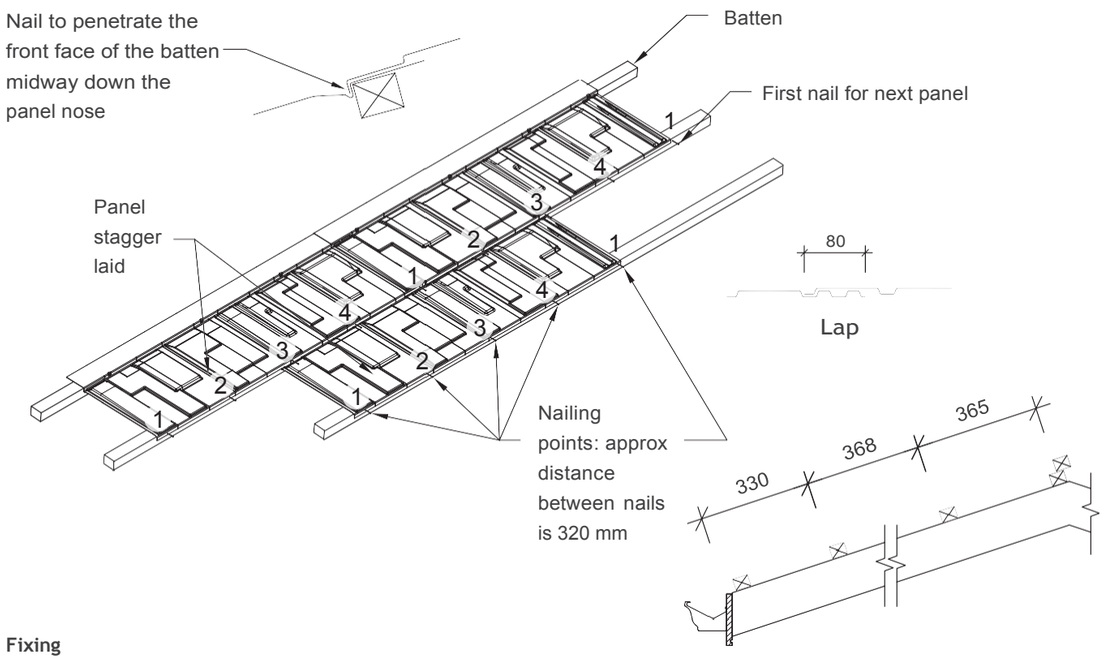
Dimensions and weights given are nominal.

CONSENT ISSUED BC221264 - Page 289 of 359

5.4 Gerard Rockport installation

Panel installation instructions & nailing positions





Fixing

- The nose of each panel is held down at 5 points.
- This comprises 4 nails as per the diagrams plus the nailed overlapping panel.

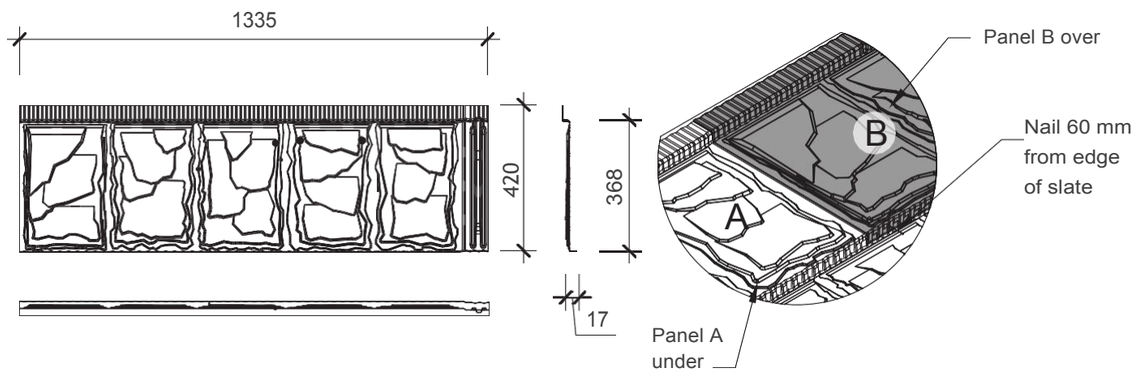
Fastening Panels in Cyclone Areas

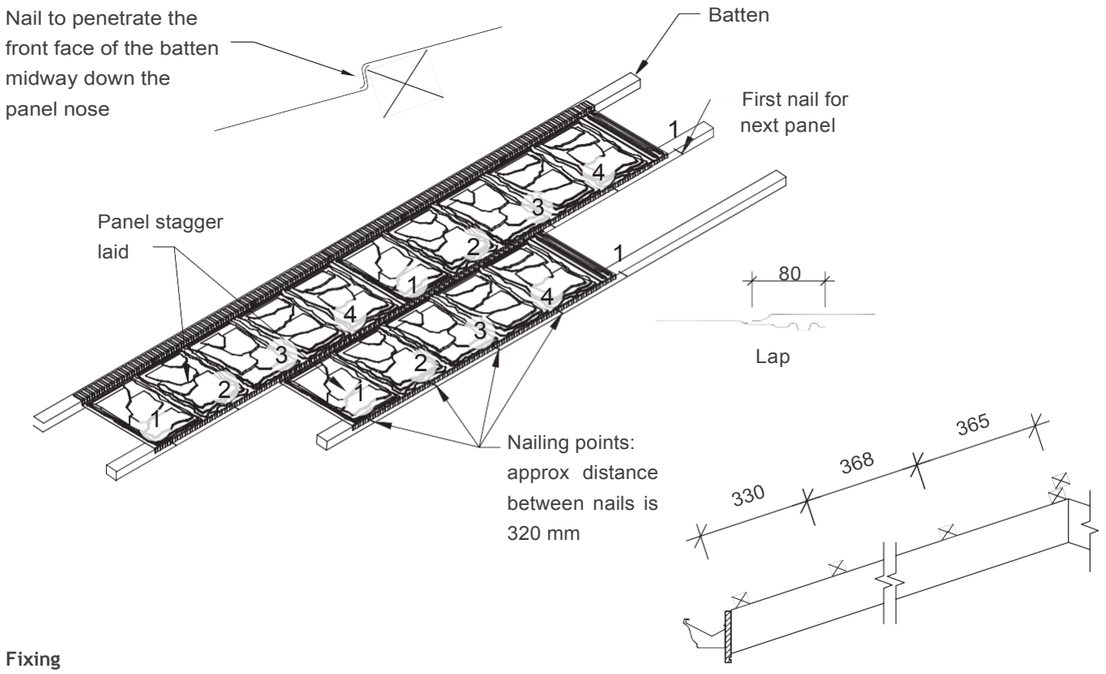
- Where a building has been designed outside the scope of NZS 3604. Gerard panels (tiles) on buildings with a wind load design of above 3.8 kPa should be fastened at approx 160 mm spacing (each module).

Dimensions and weights given are nominal.

5.5 Gerard Alpine installation

Panel installation instructions & nailing positions





Fixing

- The nose of each panel is held down at 5 points.
- This comprises 4 nails as per the diagrams plus the nailed overlapping panel.

Fastening Panels in Cyclone Areas

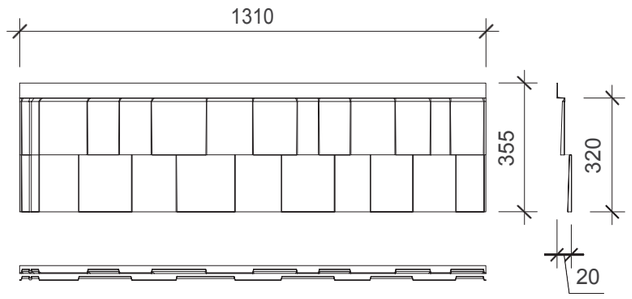
- Where a building has been designed outside the scope of NZS 3604. Gerard panels (tiles) on buildings with a wind load design of above 3.8 kPa should be fastened at approx 160 mm spacing (each module).

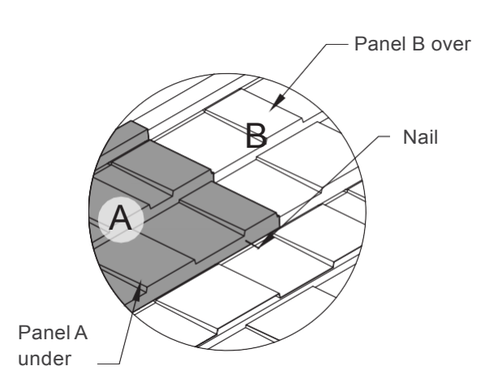
Dimensions and weights given are nominal.

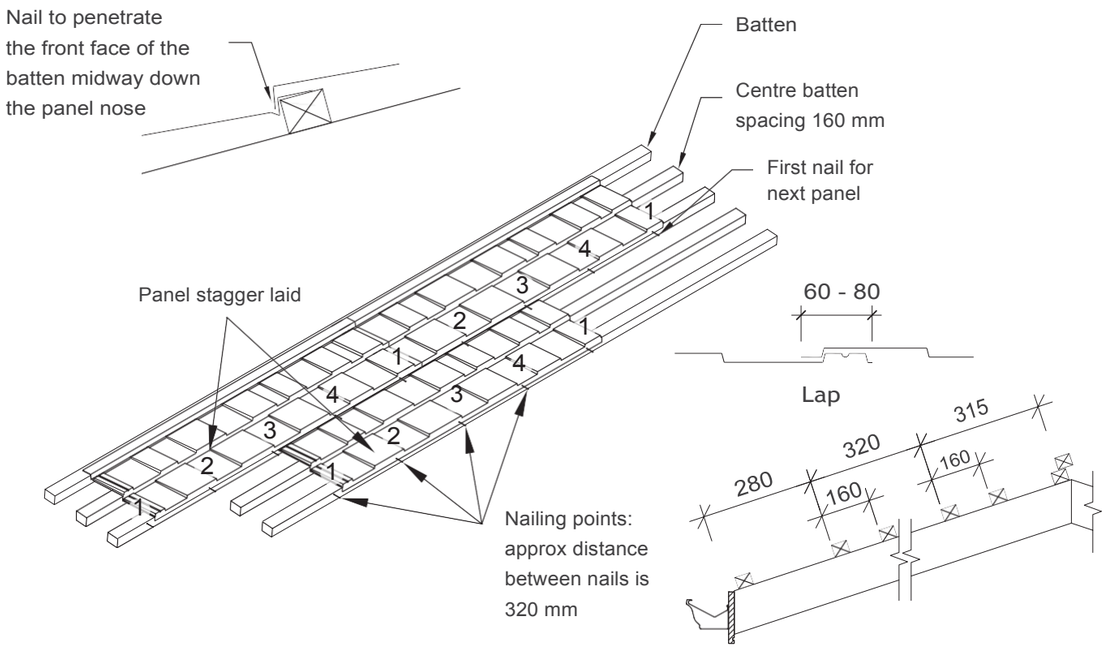
CONSENT ISSUED BC221264 - Page 290 of 359

5.6 Gerard Oberon installation

Panel installation instructions & nailing positions







Batten setout

Fixing

- The nose of each panel is held down at 5 points.
- This comprises 4 nails as per the diagrams plus the nailed overlapping panel.

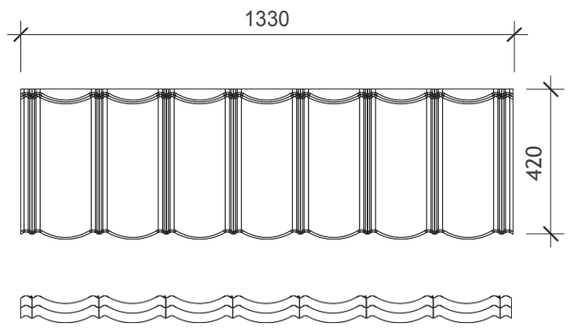
Fastening Panels in Cyclone Areas

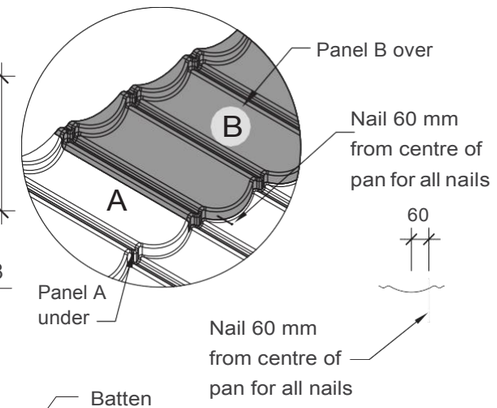
- Where a building has been designed outside the scope of NZS 3604. Gerard panels (tiles) on buildings with a wind load design of above 3.8 kPa should be fastened at approx 160 mm spacing (each module).

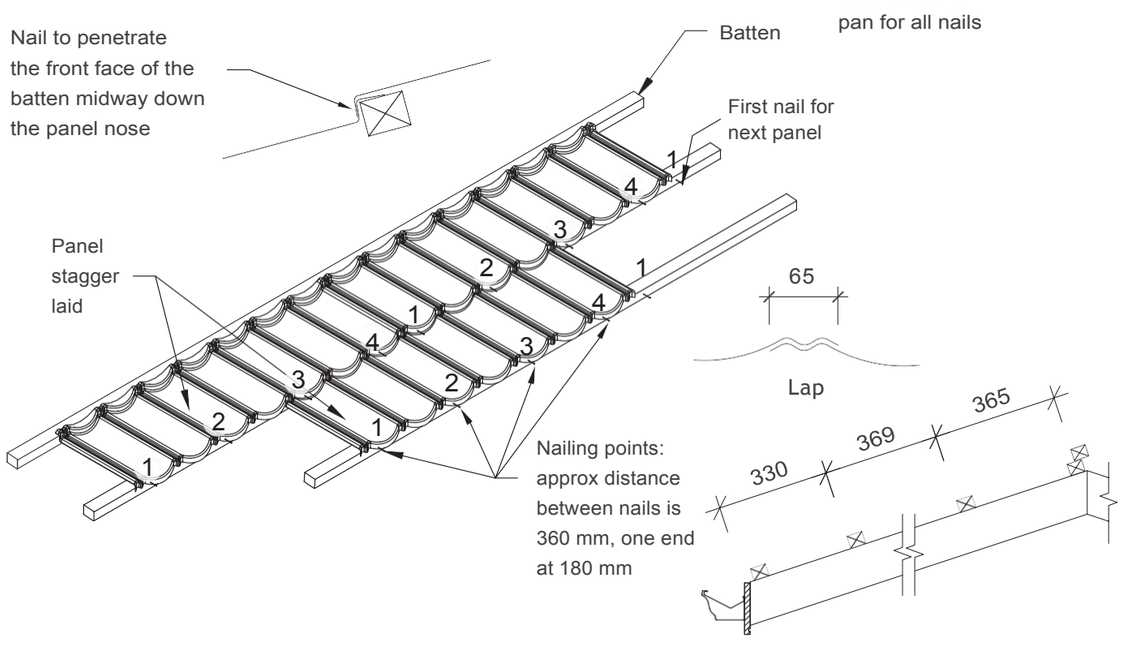
Dimensions and weights given are nominal.

5.7 Gerard Heritage installation

Panel installation instructions & nailing positions







Batten setout

Fixing

- The nose of each panel is held down at 5 points.
- This comprises 4 nails as per the diagrams plus the nailed overlapping panel.

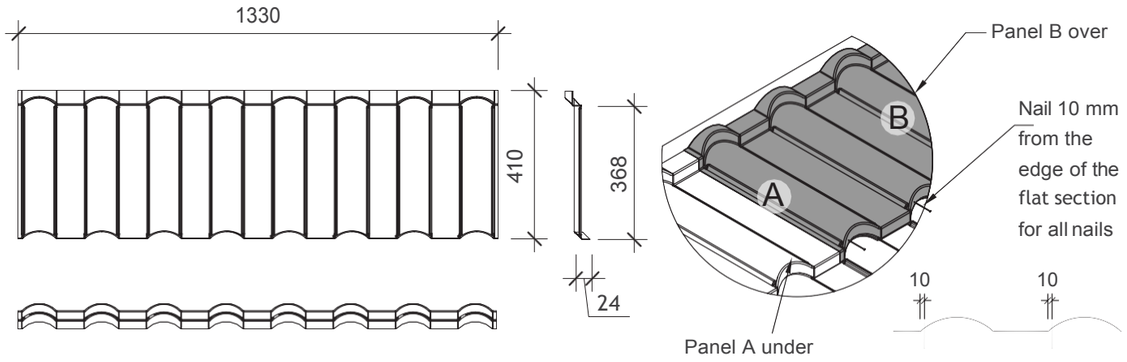
Fastening Panels in Cyclone Areas

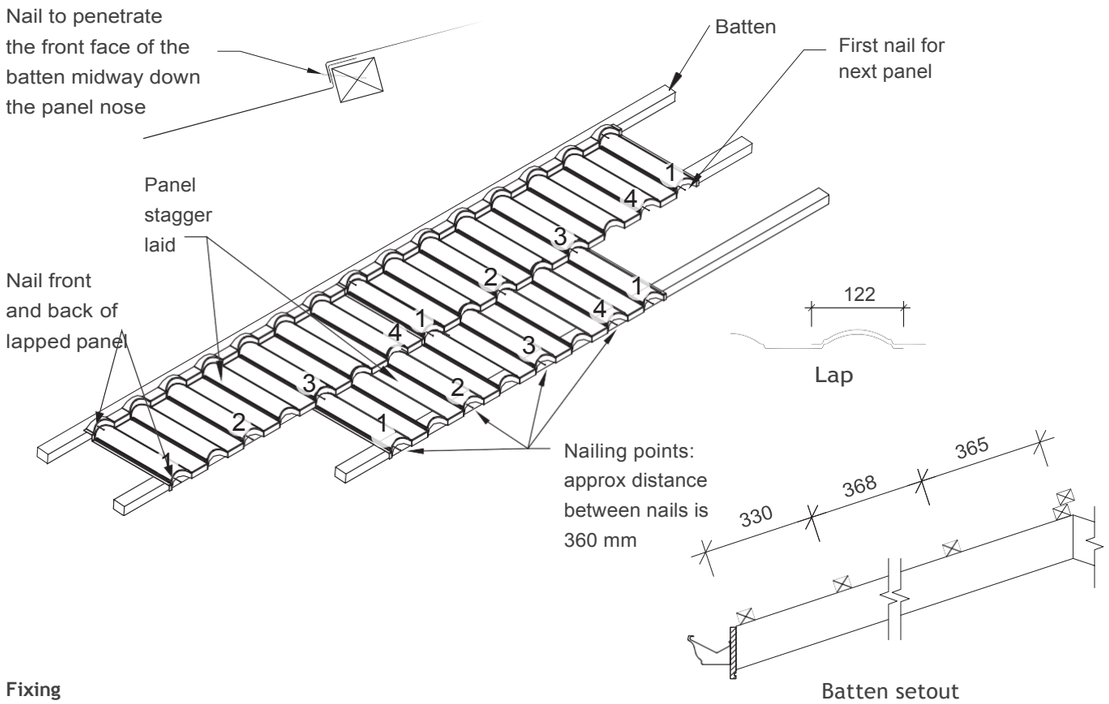
- Where a building has been designed outside the scope of NZS 3604. Gerard panels (tiles) on buildings with a wind load design of above 3.8 kPa should be fastened at approx 160 mm spacing (each module).

Dimensions and weights given are nominal.

5.8 Gerard Milano installation

Panel installation instructions & nailing positions





Fixing

- The nose of each panel is held down at 5 points.
- This comprises 4 nails as per the diagrams plus the nailed overlapping panel.
- Nail front and back of lapped panel.

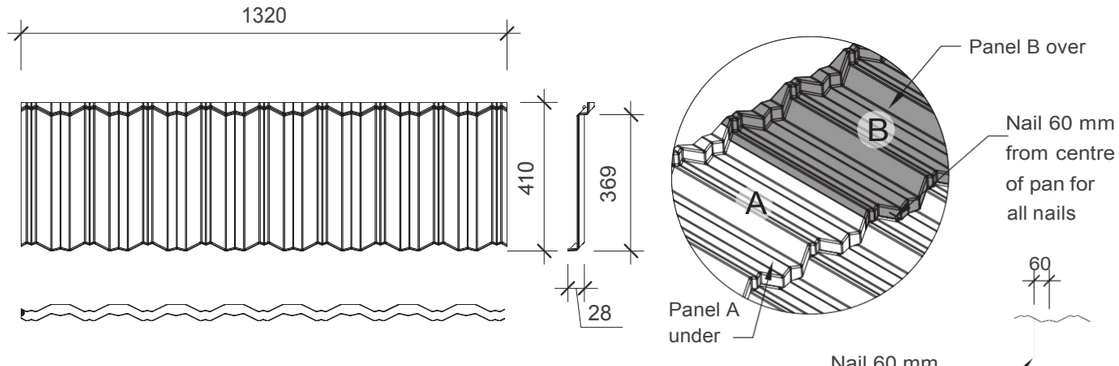
Fastening Panels in Cyclone Areas

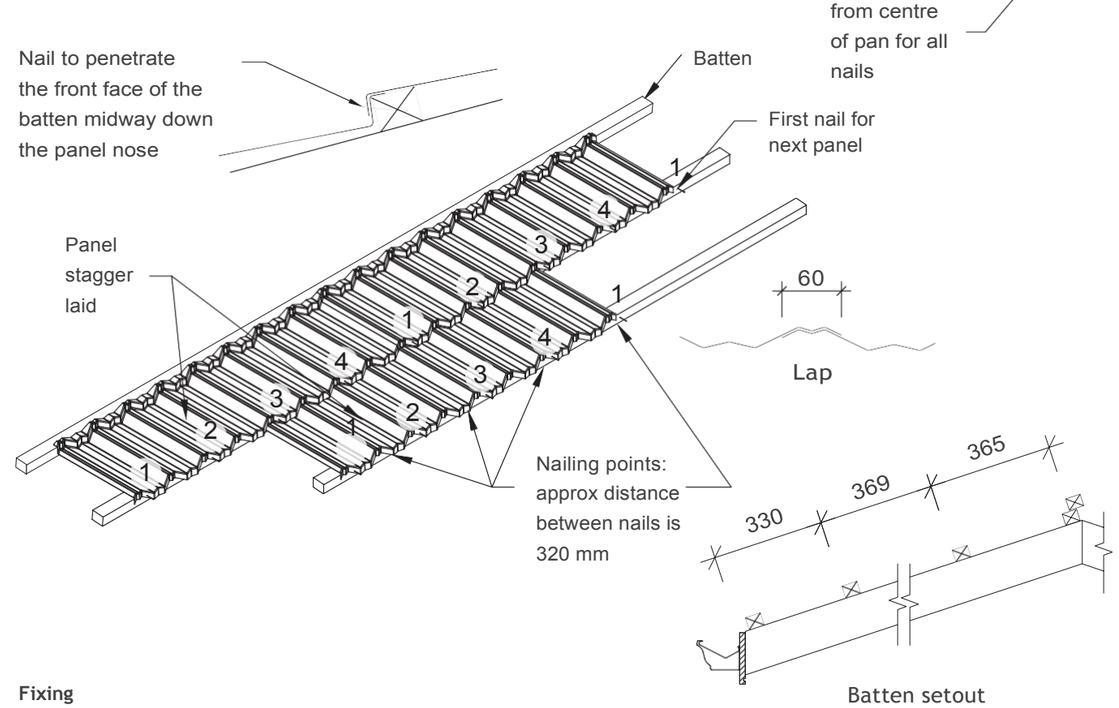
- Where a building has been designed outside the scope of NZS 3604. Gerard panels (tiles) on buildings with a wind load design of above 3.8 kPa should be fastened at approx 160 mm spacing (each module).

Dimensions and weights given are nominal.

5.9 Gerard Classic installation

Panel installation instructions & nailing positions





Fixing

- The nose of each panel is held down at 5 points.
- This comprises 4 nails as per the diagrams plus the nailed overlapping panel.

Fastening Panels in Cyclone Areas

- Where a building has been designed outside the scope of NZS 3604. Gerard panels (tiles) on buildings with a wind load design of above 3.8 kPa should be fastened at approx 160 mm spacing (each module).

Dimensions and weights given are nominal.

CONSENT ISSUED BC221264 - Page 292 of 359

Important information about this material

The Gerard Roofing System

RoofTG Pacific Ltd accepts no liability if the Gerard roofing system is not used in accordance with instructions contained in this publication.

Use only the current specification

This publication may be superseded by a newer publication. RoofTG Pacific Ltd accepts no liability for reliance upon publications that have been superseded. Before using this manual check whether this is the current version; simply call the Gerard Roofs Helpline on 0800 100 244 or visit www.gerardroofs.co.nz

Substitution

RoofTG Pacific Ltd accepts no liability if the systems are not installed in accordance with instructions contained in this and other Gerard Roofs technical literature. Substitution of specified or recommended components with alternative brands can compromise performance dramatically. The Gerard roofing system is not generic and must be installed as specified including the use of Gerard branded components.

Trade marks

The names, Gerard®, Stratos®, Senator®, Rockport®, Alpine®, Oberon®, Heritage®, Milano®, Classic®, Roofing Designed to Endure® and the Gerard® Roofs logo are all registered trademarks that are owned by RoofTG Pacfic Ltd.

Copyright

Copyright © RoofTG Pacific Ltd 2020. All of the material contained in this manual, including all text, tables, charts, graphs, drawings, diagrams and the Gerard Roofs CAD Detail Numbering System are protected by copyright. These materials may not be reproduced, adapted or transmitted in any form by any process, without the permission of RoofTG Pacific Ltd.

RoofTG Pacific Ltd asserts its moral rights and reserves all other intellectual property rights in the materials contained in this manual.

PO Box 18071
Glen Innes
Auckland 1743

Freephone: 0800 100 244

www.gerardroofs.co.nz

GER2006-25
This edition published July 2020

APPENDIX 05 – WATERGATE PLUS BUILDING UNDERLAY

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

CONSENT ISSUED BC221264 - Page 294 of 359

BC221264

Thermakraft

Product Data Sheet

WATERGATE PLUS

New Zealand's premium all-purpose, fire retardant wall wrap.

Watergate Plus is specifically designed as a wall underlay behind exterior wall cladding. Made from synthetic materials Watergate Plus is fire retardant, water resistant and vapour permeable. The water vapour transfer rate of the product has been optimised to minimise condensation risk in homes without compromising its primary water barrier properties.

Watergate Plus is part of the Thermakraft One Wrap System. Its unique construction allows for easier installation while maintaining best in class performance qualities.

Smarter products. Better buildings.
thermakraft.co.nz

CodeMark BRANZ-CM-1002

BRANZ Appraised
Appraisal No.695 [2017]

Watergate Plus

Premium Synthetic Wall Wrap

Watergate Plus comes in five roll sizes and two soffit roll sizes:

Roll Dimensions			
Product Code	**Width**	**Length**	**Coverage**
WGP1370025	1370mm wide	18.5m long	25m² coverage*
WGP1370050	1370mm wide	37.0m long	50m² coverage*
WGP1370100	1370mm wide	73.0m long	100m² coverage*
WGP2740050	2740mm wide	18.5m long	50m² coverage*
WGP2740100	2740mm wide	36.5m long	100m² coverage*

Soffit Roll Dimensions			
Product Code	**Width**	**Length**	**Coverage**
WGP600025SOF	685mm wide	36.5m long	25m² coverage*
WGP600050SOF	685mm wide	73.0m long	50m² coverage*

Custom Branding Available – Contact your Thermakraft Representative for more details

* **Note:** m² is the roll size. For actual coverage, allow for laps and joins.

Product Description

Watergate Plus is a two-layer laminated wall underlay combining a Polyester non-woven layer with a high quality vapour permeable film. This allows water vapour to pass through from inside the wall cavity whilst water from the exterior is kept out.

The product is simply fixed to timber framing using construction staples and is made to stretch around corners providing a tight fit and reducing the risk of staple tear. It will provide temporary weather protection during construction. (Max 90 Days).

Scope of Use

Watergate Plus can be used as a wall underlay on both residential and commercial buildings within the following scope:

- 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 timber and steel framing, either directly fixed or in conjunction with an 18mm minimum drained cavity.
- With masonry veneer in accordance with NZBC Acceptable Solution E2/AS1 and E2/AS4.
- Situated in NZS3604 and NASH Building Wind Zones up to (and including) 'Very High' when used as a standalone flexible underlay, and "Extra High" when used as a flexible underlay over a rigid wall underlay.
- Is suitable as an air barrier in unlined wall spaces.
- Is suitable to be used in conjunction with thermal breaks on steel framed buildings.
- Refer to BRANZ Appraisal No 695 (2017) and CodeMark Certificate BRANZ-CM-1002 for full details.

General

- Fire retardant.
- Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent to flash off in a well ventilated area. Recommended minimum 7 days.

Limitations

- Must NOT be used as a roof underlay.
- Must NOT be exposed to the weather or UV for more than 90 days.
- Watergate Plus is NOT a vapour barrier.

Compliance

- Watergate Plus has been appraised with the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 and E2/AS4, with regards to building height and floor plan area.
- Watergate Plus has also been BRANZ appraised for use on buildings subject to specific weathertightness design. Building designers are responsible for the building design and for the incorporation of Watergate Plus into their design in accordance with the declared properties and the instructions of Thermakraft Ltd.

Watergate Plus

Premium Synthetic Wall Wrap

Flammability Index

Thermakraft Watergate Plus Wall Underlay has an AS 1530 Part 2 Flammability Index of not greater than 5 and therefore meets the requirements of NZBC Acceptable Solutions C/AS2, 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.

Durability

Meets the Performance Requirements of NZBC Clauses B2, Durability (B2.3.1 (a) 50 years, B2.3.1 (b) 15 years and B2.3.2), E2 External Moisture (E2.3.2), and F2 Hazardous Building Materials F2.3.1, providing:

- It is not damaged.
- Installed in accordance with instruction guide.
- Is not left exposed for more than 90 days.
- Installed by or under guidance of Licensed Building Practitioners.
- Is compatible with cladding system used.*

* **Note:** specifiers and product user must confirm wall cladding system compatibility with the underlay before installation.

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.**

Property Performance

NZBC E2/AS1 Table 23 (NZS2295) Wall Underlay Properties	Absorbency	Vapour Resistance	pH of Extract	Shrinkage	Water Resistance	Air Resistance
Property Performance Requirement	≥ 100gsm	≤ 7 MN.s/g	≥ 6 and ≤ 9	≤ 0.5%	≥ 20mm	≥ 0.1 MN.s/m^3
Property Performance	Pass	Pass	Pass	Pass	Pass	Can be used as an air barrier

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 9, September 2021

CONSENT ISSUED BC221264 - Page 297 of 359

BC221264

Thermakraft™

Thermakraft®
ONE WRAP SYSTEM
10 Products - One system
One warranty

Installation Guide

WATERGATE PLUS

New Zealand's premium all-purpose, fire retardant wall wrap.

Watergate Plus is specifically designed as a wall underlay for use behind exterior wall cladding. Made from synthetic materials Watergate Plus is fire retardant, water resistant and vapour permeable. The water vapour transfer rate of the product has been optimised to minimise condensation risk in homes without compromising its primary water barrier properties.

Watergate Plus is part of the Thermakraft One Wrap System. Its unique construction allows for easier installation while maintaining best in class performance qualities.

Smarter products. Better buildings.
thermakraft.co.nz

CodeMark BRANZ-CM-1002

BRANZ Appraised
Appraisal No.695 [2017]

Installation Guide

Application Method

- Fix Watergate Plus underlay with printed side facing the exterior and run horizontally.
- Fix to all exterior walls from below bearers to the top plate. Watergate Plus underlay is available in widths of 2740mm and 1370mm. The 2740mm width product is generally wide enough to cover from below the bottom plate to the top plate.
- **Timber Framing:** Pull the Watergate Plus underlay tight and fix securely to the frame with fasteners such as galvanized Little Grippers, 6mm-8mm staples or 20mm large head galvanized clouts at 300mm centres horizontally and vertically.
- **Steel Framing:** Ensure frame is free from oil, dust and dirt. Fix securely using construction grade double-sided tape or adhesive or galvanized flat head screws that are appropriate for external framing and roofing use, at 300mm centres.

  Note: Check adhesive compatibility with Watergate Plus and the steel framing materials before use.

  If using a tape: Apply double-sided tape onto steel frame studs and only peel off the forward-facing liner once Watergate Plus is ready to be installed. When ready, peel off approximately 2m of tape liner at a time and press Watergate Plus firmly onto tape, ensuring it is taut.

  Note: The double-sided tape is to temporarily hold the Watergate Plus in place until the batten and/or cladding is installed. The screws used to fix these are the permanent fixings for Watergate Plus.
- Minimum of 150mm lap is required at joins. All vertical laps must be made over studs. Horizontal laps to be laid ship lap style allowing water to be shed to the outer face of Watergate Plus.
- Cover all windows and door openings with Watergate Plus underlay. It is recommended that the Watergate Plus underlay is not cut and prepared for window installation until the arrival of the windows.
- When windows and doors are ready for installation, the Watergate Plus underlay covering the openings should be cut at 45° and folded into the opening and securely fastened. Thermakraft window flashing tapes are recommended as the window flashing system.

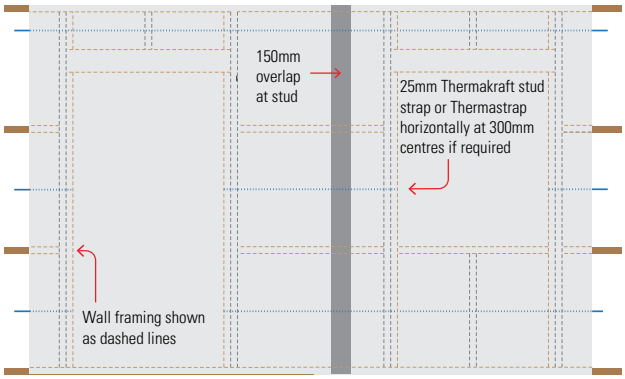
  Note: In accordance with NZBC Acceptable Solution E2/AS1 and NASH Building Envelope Solutions: 2019 (E2/AS4), wall underlay must be prevented from bulging into the drained cavity. Where stud spacing is greater than 450mm, Thermakraft stud strap or Thermastrap run horizontally at 300 centres is an acceptable means of prevention.
- Once installed, Watergate Plus must not be left exposed to the weather or UV for a maximum of 90 days. Watergate Plus underlays will provide temporary weather protection during construction allowing work to continue. Internal linings and insulation must not be installed until the exterior cladding is completed.
- Fastenings behind Brick Veneer Cladding must have an equivalent service life to that of Brick Veneer (50 years). Refer to NZBC B2 Durability.
- Repair small damaged areas with any Thermakraft window flashing tape or Thermakraft Premium Joining Tape. Any large areas which require repair may be covered with a second layer of underlay with a lap of 150mm and then taping.
- Watergate Plus underlay must be installed by, or under the guidance of a licensed building practitioner.

Fix Watergate Plus securely to the frame.

On arrival of doors and windows, cut Watergate at each opening on a 45° angle away from each corner. Pull the Watergate flaps inside and fasten to the inside of frame.

Application Tips

Watergate Plus is unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent to flash off in a well-ventilated area. Recommended minimum 7 days.



Handling and Storage

Watergate Plus underlay must be handled with care to prevent damage such as tearing and roll deformation. Due to the width of the product, care should be taken when installing in windy conditions.

The product must be stored under cover well away from direct moisture, rainfall contact and sunlight (UV). Care should be taken not stack other materials on top of the product.

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 4, September 2021

APPENDIX 06 – ALUBAND WINDOW FLASHING TAPE

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

CONSENT ISSUED BC221264 - Page 300 of 359

BC221264

Thermakraft

Product Data Sheet

ALUBAND

Bituminous adhesive flexible window flashing tape.

Aluband is designed specifically as a premium window flashing tape and forms part of the Thermakraft One Wrap System. Made with a heavy bituminous adhesive, the product provides high strength bond and excellent abrasion resistance.

Aluband comes in four roll sizes:

Product Code	Roll Size	Rolls Per Carton
ALU075025	75mm x 25m	12
ALU150010	150mm x 10m	6
ALU150025	150mm x 25m	6
ALU200025	200mm x 25m	4

Smarter products. Better buildings.
thermakraft.co.nz

BRANZ Appraised
Appraisal No.878 [2019]

Aluband

Bituminous adhesive flexible window flashing tape.

Scope of Use

Thermakraft Aluband Window Flashing Tapes can be used within the following scope:

- Installed into and around frame joinery opening over the wall underlay and exposed frame to cover both the face and edge of the opening framing as a secondary weather resistant barrier.
- Installed at joinery heads to seal flashing upstands to the wall underlay.
- To assist the overall weathertightness performance of window and door joinery installations.
- To be used in conjunction with air seals and joinery flashing systems. Installer must check for air seal product compatibility with Aluband Window Flashing Tape.
- Thermakraft Aluband Window Flashing Tape must be used with Thermakraft Corner Moulded Pieces (on windowsill corners).
- Situated in NZS3604 Wind Zones up to, and including 'Extra High'.

General

- Compatible with all Thermakraft building underlays.
- 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.
- Thermakraft corner moulds MUST be used at flashing corners (see installation guide).

Limitations

- Must NOT be exposed to the weather/UV for more than 42 days.
- Should be installed when temperatures are above 5ºC.
- NOT designed to overcome poor detailing and workmanship of the window or door joinery installation.
- Bitumen may react with window sealants. Always check compatibility before use.

Compliance:

- Aluband should be used within the product scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1;
- Can be used on buildings constructed with timber and steel framing complying with the NZBC;
- With a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- Can be used with wall cladding systems complying with NZBC Acceptable Solution E2/AS1.

Durability:

- Thermakraft Aluband Window Flashing Tape will meet the Performance Requirements of NZBC Clauses B2, Durability (B2.3.1 [a] 50 years*, B2.3.1 [b] 15 years* and B2.3.2), E2 External Moisture Performance and F2 Hazardous Building Materials.

* **Note:** When the external cladding is maintained according to the cladding manufacturer's instructions and the cladding remains weather resistant, Thermakraft Aluband Window Flashing Tape is expected to have a serviceable life equal to that of the cladding.

- Thermakraft Aluband Window Flashing Tape has a serviceable life expectancy equal to that of the cladding, when installed in accordance with this technical specification and in accordance to the product installation guide, provided it is not exposed to the weather or ultra-violet (UV) light for more than 42 days, or is not damaged upon installation.
- Thermakraft Aluband Window Flashing Tape is designed to work on all building underlays that meet the requirements of NZBC E2/AS1 Table 23, and on all Thermakraft BRANZ Appraised wall underlays.

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.**

Thermakraft Limited / 0800 806 595

Smarter products. Better buildings.

thermakraft.co.nz

BRANZ Appraised
Appraisal No.878 [2019]

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 5, January 2020

CONSENT ISSUED BC221264 - Page 302 of 359

Thermakraft

Thermakraft
ONE WRAP SYSTEM
10 Products - One system
One warranty

Installation Guide

ALUBAND

Bituminous adhesive flexible window flashing tape.

Aluband is designed specifically as a premium window flashing tape and forms part of the Thermakraft One Wrap System. Made with a heavy bituminous adhesive, the product provides high strength bond and excellent abrasion resistance.

Product usage

Aluband Window Flashing Tape is installed into and around frame joinery opening over the wall underlay and exposed frame to cover both the face and edge of the opening framing as a secondary weather resistant barrier. It can also be installed at joinery heads to seal flashing upstands to the wall underlay.

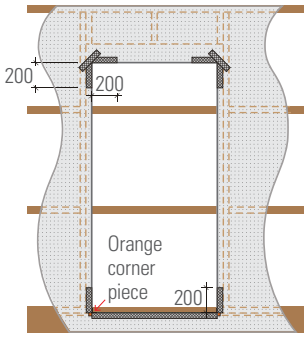
Smarter products. Better buildings.
thermakraft.co.nz

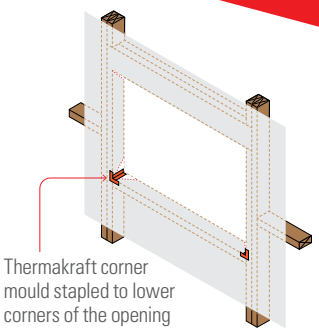
BRANZ Appraised
Appraisal No.878 [2019]

Installation Guide

Application Method

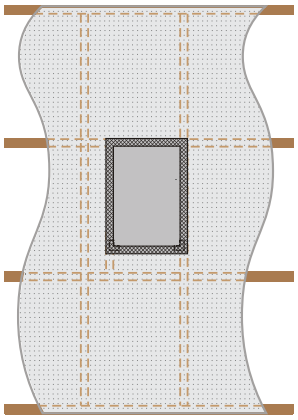
- Cut the wall underlay/air barrier at a 45° angle away from each corner. Fold flaps tightly into the window or door opening and fix with staples on the back faces of the framing.
- Fix the Thermakraft Corner Moulded Piece to the bottom corners by way of staples or clouts to the two jambs. Always ensure that Aluband is applied to surfaces that are clean and free of dust, contaminates, solvents, oils or waxes. Note the following: 150mm wide tape is used for 100mm wide window or door framing, and the 200mm wide tape is used for 140mm to 150mm wide reveals. (With steel framed houses use Double Sided Tape to attach the Thermakraft Aluband Corner Moulded Piece to metal framing).
- Measure 200mm up both jambs, add 400mm to the length of the window sill and cut to suit that measurement.
- First remove the release film from the tape; align the back edge of the tape with the inside edge of the sill.
- Using the Thermakraft Tool, firmly press the tape onto the wall underlay to ensure good adhesion and ensure the tape is fitted tightly into the jamb to sill corners.
- At the sill/jamb corners cut the tape from the external edge of the frame outwards. Fold flaps back onto the wall underlay/air barrier and press tape firmly for good adhesion.
- Proceed to fit the Window Flashing Tape to the top corners of the frame (200mm across lintel x 200mm down jamb).
- For window or door lintel to jamb junction, apply a butterfly using the 75mm wide x 100mm long Aluband. Fix at a 45° angle to the jamb with an overlap at the corner of 3mm.
- Door frames are to be treated similarly to window openings. The sill may be either a timber or a concrete floor.
- Window Flashing Tape is used to seal the up stand of the window head flashing to the building underlay. (Refer to the cladding manufacturer's details).
- Aluband must NOT be left exposed to the weather or UV for more than 42 days.

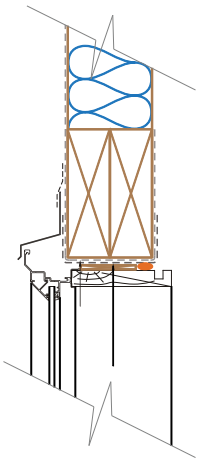




Window and door frames

- Staple orange corner piece to the bottom corner sill. Place tape 200mm up the jambs and across the full width of the sill opening. Align tape with the back of the frame opening.
- At the top corner place tape 200mm down the jamb and 200mm across the lintel. Place a strip of 75mm tape across the top corner.





Application Tips

- Always use the Thermakraft Aluband Window Flashing Tool to apply firm pressure onto the tape during installation. This will ensure proper adhesion of the tape to the building underlay or other substrates.
- Install the Aluband Window Flashing above 5°C.
- 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 a well ventilated area. Recommended minimum 7 days.

Important Information

To assist the adhesion of Aluband window flashing tape, Thermakraft suggests the following two options this is particularly relevant in the following conditions:

- In temperatures below 5°C.
- When adhering to difficult to bond substrates such as rough/uneven surfaces.
- When the tape has been lifted or moved after initial application.

Installation Guide

Application of Heat:

- Press the window sill tape into position in the usual manner.
- Apply a gentle heat, using a heat gun on low heat to the top of the window sill tape.
- Once the adhesive starts to soften use the Thermakraft tool or a roller to firmly press the tape into the wall underlay ensuring good adhesion.
- Take care not to damage the foil face lining.

Difficult to Bond Substrates Surface Preparation:

- Always ensure that Aluband is applied to surfaces that are clean and free of dust, contaminates, solvents, oils or waxes.
- Application of Scotch® Super 77™ Spray Adhesive: When installing Aluband Flashing Tapes on difficult to bond substrates, Scotch® Super 77™ Spray Adhesive may be used. Ensure that the substrate is dry and free of dirt before applying the spray adhesive. Apply a light spray/coating of the spray adhesive onto the substrate. Wait for a minute to allow the spray adhesive to become tacky. When tacky to the touch apply the flashing tape in the normal manner.

Adhesives and Sealants:

- After the installation of Aluband window flashing tape, ensure that the edges do NOT come into contact with solvent based sealants or adhesives. Solvents in these products can adversely affect the adhesion or dissolve the bituminous adhesive and cause it to run.
- If the application of solvent based adhesives or sealants are necessary, cover the edges with Thermakraft joining tape or a true aluminium foil tape to form a barrier. With a true aluminium foil tape, the installer must test the bonding strength.
- The installer must check the compatibility of the Aluband window flashing tape with the sealant or adhesive product to ensure the components are fully compatible.

Handling and Storage

Aluband window flashing tape must be handled with care to prevent damage such as tearing, excessive puncture and roll deformation.

The product must be stored under cover well away from direct moisture, rainfall contact and sunlight (UV). Care should be taken not stack other materials on top of the product.

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 4, January 2020

APPENDIX 07 – GIB AQUALINE

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

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®

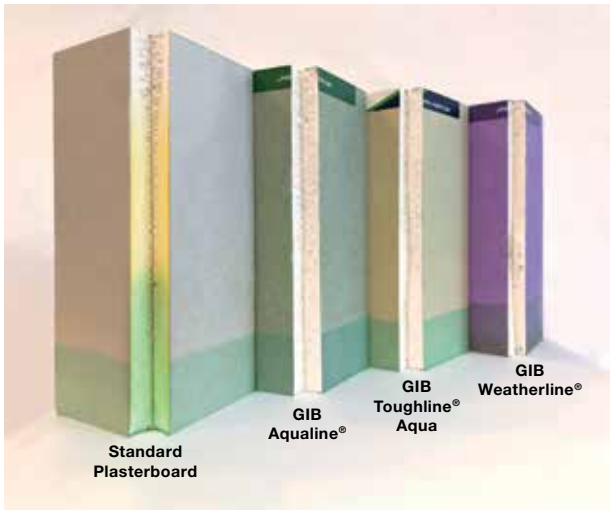
Although able to cope with infrequent short-term exposure, standard gypsum plasterboard will have a shortened life expectancy when frequently exposed to water or a high moisture environment.

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.



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

BOARD SUBSTITUTION OPTIONS

Acceptable GIB Aqualine® alternatives	
10mm GIB Aqualine® can be replaced with:	10mm GIB Weatherline® 13mm GIB Toughline® Aqua
13mm GIB Aqualine® can be replaced with:	13mm GIB Weatherline® 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.

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

Compliance with the NZ Building Code

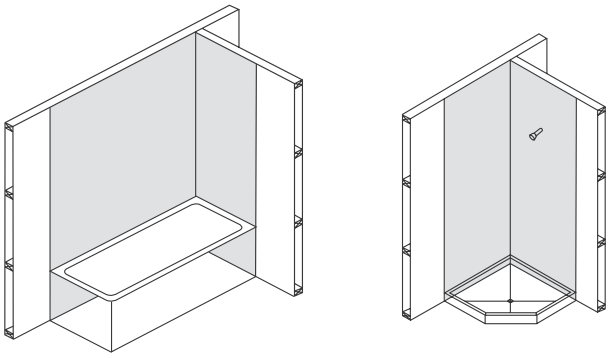
STRUCTURE – CLAUSE B1

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

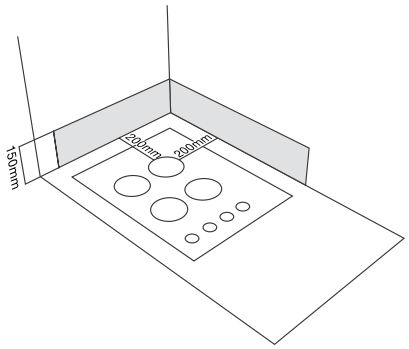
When installed and maintained in accordance with this literature, GIB® Wet Area systems tiled or vinyl covered have a serviceable life of at least 15 years. They comply with the requirements of NZ Building Code Clause B2 (Durability) for use in wet areas directly exposed to liquid water, e.g. showers, 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.

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.

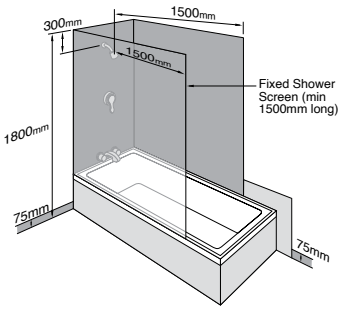
E3.3.6 - Surfaces of building elements likely to be splashed must be constructed in a way that prevents water splash from penetrating behind linings or into concealed spaces.

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.

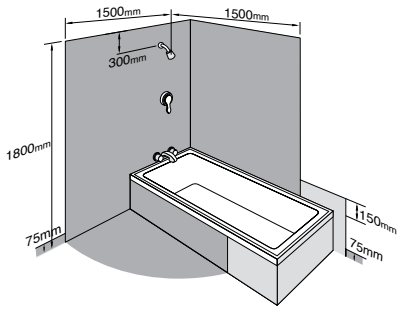
The IWAM Code of Practice refers to wet area membranes and over-surfaces that are easy to clean and suggests an extent as outlined below for a typical bathroom application. For further details refer to the IWAM Code of Practice which also lists suitable rigid sheet materials and tiling membranes.

Shaded areas in the diagrams below represent the minimum extent of wall surfaces requiring impervious sheet materials or waterproof membrane systems prior to tiling.

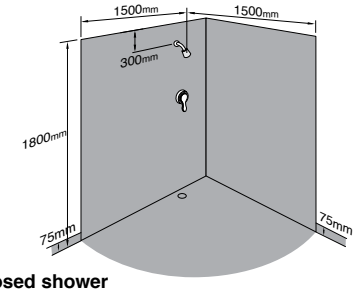
Enclosed shower over bath



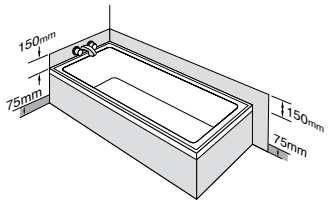
Unenclosed shower over bath



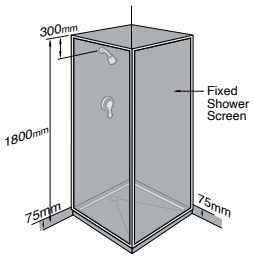
Unenclosed shower



Bath



Enclosed shower



CONSENT ISSUED BC221264 - Page 312 of 359

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.

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.

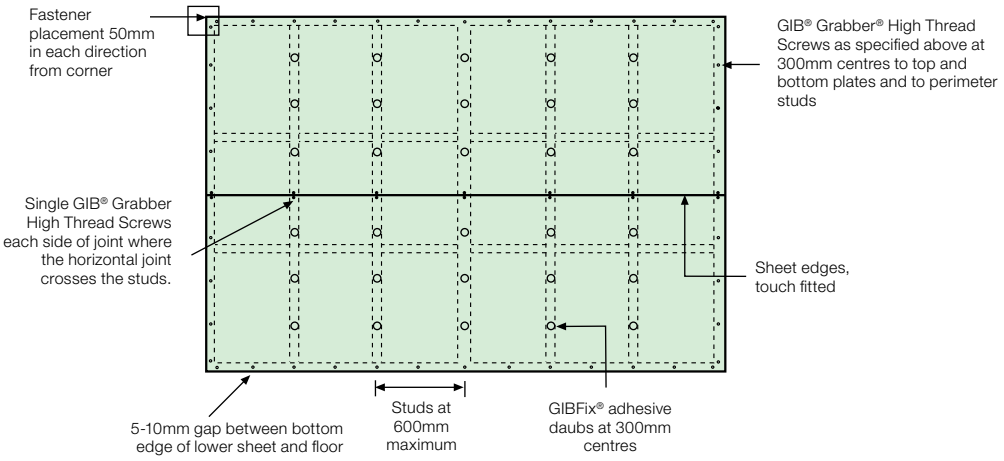
LINING

- 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.

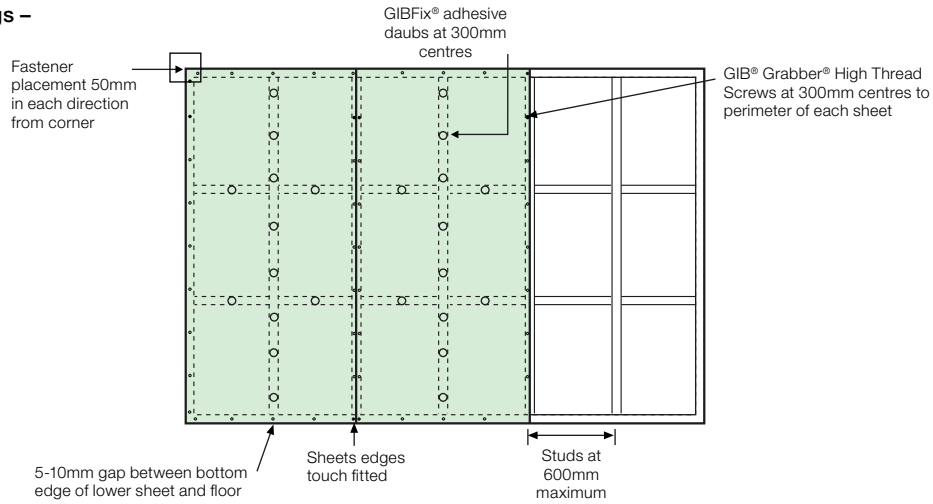
JOINTING

- 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



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

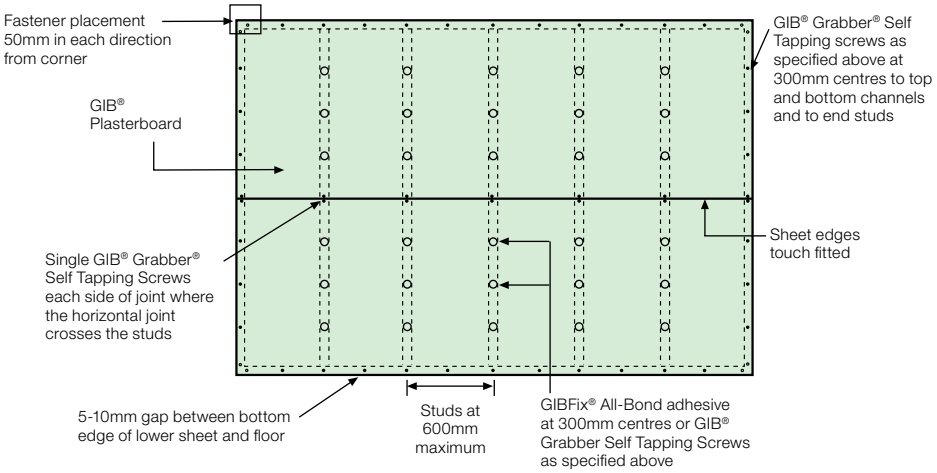
— Lay the sheets, leaving a 5-10mm gap at the floor line. Note: If friction fitted steel studs have been used, sheets must be fitted hard to the floor. Ensure floor is cured and dry

— Sheets to be touch fitted.

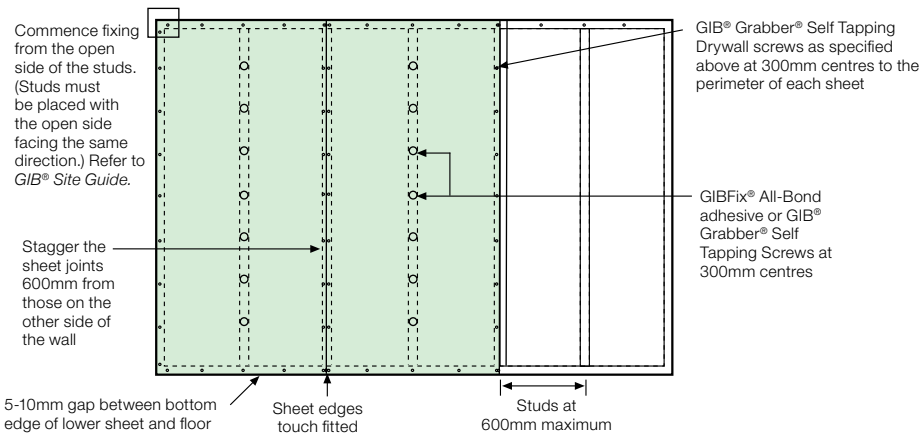
JOINTING

— 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



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. Angles need to be temporarily held in place until secured by the lining fixings.

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.

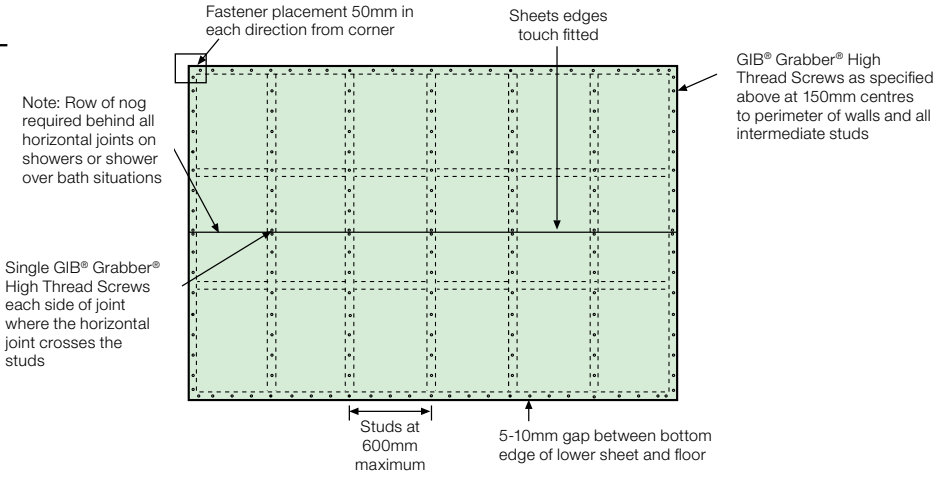
LINING AND TILE WEIGHTS

- 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

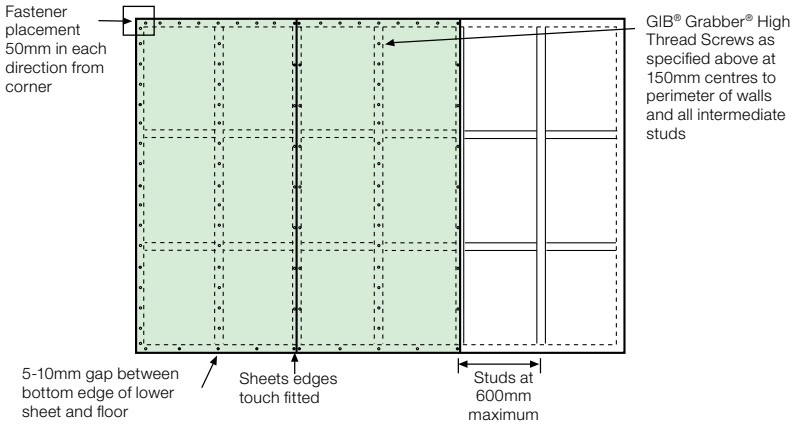
JOINTING

- 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



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. Angles need to be temporarily held in place until secured by the lining fixings

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.

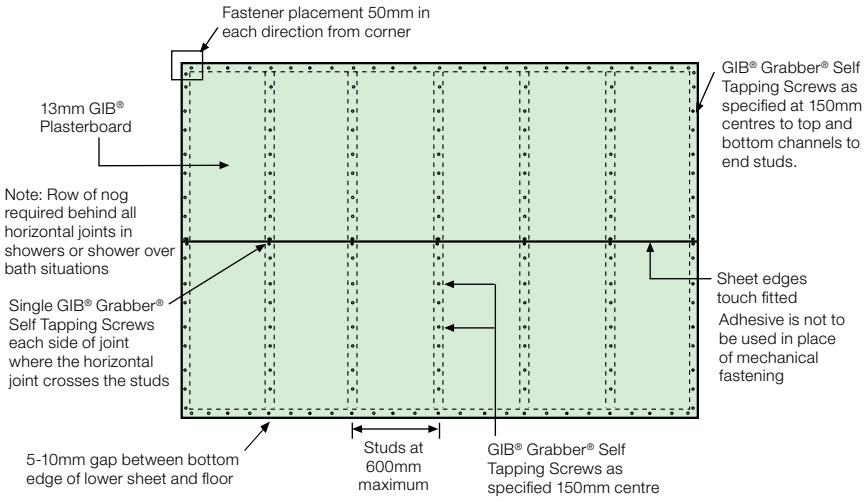
LINING AND TILE WEIGHTS

- 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

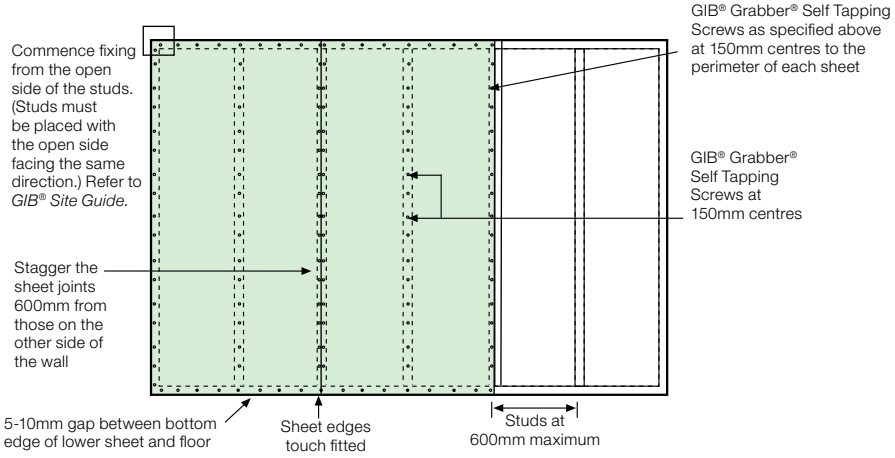
JOINTING

- Jointing shall be carried out in accordance with the instructions of the GIB® Site Guide

Fastening the Linings – Horizontal Fixing Only

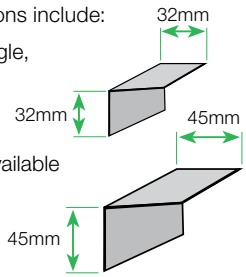


Fastening the Linings – Vertical Fixing Only

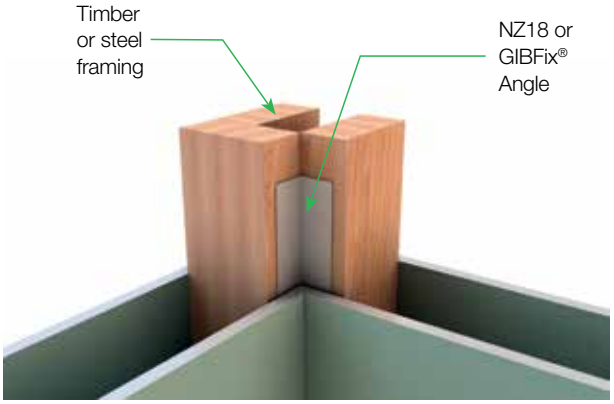


METAL ANGLES FOR TILED INTERNAL CORNERS

- 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



- Angles need to be temporarily held in place until secured by the lining fixings
- 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.

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

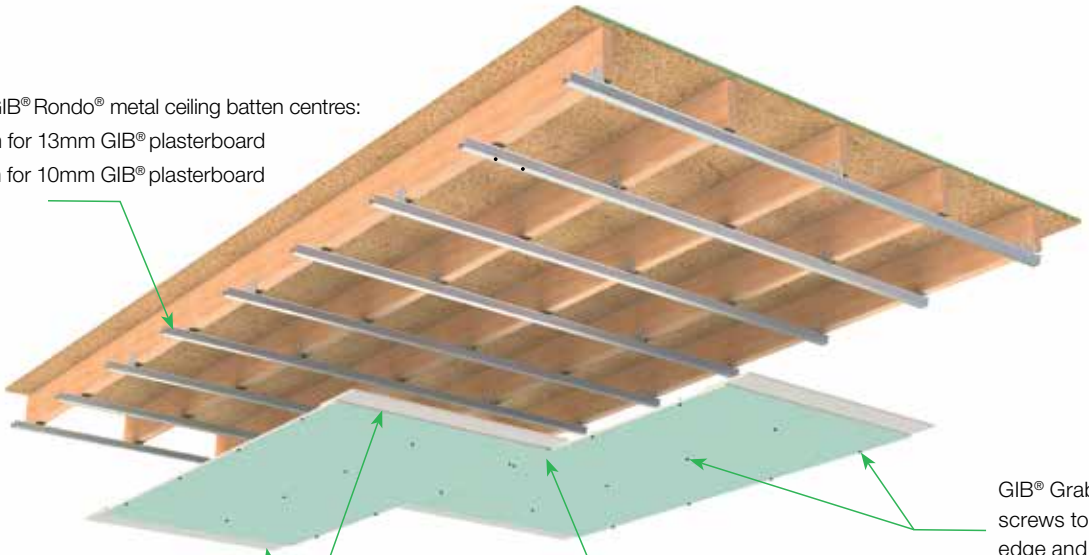
- 13mm GIB® plasterboard – 600mm centres maximum
- 10mm GIB® plasterboard – 450mm centres maximum

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

APPENDIX 08 – HOT WATER SYSTEM

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

BC221264
316581F
July 2016

INSTALLATION INSTRUCTIONS
&
OWNERS GUIDE

RHEEM MAINS PRESSURE ELECTRIC HOT WATER HEATERS

Congratulations for choosing a Rheem Water Heater

It is important that you take a few minutes
to read this booklet as it may save you
time and trouble later.
If you require any further information or your
water heater needs to be serviced, please contact the
Rheem Service Department on 0800 657 335,
or the nearest service centre
(look in the Yellow Pages under “Plumbers”)
Or visit www.rheem.co.nz

Important to the Installer

Do not leave this booklet inside the element cover
after installation
Please leave the booklet with the water heater’s owner

IMPORTANT INFORMATION

GENERAL

- The information contained in this manual, and all other information or advice given at any time by Rheem New Zealand Limited in connection with the purchase, installation or use of a Rheem water heater, is given in good faith. Subject to any rights the owner may have under the “Consumer Guarantees Act 1993”, Rheem New Zealand Limited will not be liable to any person for any inaccuracy or omission in the information or advice arising through the fault or negligence of Rheem New Zealand Limited or any other person or through any other cause whatsoever.
- This water heater is not intended to be operated, adjusted or tampered with by young children or infirm persons. Young children should be supervised to ensure they do not play with the water heater.

ABOUT YOUR WATER HEATER

Q. DOES THE WATER QUALITY AFFECT THE WATER HEATER?

A. Your water heater is suitable for most public water supplies, however, some water qualities may have a detrimental effect on it. **If you are in a known harsh water area please refer to page 6**.

Q. HOW HOT SHOULD THE WATER BE?

A. All models (temperature range 60 - 70°C) require an authorised person to make any temperature adjustments. For reasons of safety and economy, we advise the thermostat is adjusted to the lowest setting that meets your needs.

The New Zealand Building Code requires a stored temperature setting of not less than 60°C. A tempering valve set at a maximum of 55°C must be used on domestic wet areas.

Q. HOW DO I KNOW IF THE WATER HEATER IS INSTALLED CORRECTLY?

A. Refer to the installation requirements on page 4.

Q. HOW LONG WILL THE WATER HEATER LAST?

A. There are a number of factors that affect the life of the water heater. These include; the water quality, water pressure, water temperature and the usage pattern, however, your Rheem water heater is supported by a comprehensive warranty (refer to page 7).

The life of the water heater may be extended by arranging for an authorised person to inspect the anode and replace it, if required.

The suggested time after installation when the anode should be inspected is:

Vitreous Enamel 8 years
Optima 10 years

For softened water supplies or in areas of poor water quality, it is recommended the anode be inspected 3 years earlier than shown (refer to "Water Quality" on page 6).

HOW THE WATER HEATER WORKS

SINGLE AND TWIN ELEMENT MODELS

Water stored within the water heater is heated by the electric heating element. The thermostat controls the electricity supply to the heating element so that a constant water temperature is maintained. As the cold water is heated it expands approximately 1/50 of its volume and, as a result, a small amount of water is discharged from the cold water expansion valve.

NON-SIMULTANEOUS ELEMENT MODELS

The two heating elements are wired for non-simultaneous operation, so that only one heating unit can operate at a time. The bottom heating unit is usually connected to an off-peak (overnight) supply and the top heating unit to a continuous supply. **The red link wire must be removed from the terminal block during installation if two separate power supplies are to be used**. Leaving the link in place ensures both elements operate correctly with a single power supply.

The basic operation is as follows: when the water temperature at the top of the water heater has reached the set temperature, the thermostat switches the top element off. This creates a circuit to the bottom heating element by switching the neutral.

SAFETY

On all models, a Temperature and Pressure Relief valve is supplied with each water heater. It can be found inside the front cover and must be mounted on top of the water heater.

Also fitted to the water heater is a thermostat, which incorporates an over-temperature thermal cut-out device.

Warning: *The operation of the thermal cut-out indicates a possible dangerous situation. The thermostat and thermal cut-out is to only be adjusted or reset by an authorised service person.*

These safety devices must not be tampered with, or removed, and under no circumstances operate the water heater unless both devices are fitted.

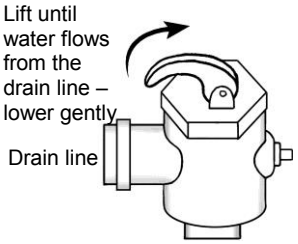
REGULAR CARE

MANUALLY OPERATING THE TEMPERATURE AND PRESSURE RELIEF (TPR) VALVE:

The easing lever (see diagram. 1) on the TPR valve should be operated regularly to remove lime deposits and verify that it is not blocked. **It is very important that you raise and lower the lever gently.**

Warning: *To ensure the relief valve is working correctly, operate the relief valve easing lever at least every six months. Failure to do this may result in the water heater over-pressurising.*

DIAGRAM 1



Water Heater

If water does not flow freely from the drain line or the valve fails to completely close and water continues to be discharged, contact the Rheem Service Department, phone **0800 657 335,** or the nearest Rheem Service Centre (look in the Yellow Pages under "Plumbers).

GOING ON HOLIDAYS:

If you plan to be away from home for one or two nights, we suggest that you leave the water heater switched on. However, if you plan to stay away more than a few nights, conserve energy by switching the water heater off at the isolating switch, or at the main switchboard. In locations where freezing could occur, you should leave the water heater turned on.

SAVE A SERVICE CALL

CHECK THE ITEMS BELOW BEFORE MAKING A SERVICE CALL. YOU MAY BE CHARGED FOR SERVICE IF THE FAULT IS NOT RELATED TO THE WATER HEATER MANUFACTURE OR PARTS SUPPLIED WITH THE WATER HEATER BY RHEEM.

WATER DISCHARGING FROM EXPANSION CONTROL VALVES

It is normal for the cold water expansion valve and the temperature and pressure relief valve to discharge a small quantity of water during the heating cycle. If either of these valves discharge more than a bucket full of water in 24 hours, one of the following may be the cause.

- **Continuous dribble**
  Try gently raising the easing lever on the relief valve for a few seconds. This may dislodge small particles of foreign matter and clear the fault.
- **Heavy flow of hot water until the water is cold – then stops while the water reheats**
  Immediately turn off the electricity supply to the water heater. Call the Rheem Service Department or look in the Yellow Pages under "Plumbers" for your nearest Rheem Service Centre or www.rheem.co.nz to arrange an inspection.
- **A steady flow of water (often at night)**
  This may indicate that your cold water pressure sometimes rises above the design pressure of the water heater. A Pressure Limiting valve should be installed, or if one is installed, it may need replacing.

NOT ENOUGH HOT WATER (or no hot water)

- **Is the electricity turned on?**
  Check the switch marked 'water heater' at the switchboard and the water heater isolating switch.
  Check the fuse or circuit breaker marked 'water heater'.

WHERE THE WATER HEATER IS CONNECTED TO AN OFF PEAK (NIGHT RATE) ELECTRICAL TARIFF, THE SUPPLY MAY NOT BE AVAILABLE AT CERTAIN TIMES OF THE DAY.

- **Do you have the correct size heater for your requirements?**
  Refer to the sizing guide in the Rheem sales literature or the Rheem website.
- **Is one outlet (especially the shower) using more hot water than you think?**
  Carefully review the family's hot water usage and if necessary, check the shower flow rate.
  For maximum efficiency we recommend the flow rate through the shower is between 8 to 10 litres per minute (mixed hot and cold). This can be achieved by installing a flow control valve if provision is not made to fit a flow restrictor in the shower rose.
- **Ensure the thermostat setting is appropriate. Note, some models require an authorised person to make electrical thermostat adjustments.**

HIGH ELECTRICITY BILLS

- **Consider recent changes to your hot water usage pattern and check if there has been an increase in tariffs since your previous account.**
- **Is either of the expansion valves discharging too much water?**

- **Is one outlet (especially the shower) using more hot water than you think?**
- **Is there a leaking hot water pipe, dripping hot water tap, etc?**
  Even a small leak will waste a surprisingly large quantity of hot water and energy. Replace faulty tap washers, and have your plumber rectify any leaking pipe-work.

INSTALLATION

Please take careful notice of the advice given as Rheem New Zealand Limited will not be liable for any loss or damage suffered as a result of the incorrect installation of the water heater, or any failure to check the capability of the electrical supply wiring to the water heater.
The water heater must be installed by a certified person or registered plumber and the installation must comply with the New Zealand Building Code, Rheem Installation Instructions, AS/NZS 3000 electrical installations and all local codes and regulatory authority requirements. Note that no warranty costs will be payable where the water heater is located in a position that does not comply with the Rheem water heater installation instructions or relevant statutory requirements, where the unit is installed in a position that does not allow safe or ready access, the cost of that access shall not be payable (refer to "Rheem Warranty" on page 7).

- **WATER HEATER LOCATION**
  Water heaters with a galvanised outer casing are only suitable for indoor installations, whereas water heaters with a painted casing are suitable for both indoor and outdoor installations.
  Clearance must be allowed for servicing and removal of the water heater and it must be accessible without the use of a ladder or scaffold. (Typical clearances are: TPR valve removal 135 mm, Element Cover and Element Removal 400 mm). Also, you must be able to read the information on the rating plate and if possible, leave headroom of one water heater length so the anode can be inspected or replaced.
- **CONNECTION SIZES**
  - Hot and Cold water connections: RP *¾ / 20.*
  - Relief valve connection: RP ½ / 15.
- **INLET/OUTLET CONNECTIONS**
  A union must always be provided at the cold water inlet and hot water outlet for disconnection reasons. All connection sockets on the water heater are parallel threaded and therefore tapered brass nipples must be used to ensure watertight connections. Both connections are fitted with plastic liners and it is important that they remain in situ for the water heater to function properly. These liners will be pushed into the correct position as the fitting is being screwed in.
- **NON RETURN VALVE**
  A non return valve must be installed on the cold water line to the water heater.
- **PIPE SIZES**
  The cold water line to the water heater should be the same size or bigger than the hot water line from the water heater. For best results, choose the most suitable pipe size for each individual application.
- **COLD WATER EXPANSION VALVE**
  A cold water expansion valve must be fitted to the cold water line to the water heater.
- **TEMPERATURE AND PRESSURE RELIEF VALVE**
  When fitting the temperature and pressure relief valve, ensure the probe has not been bent. Seal the thread with PTFE tape, or similar, as recommended by the valve manufacturer and screw the valve into the off-centre socket. Do not use a wrench on the valve body – use the spanner flats provided. Drain the TPR valve with a pipe the same size as the valve outlet. The drain must run downwards to a visible point outside the house, preferably over a gully trap.
  In some setups or circumstances, such as if freezing could occur, an air break must be provided in the drain within 300 mm of the TPR valve, refer to the New Zealand Building Code - Clause G12 for requirements and acceptable solutions for the running of hot water drain line(s).

  Warning: The drain line from the TPR valve must be in copper. *A Rheem mains pressure water heater must **not** be installed and operated without a suitable (valve that complies with AS 1357.1) temperature and pressure relief valve. Under no circumstances block the outlet of this valve or its drain pipe.*
- **WATER SUPPLY PRESSURE**
  Maximum permitted mains water pressure - refer product label and Table 5.2 AS/NZS 3500.4. Note inlet pressure control valve is required where maximum permitted mains pressure is likely to be exceeded.
  Minimum inlet pressure: 60 kPa
- **PRESSURE LIMITING/REDUCING VALVE**
  If the water supply pressure exceeds the requirements of Table 5.2 AS/NZS 3500.4, a pressure limiting valve with a maximum setting of 500 kPa is to be fitted in the installation.
- **SAFE TRAY AND SEISMIC RESTRAINTS**
  The water heater must be installed with a properly drained safe tray where there is the possibility of water damage to furniture, carpets or building. All water heaters must be restrained to protect against seismic forces. (Refer to the Zealand Building Code for acceptable solutions.)

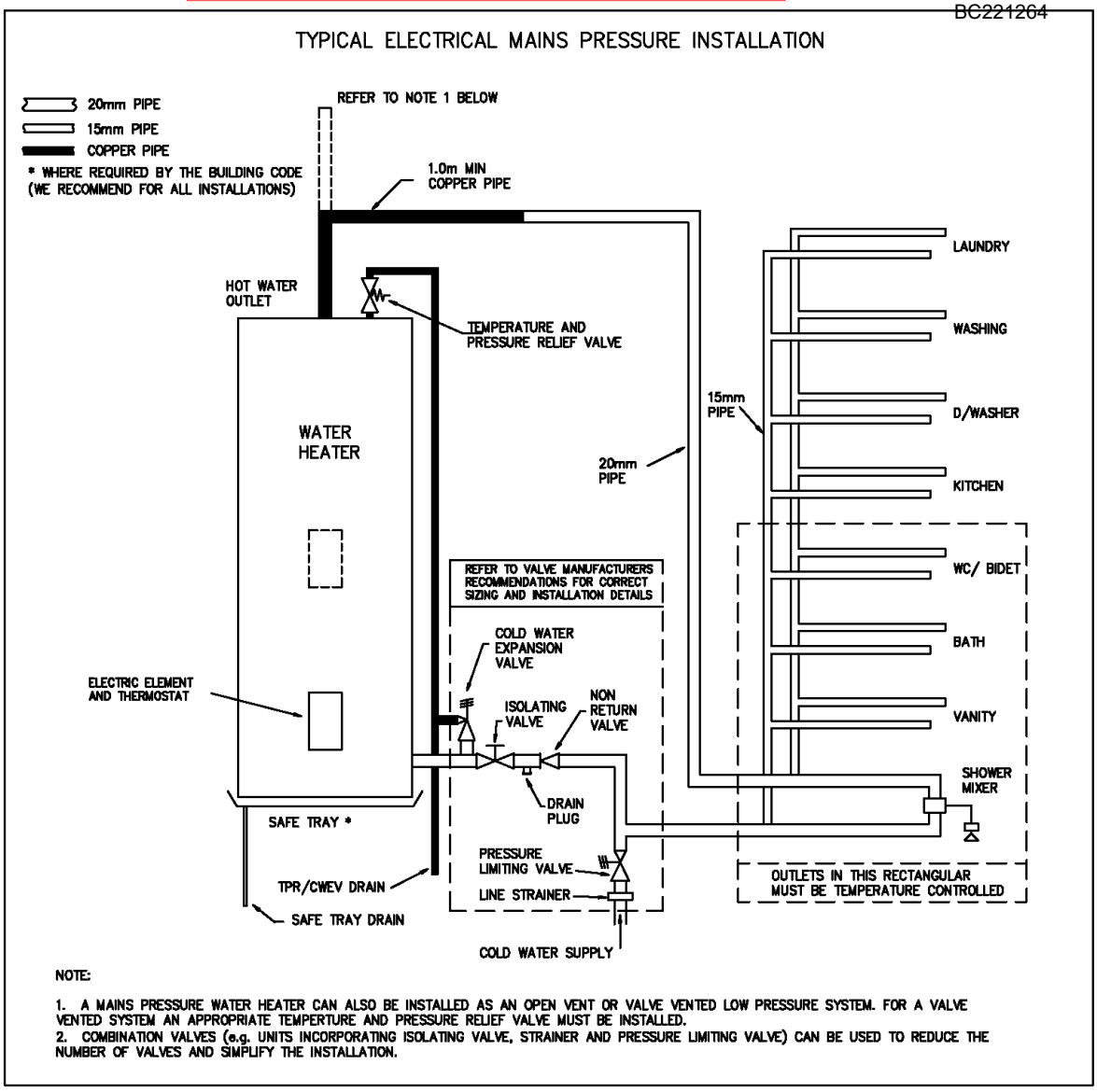


DIAGRAM 2:

CONNECTIONS - ELECTRICAL

The electrical installation must be completed in accordance with AS/NZS 3000. All water heaters are designed for 230 VAC, 50 Hz mains operation and a means of disconnection from the power supply must be incorporated in the fixed wiring during installation.

A flexible 20 mm conduit is required for the electrical cable to the water heater. The conduit is to be connected to the unit with a 20 mm plain to screw adaptor. Connect the power supply wires directly to the terminal block and earth tab connection, ensuring there are no excess wire loops inside the front cover. For details, refer to the wiring diagram on the inside of the element cover. **A separate heating element earth wire is not required because the element earths by the thread of the element boss or the flange being in contact with the element socket.**

COMMISSIONING

TO FILL AND TURN ON THE WATER HEATER

⚠ ***Warning:*** *The power supply to the water heater must not be switched on until the water heater is filled with water and an "earth continuity test", as outlined in Annex A of AS/NZS 60335.1 has been carried out. Failure to do so will damage the element and shorten its life and may create a dangerous situation.*

- Open all of the hot water taps in the house (don't forget the shower). Open the cold water isolation valve fully to the water heater to force the air out of the taps. As water flows freely from each tap, close it. Check the pipe-work for leaks.
- Switch on the electrical supply at the isolating switch to the water heater.

TO TURN OFF THE WATER HEATER

If it is necessary to turn off the water heater on completion of the installation, such as on a building site or where the premises is vacant, then;

- Switch off the electrical supply at the isolating switch to the water heater.
- Close the cold water isolation valve at the inlet to the water heater.

DRAINING THE WATER HEATER

- Switch off the electrical supply at the isolation switch to the water heater.
- Close the cold water isolation valve.
- Operate the relief valve easing lever to release the pressure in the water heater.
- Drain the water heater through the drain valve or plug.
- Undo the top outlet union or operate the relief valve easing lever again to let air into the water heater and allow the water to drain

WHAT YOU SHOULD KNOW ABOUT WATER QUALITY

WATER SUPPLY CHEMISTRY

Water quality can have a detrimental effect on water heater operation, components and life expectancy and may affect the warranty.

⚠ ***Warning****: This water heater must be installed in accordance with advice given to be covered by the Rheem warranty.*

Your Rheem water heater is manufactured to suit the water condition of most local authority water supplies. However, some water supplies can have a detrimental effect on the water heater and its operation and/or life expectancy. This water heater must only be connected to a water supply which complies with these specifications for the Rheem warranty to apply. If you are unsure of your water chemistry you may be able to obtain information from your local water supply authority or you can contact Rheem and we will provide you with contact details of a suitable agency capable of testing your water for compliance with Rheem standards. Water quality tests must be carried out at the owner's cost.

HARSH WATER AREAS

Rheem water heaters are designed for use in areas where the Total Dissolved Solids (TDS) content of the water supply is less than 2500 mg/L.

In areas where the TDS exceeds 600 mg/L it is possible the standard magnesium anode fitted to the water heater, may be excessively active. To alleviate this, the magnesium anode should be replaced with an aluminium anode. Where the TDS of the water is less than 40 mg/L, such as when the water has been deionised or is from an alpine supply, a high potential anode should be used. The changing of anodes must be carried out by a plumber or qualified service person.

CAUTION

If your water supply has a TDS greater than 600 mg/L and the anode has not been changed, there is a possibility of hydrogen gas accumulating in the top of the water heater during long periods of no use.

If, under these conditions, the water heater has not been used for two or more weeks the following procedure should be carried out before using any electrical appliances (e.g. automatic washing machines and dishwashers) which are connected to the hot water supply.

The hydrogen, which is highly flammable, should be vented safely by opening a hot tap and allowing the water to flow. There should be no smoking or naked flames near the tap whilst it is turned on. Any hydrogen gas will be dissipated as indicated by an unusual spurting of the water from the tap. Once the water runs freely again any hydrogen in the system will have been released.

SATURATION INDEX

The saturation index is used as a measure of the water's corrosive or scaling properties. In a scaling water supply calcium carbonate is deposited out of the water onto any hot metallic surface. When scaling water has a saturation index greater than +0.40 an expansion control valve must be fitted on the cold water line after the non-return valve.

Where the saturation index exceeds +0.80, low watts density elements should be used. Where the saturation index is less than -1.0, a corrosive resistant heating unit should be used (contact your local Rheem Service Department or an authorised service person).

Scaling water is water that containing levels of calcium carbonate (total hardness in excess of 200 mg/litre at any time when the water heater is operating) Scaling water can block and prevent the pressure & temperature relief valve from operating, resulting in damage to the water heater storage cylinder and water components. A cold water expansion control valve must be fitted where in all areas with scaling water to assist in preventing blockage of the pressure and temperature relief valve.

⚠ ***Warning:*** *Failure to install an expansion control valve where scaling water conditions occur may result in the water storage cylinder failing or under certain circumstances over pressurising.*

To avoid damage to the storage cylinder and components Rheem strongly recommends scaling water be treated before entering the water heater by fitting appropriate water filters, conditioners, etc – refer to your local water authority for information on water in your area. A build up of white sediment on the hot taps or shower rose can be indicative of scaling water. Contact Rheem if this condition is observed.

Warning: *Damage caused by scaling water can affect the Rheem warranty.*

The Rheem warranty of this water heater will not cover resultant faults on components, including storage tank, due to the effects of sludge and/or sediment as a result of connection to a water supply from silted or untreated sources, i.e. springs, dams, bores, rivers or town supplied from a bore.

WATER HEATERS NOT INSTALLED IN ACCORDANCE WITH THE ABOVE ADVICE WILL NOT BE COVERED BY THE RHEEM WARRANTY.

RHEEM WARRANTY

Mains Pressure Electric Water Heater Product Warranty New Zealand Only

In addition to your legal right, in New Zealand Rheem New Zealand Limited makes the following promise to the owner. We will repair or, if necessary, replace a defective unit or part of it, which has failed due to faulty manufacture on the following terms and conditions:

1. THE RHEEM WARRANTY – GENERAL

1.1 This warranty is given in respect of sales in New Zealand by Rheem New Zealand Limited of 475 Rosebank Road.

1.2 Rheem offer a trained and qualified national service network who will repair or replace components at the address of the unit subject to the terms of the Rheem warranty in New Zealand – contact your Rheem Service Centre on 0800 657 335.

1.3 For details about this warranty, you can contact your Rheem Service Centre in New Zealand on 0800 657 335.

1.4 The terms of this warranty are set out in section 2 and apply to units manufactured after 1st July 2016.

1.5 If a subsequent version of this warranty is published, the terms of that warranty will apply to units manufactured after the date specified in the subsequent version.

2. TERMS OF THE RHEEM WARRANTY AND EXCLUSIONS TO IT

2.1 The decision of whether to repair or replace a faulty component is at Rheem New Zealand Limited's sole discretion.

2.2 Where a failed component or unit is replaced under this warranty, the balance of the original warranty period will remain effective. The replacement does not carry a new Rheem warranty.

2.3 Where the unit is installed outside the boundaries of a metropolitan area, defined by Rheem as further than 25 km from a Rheem service centre, the cost of transport, insurance and travelling between the Rheem service centre and the installed site shall be the owner's responsibility.

2.4 Where the unit is installed in a position that does not allow safe or ready access, the cost of that access, including the cost of additional materials handling and/or safety equipment, shall be the owner's responsibility. In other words, the cost of dismantling or removing cupboards, doors, walls, roofs or trap doors and the cost of any special equipment to bring the unit to floor or ground level or to a serviceable position is not covered by this warranty.

2.5 This warranty only applies to the original and genuine Rheem unit in its original installed location and any genuine Rheem replacement parts. It does not cover any plumbing, gas fitting or electrical parts supplied by the installer, that are not an integral part of the unit, e.g. pipe-work, pressure limiting valve, stop valves, non-return valves, electrical switches, pumps and fuses.

2.6 The Rheem warranty does not cover faults that are a result of:

a) Accidental damage to the unit or any component, for example Acts of God such as floods, storms, fires, lightning strikes and the like and Third party acts or omissions.

b) Misuse or abnormal use of the unit.

c) Installation or use not in accordance with the Owner's Guide and Installation Instructions, New Zealand Building Code requirements or with relevant statutory and local requirements including failure to install a properly drained safe tray where required by the owners guide and installations.

d) Connection at any time to a water supply that does not comply with the water supply guidelines as outlined in the Owner's Guide and Installation Instructions, or poor water quality outside the limits specified in the owners guide and installation instructions.

e) Repairs, attempts to repair or modifications to the unit by a person other than Rheem Service or a Rheem Accredited Service Technician.

f) Faulty plumbing or faulty power supply.

g) Failure to maintain the unit in accordance with the Owner's Guide and Installation Instructions.

h) Transport damage.

i) Fair wear and tear from adverse conditions (for example, corrosion).

j) Cosmetic defects.

2.7 If you require a call out and we find that the fault is not covered by the Rheem warranty, you are responsible for Rheem Service Centre call out costs. If you wish to have the relevant component repaired or replaced by Rheem that service will be at your cost.

2.8 Subject to any statutory provisions to the contrary, this warranty excludes any and all claims however arising including under contract or tort for damage to furniture, carpet, walls, foundations or any other consequential loss or incidental expenses either directly or indirectly due to leakage from Rheem unit, or due to leakage from fittings and/ or pipe work of metal, plastic or other materials caused by water temperature, workmanship or other modes of failure.

2.9 This warranty excludes to the extent permissible all implied warranties set out in the sale of goods act 1908 (New Zealand) and all guarantees set out in the consumers guarantees act 1933 (New Zealand) to the extent that the goods are acquired for the purpose of resupply in trade consumption in the course of a process of production or manufacture or repairing or treating in trade other goods or fixtures on land.

3. WHAT IS COVERED BY THE RHEEM WARRANTY FOR THE UNITS DETAILED IN THIS DOCUMENT

3.1 Rheem will repair or replace a faulty component of your unit if it fails to operate in accordance with its specifications as follows:

Warranty Cover	The period from date of installation, in which the fault must appear, in order to be covered		*Domestic use is defined as; when the appliance is installed in a single family domestic dwelling.
What components are covered	**Domestic use***	**Non-domestic use***	**What coverage you receive**
Mains Pressure**	**Years**		**(Excludes Optima)
All components	1	1	Repair or replacement of failed component, or if necessary, replacement of the complete water heater, free of charge, including labour.
Cylinder only	3	1	Repair or replacement of the complete water heater, free of charge, including labour.
Vitreous Enamel - Cylinder only	7	3	Repair or replacement of the complete water heater, free of charge. Installation and labour cost are the responsibility of the owner.
Stainless Steel - Cylinder only	10	3	
Optima	**Years**		
All components	3	1	Repair or replacement of failed component, or if necessary, replacement of the complete water heater, free of charge, including labour.
Cylinder only	5	1	Repair or replacement of the complete water heater, free of charge, including labour.
Cylinder only	10	5	Repair or replacement of the complete water heater, free of charge. Installation and labour cost are the responsibility of the owner.

4. ENTITLEMENT TO MAKE A CLAIM UNDER THIS WARRANTY

4.1 To be entitled to make a claim under this warranty you need to:

a) Be the owner of the unit or have consent of the owner to act on their behalf.

b) Contact Rheem New Zealand Limited Service Department without undue delay after detection of the defect and, in any event, within the applicable warranty period.

c) Return the faulty component or unit as directed by the Rheem New Zealand Limited Service Department.

4.2 You are **not** entitled to make a claim under this warranty if your unit:

a) Does not have its original serial numbers or rating labels.

b) Is not installed in New Zealand.

5. HOW TO MAKE A CLAIM UNDER THIS WARRANTY

5.1 If you wish to make a claim under this warranty, you need to:

a) Contact Rheem New Zealand on 0800 657 335 and provide owner's details, address of the unit, a contact number and date of installation of the unit or if that's unavailable, the date of manufacture and serial number (from the rating label on the unit).

b) A Rheem service centre will arrange for the unit to be tested and assessed on-site.

c) If Rheem determines that you have a valid warranty claim, Rheem will repair or replace the unit in accordance with this warranty.

5.2 Any expenses incurred in the making of a claim under this warranty will be borne by you.

RHEEM SERVICE DEPARTMENT
475 Rosebank Road, Avondale, Auckland

www.rheem.co.nz

FOR SERVICE TELEPHONE
Phone: 0800 657 335
Fax: 09 829 0222
or refer to your local Yellow Pages under "Plumbers"
for your nearest Rheem Service Centre

APPENDIX 09 – JH OBLIQUE VERTICAL WEATHERBOARD

WAIMAKARIRI DISTRICT COUNCIL
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3
BC221264 20/01/2023 Chrisk

Linea™ Oblique™ | JH™
WEATHERBOARD

Vertical Installation Technical Specification

CONSENT ISSUED BC221264 - Page 330 of 359

Contents

1 APPLICATION AND SCOPE 3
1.1 Application 3
1.2 Scope 3
1.3 Details 3
1.4 Specific design 3
2 DESIGN 3
2.1 Compliance 3
2.2 Responsibility 3
2.3 Site and foundation 3
2.4 Surface clearances 3
2.5 Moisture management 4
2.6 Structure 4
2.7 Fire rated walls 4
2.8 Structural bracing 4
2.9 Energy efficiency 4
3 FRAMING 5
3.1 General 5
3.2 Timber framing 5
3.3 Special framing requirements 5
3.4 Tolerances 5
4 PREPARATION 5
4.1 Flexible underlay/HomeRAB Pre-Cladding 5
4.2 RAB Board 5
4.3 Cavity closure/vent strip 6
4.4 Cavity battens 6
4.5 Intermediate support 6
4.6 Flashings 6
4.7 Junctions and penetrations 6
5 INSTALLATION 6
5.1 General 6
5.2 Fastener durability 6
5.3 Fastener – size and layout 7
6 JOINTS 7
6.1 Vertical joint 7
6.2 Horizontal joint 7
6.3 Drainage joint 7
6.4 External corner 7
6.5 Internal corner 7
7 FINISHES 8
7.1 Preparation 8
7.2 Painting 8
7.3 Flexible sealant 8
8 STORAGE AND HANDLING 8
9 MAINTENANCE 8
10 PRODUCT INFORMATION 9
10.1 Manufacturing and classification 9
10.2 Product mass 9
10.3 Durability 9
11 SAFE WORKING PRACTICES 10
12 PRODUCT AND ACCESSORIES 12
13 DETAILS 14
PRODUCT WARRANTY 39

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

1 Application and scope

1.1 APPLICATION

Linea™ Oblique™ Weatherboard installed as per this specification gives a vertical rusticated profile weatherboard appearance. Linea Oblique Weatherboard can be fixed to timber-framed external walls. A wide range of colours can be used, varying from light to dark. Linea Oblique Weatherboard is available in 200mm or 300mm wide x 4200mm or 2700mm lengths and is 16mm thick.

Specifiers

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.

Installers

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 of the details provided in this document must be read in conjunction with the project specification.

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.

1.2 SCOPE

This specification covers the installation of Linea Oblique Weatherboard fixed vertically over James Hardie horizontal cavity battens on buildings that fall within the scope limitation of NZS 3604 and E2/AS1 of the New Zealand Building Code (NZBC).

This specification also covers the installation of Linea Oblique Weatherboard on projects, which are subject to specific engineering design (SED) up to a wind pressure of 2.5kPa (ULS).

1.3 DETAILS

Various typical Linea Oblique Weatherboard vertical construction details are provided in the Details section of this document. These details are available in dwg, dxf, jpg and pdf file format and can be downloaded from our website at www.jameshardie.co.nz.

All dimensions shown are in millimetres unless noted otherwise.

1.4 SPECIFIC DESIGN

For use of Linea Oblique Weatherboard in a specific engineering design (SED) project that is outside the scope of this literature, the designer, architect or engineer must ensure that applicable clauses of the NZBC have been considered and a specific design has been undertaken.

Linea Oblique Weatherboard is suitable for use in SED project up to a wind pressure of 2.5kPa (ULS).

2 Design

2.1 COMPLIANCE

Linea Oblique Weatherboard has been isued a CodeMark certification number GM-CM30059 which confirms Linea Oblique Weatherboard is deemed to comply with the requirements of the NZBC. Please refer to our website www.jameshardie.co.nz for a copy of the CodeMark certificate. Linea Oblique Weatherboard has been appraised by BRANZ as an alternative solution and found to meet the required provisions of the NZBC when installed in accordance with this Linea Oblique Weatherboard Vertical Installation technical specification. BRANZ Appraisal number 897 (2015) at www.branz.co.nz or www.jameshardie.co.nz.

CODEMARK 30059

2.2 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. For applications outside the scope of this literature and details, which are not provided herein, the architect, designer or engineer must undertake specific design and it should be ensured that the intent of their design meets the requirements of the NZBC.

All New Zealand Standards referenced in this document are current editions and must be complied with.

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 aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

2.3 SITE AND FOUNDATION

The site on which the building is situated must comply with the NZBC Acceptable Solution E1/AS1 ‘Surface Water’. Foundation design must comply with the requirements of NZS 3604 ‘Timber-framed Buildings’ or be as per specific engineering design. The grade of adjacent finished ground must slope away from the building to avoid any possibility of water accumulation in accordance with the NZBC requirements.

2.4 SURFACE CLEARANCES

The clearance between the bottom edge of the cladding and paved/unpaved ground must comply with section 9.1.3 of E2/AS1. The finished floor level must also comply with these requirements. These clearances must be maintained throughout the life of the building.

Linea Oblique Weatherboard must overhang the bottom plate by a minimum of 50mm, as required by E2/AS1.

Linea Oblique Weatherboard must maintain a minimum clearance of 100mm from paved ground, and 175mm from unpaved ground.

On roofs and decks, the minimum clearance must be 50mm.

Do not install external cladding such that it may remain in contact with water or ground, refer to Figure 3.

2.5 MOISTURE MANAGEMENT

It is the responsibility of the specifier to identify moisture related risks associated with any particular building design.

Wall construction design must effectively manage moisture, considering both interior and exterior environments of the building, particularly in buildings that have a higher risk of wind driven rain penetration. The building should also be ventilated sufficiently to control moisture accumulation due to condensation, especially in artificially cooled/heated buildings.

Walls must include those provisions as required by the NZBC Acceptable Solution Clause E2/AS1. In addition, all wall openings, penetrations, junctions, connections, window sills, heads and jambs must incorporate appropriate flashings for waterproofing. The other materials, components and installation methods used to manage moisture in external walls, must comply with the requirements of relevant standards and the NZBC. For further guidance on designing for weathertightness, refer to BRANZ Ltd. and the Ministry of Business Innovation and Employment (MBIE) updates on the following websites respectively, www.branz.co.nz and www.building.govt.nz.

In addition, the following issues must also be considered:

- Sealant must be installed where detailed in this literature
- Where the walls are higher than two storeys, it is necessary to provide a horizontal flashing at the second floor level to drain the cavity
- The installation of smoke chimneys, pipe penetrations and other fixtures etc. must not track moisture into the wall or restrict the drainage of moisture to the exterior

2.6 STRUCTURE

2.6.1 Timber Framing

Timber-framed buildings must either be in accordance with NZS 3604 (Timber-framed Buildings) or designed as per specific engineering design. For a building requiring a specific engineering design, the framing stiffness must be equivalent to, or more than, the stiffness requirements of NZS 3604.

For specific design projects, the timber framing must be designed in accordance with the requirements of NZS 3603 and AS/NZS 1170.

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 generated by loadings etc.

2.6.2 Wind Pressures

Linea Oblique Weatherboard is suitable for use in wind zones up to and including EH as defined in NZS 3604.

Linea Oblique Weatherboard is also suitable for use in specific design projects up to wind pressures of 2.5kPa (ULS).

2.7 FIRE RATED WALLS

Linea Oblique Weatherboard when fixed over timber cavity battens to external walls can achieve fire ratings up to 60/60/60 to comply with Clause C/AS1 of the NZBC, when the walls are constructed in accordance with the current James Hardie ‘Fire and Acoustic’ Design Manual.

Linea Oblique Weatherboard is classified as a 'non-combustible' material suitable for use on walls close to a boundary.

2.8 STRUCTURAL BRACING

Linea Oblique Weatherboard installed as per this specification cannot be used to achieve structural bracing. However, bracing can be achieved by using a James Hardie rigid air barrier board installed direct to framing instead of a flexible underlay or by using the Villaboard™ Lining bracing system on the internal face of the wall. Refer to the James Hardie Bracing Design Manual for further information.

2.9 ENERGY EFFICIENCY

External walls constructed as per this technical specification using Linea Oblique Weatherboard and bulk insulation, where the area of glazing is 30% or less of the total wall area, complies with the insulation requirements for walls in the NZBC Acceptable Solution H1/AS1 (Energy Efficiency Clause H1), Table 1.

To meet thermal insulation requirements for the construction, the bulk insulation as specified in Table 1 must be used. This insulation may be substituted with insulations having higher R-values. The thermal insulation of a wall changes when the size or spacing of timber framing is increased or decreased. The calculation used in Table 1 is based on a timber framing size 90 x 45mm and using an internal lining material such as Villaboard Lining or a 10mm plasterboard.

Table 1

Insulation capability		
Climate zone	**R-value requirement**	**Minimum cavity insulation infill requirement**
1 and 2	1.9 m^2 °C/W	R2.0*
3	2.0 m^2 °C/W	R2.2*

Total construction R-value depends on the insulation material used and the framing ratio. The insulation material R-values specified in this table are for studs spaced at 600mm centres and nogs spaced at 600mm centres.

* To achieve higher R-values of construction the wall insulation material must be replaced with an insulation material having higher R-values to suit the requirements.

For further guidance on insulation requirements refer to the current edition of ‘House Insulation Guide’ published by BRANZ.

3 Framing

3.1 GENERAL

Linea Oblique Weatherboard can be fixed either to a timber-frame or steel-frame.

For fixing to a steel frame Ask James Hardie on 0800 808 868 for specific requirements.

For Linea Oblique Weatherboard Vertical Installation:

- Studs must be provided at 600mm centres maximum
- Nogs must be provided at 600mm centres maximum

Note: For fixing Linea Oblique Weatherboard, fastener spacing is provided in Section 5.

3.2 TIMBER FRAMING

3.2.1 Dimensions

A 90 x 45mm minimum framing size is required.

3.2.2 Structural Grade

Timber grade used must be in accordance with timber grades specified in NZS 3604.

3.2.3 Durability

The external framing timber must be treated to a minimum H1.2 treatment. Higher treatment levels may be used, but check for the compatibility of treatment chemicals with other materials. Refer to the NZBC Acceptable Solution B2/AS1 Durability for further information about the durability requirements.

For timber treatment and allowable moisture content information refer to NZS 3602 (Timber and Wood-Based Products for use in Buildings) and NZS 3640 (Chemical Preservation of Round Sawn Timber) for minimum timber treatment selection and treatment requirements.

Also refer to the framing manufacturer's literature for further guidance on timber selection. Framing must be protected from moisture at the site in accordance with the framing manufacturer's recommendations.

3.2.4 Frame Construction

Use of timber framing must be in accordance with NZS 3604 and the framing manufacturer's specifications. The framing must be rigid and must not rely on the cladding for stability. Timber framing sizes and its set-out must comply with NZS 3604 and as specified in this technical specification.

The following framing is required:

- Studs must be provided at 600mm centres maximum
- Nogs must be provided at 600mm centres maximum
- An extra stud is required in internal corners
- For specific design projects exposed to wind speeds higher than 55m/sec the stud size and spacing must be as per the design requirements but not exceeding 600mm maximum

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 an independent design producer statement.

3.3 SPECIAL FRAMING REQUIREMENTS

The following are special framing requirements for both timber and steel framing:

- Double studs are required at internal corners, refer to Figure 10
- Extra packers may be required at external corners

3.4 TOLERANCES

In order to achieve the required performance and an acceptable wall finish, it is imperative that framing is straight and true. Framing tolerances must comply with Table 2.1 of NZS 3604 and the manufacturer's specifications. All framing shall be made flush.

4 Preparation

4.1 FLEXIBLE UNDERLAY/HOMERAB PRE-CLADDING

Flexible underlay/HomeRAB™ Pre-Cladding must be provided as per the requirements of External Moisture Clause E2 of the NZBC. The flexible underlay selected for use must comply with Table 23 of E2/AS1.

The flexible underlay must be fixed in accordance with section 9.1.7 of 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 Table 23 of E2/AS1. For attached garages, flexible underlays must be selected in accordance with the NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. James Hardie HomeRAB Pre-Cladding complies with these requirements and is suitable for use in this situation. It must be installed in accordance with the James Hardie Rigid Air Barriers installation manual.

4.2 RAB BOARD

For EH wind zone or for specific engineering design (SED) projects where the wind pressure is higher than 1.5kPa, James Hardie RAB™ Board must be used.

To achieve temporary weathertightness using James Hardie RAB Board, windows/doors need to be temporarily installed. Refer to the James Hardie Rigid Air Barriers installation manual for further information regarding its installation.

4.3 CAVITY CLOSURE/VENT STRIP

The James Hardie uPVC cavity vent strip must be installed at the bottom of all walls and above all openings constructed using the drained and ventilated cavity construction method. It is important that the openings in the cavity closure/vent strip are kept clear and unobstructed to allow free drainage and ventilation of cavities. James Hardie cavity closure/vent strip has an opening area of 1000mm^2/m length.

4.4 CAVITY BATTENS

Linea Oblique Weatherboard must be installed on a cavity. The battens provide ventilation and drainage between the frame and the weatherboard and are considered a “packer” only in this specification.

The James Hardie horizontal cavity battens are H3.1 treated in accordance with NZS 3640 (Chemical preservation of rough and sawn timber) to comply with the durability requirements of B2/AS1.

James Hardie horizontal cavity battens meet the requirements of E2/AS1 and:

- Are minimum 20mm thick and 45mm wide
- Fixed horizontally to nogs
- Fixed vertically to studs at corners and openings
- Must be fixed by the cladding fixings to the main framing over the flexible underlay. Therefore until claddings are fixed the battens only need to be tacked to framing by 40 x 2.8mm or longer nails at 800mm centres
- Permit air circulation and water drainage

4.5 INTERMEDIATE SUPPORT

Where studs are at 600mm centres an intermediate means of restraining the flexible underlay and insulation from bulging into the cavity shall be installed. An acceptable method to achieve this is using one of the following options:

- 75mm galvanised mesh; or
- Polypropylene tape at 300mm centres fixed horizontally and drawn taut

No intermediate supports are required:

- When studs are spaced at 400mm centres; or
- When rigid air barriers are used

4.6 FLASHINGS

All wall openings, penetrations, intersections, connections, window sills, heads and jambs must be flashed prior to Linea Oblique Weatherboard installation. Refer to moisture management requirements in Clause 2.5. The flexible underlay/rigid air barrier must be appropriately incorporated with penetration and junction flashings using flashing tapes. Materials must be lapped in such a way that water tracks down to the exterior on the face of the flexible underlay or rigid air barrier board.

The selected flashing materials must comply with the durability requirements of the NZBC. For information refer to Table 20 of E2/AS1.

When using James Hardie rigid air barrier boards the entire framing around openings must be protected with a flashing tape. The tape must be finished over the face of the rigid air barrier. Ensure to check the compatibility of flashing tapes and sealants with their manufacturers. Refer to the James Hardie Rigid Air Barriers installation manual for further information.

4.7 JUNCTIONS AND PENETRATIONS

Refer to Clause 2.5 of this specification for moisture management requirements. All windows and doors must be detailed as per the requirements of this specification. For an example of window details for Linea Oblique Weatherboard which meet the performance requirements of E2 External Moisture, an approved document of the NZBC, refer to Figures 11 to 13.

5 Installation

5.1 GENERAL

Linea Oblique Weatherboard must be installed vertically using the cavity construction method as per the details and information published in this manual.

The two widths of Linea Oblique Weatherboard can be mixed to create the desired look.

Linea Oblique Weatherboard must be kept under cover whilst in storage or at sites and they must be dry at the time of their installation. All site-cut board edges must be sealed with Dulux Acraprime 501/1, Dulux 1 Step, Resene Quick Dry or a similar sealer compatible with the finish coat before installation.

Linea Oblique Weatherboard must be fully supported and fixed through James Hardie horizontal cavity battens. Ensure that cladding is hard against the battens to avoid drumminess.

This technical specification only covers the vertical installation of Linea Oblique Weatherboard. Refer to the Linea Oblique Weatherboard horizontal installation technical specification for horizontal installation.

5.2 FASTENER DURABILITY

Fasteners must meet the minimum durability requirements of the NZBC. NZS 3604 specifies the requirements for fixing materials to be used in relation to exposure conditions and are summarised in Table 2.

Fasteners must be fully compatible with the other materials that they are to be in contact with, to ensure the durability of the complete assembly.

Table 2

Exposure conditions and nail selection prescribed by NZS 3604		
NAIL MATERIAL		
Zone D	Zone C* outside sea spray zone, Zone B and geothermal hot spots	Bracing - all zones
Grade 316 Stainless	Hot-dipped galvanised or Grade 316 Stainless	Grade 316 Stainless

*Zone C areas where local knowledge dictates that increased durability is required, appropriate selection shall be made. Microclimate conditions as detailed in NZS 3604, Paragraph 4.2.4 require SED.

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.

5.3 FASTENER – SIZE AND LAYOUT

Linea Oblique Weatherboard must be fixed vertically to framing using fixings as specified in Table 3 below and follow the edge distance required for nails as shown in the details.

Table 3

Weatherboard fixing up to and including VH wind zone		
CAVITY CONSTRUCTION OVER FLEXIBLE UNDERLAY		
Linea Oblique Weatherboard 200	65x2.87mm D head nail or 65x2.87mm RounDrive ring shank nail or 60x3.15mm HardieFlex nail	Fix one nail 100mm from bottom edge of board per nog/plate, refer to Figure 6
Linea Oblique Weatherboard 300	65x2.87mm D head nail or 65x2.87mm RounDrive ring shank nails or 60x3.15mm HardieFlex nail	Fix one nail 150mm from bottom edge of board per nog/plate, refer to Figure 7

Weatherboard fixing up to and including VH wind zone		
CAVITY CONSTRUCTION OVER HOMERAB PRE-CLADDING/RAB BOARD		
Linea Oblique Weatherboard 200	75x3.06mm D head nail or 75x3.15mm RounDrive ring shank nail or 75x3.15mm HardieFlex nail	Fix one nail 100mm from bottom edge of board per nog/plate, refer to Figure 6
Linea Oblique Weatherboard 300	75x3.06mm D head nail or 75x3.15mm RounDrive ring shank nail or 75x3.15mm HardieFlex nail	Fix one nail 150mm from bottom edge of board per nog/plate, refer to Figure 7

Weatherboard fixing EH wind zone and SED projects		
CAVITY CONSTRUCTION OVER RAB BOARD		
Linea Oblique Weatherboard 200	75x3.06mm D head nail or 75x3.15mm RounDrive ring shank nail or 75x3.15mm HardieFlex nail	Fix one nail 100mm from bottom edge of board per nog/plate Refer to Figure 8
Linea Oblique Weatherboard 300	75x3.06mm D head nail or 75x3.15mm RounDrive ring shank nail or 75x3.15mm HardieFlex nail	Fix one nail at 150mm from bottom edge of board per nog/plate. Refer to Figure 9

For other fixing options Ask James Hardie on 0800 808 868.

- When fixing the weatherboards using nail guns, refer to the nail gun manufacturer for information about nails and the type of nail gun to be used
- D head nails - finish nails 2mm below weatherboard surface
- RounDrive nails - finish nails flush with weatherboard surface
- HardieFlex nails - finish nails flush with weatherboard surface

6 Joints

6.1 VERTICAL JOINT

Linea Oblique Weatherboard vertical joint shall be formed using the ship lap edge of the Linea Oblique Weatherboard. Ensure that the Linea Oblique Weatherboards are securely interlocked before nailing, refer to Figures 6 to 9.

6.2 HORIZONTAL JOINT

Linea Oblique Weatherboard can run continuously over floor joists without a flashed horizontal joint when LVL timber floor joists or engineered joist are used, refer to Figure 17.

When using a solid timber joist, a horizontal joint or a movement joint must be formed at floor joist, refer to Figure 19.

6.3 DRAINAGE JOINT

After every two floors a horizontal drainage joint flashing is required as per E2/AS1, refer to Figure 22.

6.4 EXTERNAL CORNER

An external box corner flashing is used to fix the external corners, refer to Figure 11. Alternatively an Axent™ Trim external boxed corner can also be formed, refer to Figure 12.

6.5 INTERNAL CORNER

An internal corner flashing is to be used to form an internal corner joint, refer to Figure 10.

An extra stud is required in internal corners.

Note: All joint mouldings to be fixed at 400mm centres both sides.

7 Finishes

7.1 PREPARATION

The D head nail must be finished 2mm below the weatherboard surface. The nail holes must be filled with an exterior grade two part builders fill, ie. CRC ADOS Builders Fill or similar two part external grade filler. The RounDrive nail heads must finish flush with weatherboard surface.

7.2 PAINTING

Linea Oblique Weatherboard is pre-primed and is suitable for site applied acrylic paints.

In order to seal cut edges or sanded patches, Dulux 1 Step, Acraprime 501/1, Resene Quick Dry, Taubmans Underproof Acrylic Primer Undercoat or a similar product should be applied. The primer should be compatible with the paint to be used.

Painting of Linea Oblique Weatherboard is mandatory to meet the durability requirements of the NZBC and the 25 year James Hardie product warranty. Linea Oblique Weatherboard must be dry and free of any dust or grime before painting. The weatherboards must be painted within 90 days of their installation. There is no restriction on the LRV of paint to be applied on the Linea Oblique Weatherboard.

James Hardie recommends a minimum of two coats of exterior grade acrylic paint. Follow the paint manufacturer's recommendations to prepare the surface and to adequately cover and conceal the weatherboard fixings.

7.3 FLEXIBLE SEALANT

Sealant used must comply with the relevant requirements of the NZBC. Their application and usage must be in accordance with the manufacturer's instructions. Check with the sealant manufacturer prior to coating over sealant. Some sealant manufacturers do not recommend coating over their product.

8 Storage and handling

When storing Linea Oblique Weatherboard, they must be laid flat on a smooth level surface. Edges and corners must be protected from chipping.

To ensure optimum performance, store weatherboards under cover and keep dry prior to fixing. If the weatherboards become wet, allow them to dry thoroughly before fixing.

Do not carry weatherboards on the flat, carry on edge to avoid excessive bending.

9 Maintenance

It is the responsibility of the specifier to determine normal maintenance requirements to maintain the effectiveness of the cladding. The extent and nature of maintenance required will depend on the geographical location and exposure of the building.

As a guide, it is recommended that the basic normal maintenance tasks shall include, but not be limited to:

- Washing down exterior surfaces every 6-12 months*
- Re-coating exterior protective finishes**
- Regular inspection and repair if necessary of the cladding joints, sealants, nail head fillers
- Cleaning out gutters, down pipes and overflow pipes as required
- Pruning back vegetation which is close to or touching the building as well as ensuring the NZBC ground clearance requirements are maintained, especially where gardens are concerned
- The clearance between the bottom edge of the Linea Oblique Weatherboard and the finished/unfinished ground must always be maintained

**Do not use a water blaster to wash down the cladding. In extreme coastal conditions or sea spray zones, wash every 3-4 months.*

***Refer to your paint manufacturer for washing down and recoating requirements related to paint performance.*

10 Product information

10.1 MANUFACTURING AND CLASSIFICATION

Linea Oblique Weatherboard is an advanced lightweight cement composite cladding, manufactured using James Hardie formulation. Basic composition is Portland cement, ground sand, cellulose fibre and water. The product is easily identified by the name 'Linea Oblique'.

Linea Oblique Weatherboard is manufactured to Australian/New Zealand Standard AS/NZS 2908.2 ‘Cellulose-Cement Products’ (ISO 8336 ‘Fibre-Cement Flat Sheet’).

Linea Oblique 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 or Ask James Hardie on 0800 808 868.

10.2 PRODUCT MASS

Linea Oblique Weatherboard is manufactured in 16mm thickness and has a mass of 20.57kg/m^2 for 200mm and 19.67kg/m^2 for 300mm.

Linea Oblique Weatherboard is defined as a Light Weight Wall Cladding (not exceeding 30kg/m^2) as per NZS 3604.

10.3 DURABILITY

Linea Oblique Weatherboard and James Hardie rigid air barrier installed and maintained as per this technical specification will meet the durability requirement for cladding as per the NZBC clause B2 Durability.

10.3.1 Resistance to Moisture/Rotting

Linea Oblique Weatherboard is resistant to permanent moisture induced deterioration (rotting) and meets the requirements of the following tests in accordance with the 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)

10.3.2 Control of External Fire Spread

Linea Oblique Weatherboard meets the requirements of Appendix C C7.1.1 and is classified as ‘Non-Combustible Material’ which is suitable for use as external wall cladding and complies with the requirements of Paragraph 5.4 of the NZBC Acceptable Solution C/AS1 and Paragraph 5.8.1 of Acceptable Solutions C/AS2 to C/AS6 of the NZBC.

10.3.3 Alpine Regions

In regions subject to freeze/thaw conditions, Linea Oblique Weatherboard and James Hardie rigid air barrier must not be in direct contact with snow or ice build up for extended periods, e.g. external walls in alpine regions must be protected where snowdrifts over winter are expected.

These products meet the requirements of the AS/NZS 2908.2 Clause 8.2.3.

11 Safe working practices

11.1 STAY HEALTHY WHEN WORKING WITH BUILDING PRODUCTS CONTAINING CRYSTALLINE 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.

11.2 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.

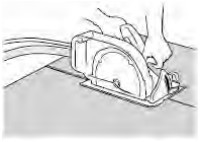
Working outdoors
- Make sure you work in a well ventilated area
- Position cutting station so wind will blow dust away from yourself and others in the working area
- Cut products with either a HardieKnife™ or fibre cement shears or, when not feasible, use a HardieBlade™ Saw Blade (or equivalent) and 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.

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

11.3 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.

11.4 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

12 Product and accessories

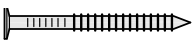
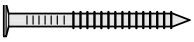
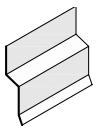
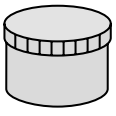
Linea Oblique Weatherboard information					
Product	**Description**	**Size (mm)**			**Code**
		Thickness	**Length**	**Width**	
	Linea Oblique Weatherboard A 16mm profiled weatherboard for residential cladding. Factory sealed on all six sides. Each weatherboard has a manila white colour primer applied on its face, which accepts a wide range of paint finishes.	16	2700 4200	200 300 200 300	**404855** **404856** **404849** **404848**

Note: All dimensions and masses provided are approximate only and are subject to manufacturing tolerances.

Accessories/tools supplied by James Hardie			
Accessories	**Description**	**Size**	**Code**
	James Hardie Horizontal Cavity Batten 20mm H3.1 Timber treated batten the cladding is fixed over	2700mm long	**305862**
	Oblique Trimline Joint Flashing Aluminium extrusion used behind cladding at horizontal joints.	3000mm long	**305826**
	JH Weatherboard Internal 'W' Corner Anodised aluminium extrusion used to create internal corners.	2700mm long	**300386**
	Linea Oblique Weatherboard External Box Corner Anodised aluminium extrusion used to create external corners.	2700mm long 4000mm long	**305825** **305873**
	uPVC Vent Strip PVC moulding used as vermin proofing.	3000mm long	**302490**
	Trimline Horizontal Jointer A jointer to cover the butt joint of Oblique Trimline Joint Flashing	100mm long	**305871**
	Trimline External Corner Jointer Joins Trimline Joint Flashing at an external corner		**305870**
	Trimline Internal Corner Jointer Joins Trimline Joint Flashing at an internal corner		**305872**
	Linea Oblique Plug To fill recess in Linea Oblique Weatherboard		**305930**
Tools			
	HardieBlade™ Saw Blade Diamond tip fibre cement circular saw blade. Spacers not included.	184mm 254mm	**300660** **303375**

Accessories/tools not supplied by James Hardie

James Hardie recommends the following products for use in conjunction with Linea Oblique Weatherboard and James Hardie rigid air barrier. James Hardie does not supply these products and does not provide a warranty for their use. Please contact component manufacturer for information on their warranties and further information on their products.

Product	Description
	Flexible underlay Must comply with Table 23 of E2/AS1.
	Flexible window opening flashing tape A flexible self-adhesive tape used in preparation of a window. Refer to the window installation section in this manual for more information. e.g. Protecto or SUPER-STICK Building Tape® by Marshall Innovations or 3M™ All Weather Flashing Tape 8067 by 3M™ Marshall Innovations: 0800 776 9727 3M™: 0800 474 787
	Rigid air barrier vertical joint sealing tape The tape to be used to seal James Hardie rigid air barrier vertical joints. SUPER-STICK Building Tape® by Marshall Innovations or 3M™ All Weather Flashing Tape 8067 by 3M™ Marshall Innovations: 0800 776 9727 3M™: 0800 474 787
	Flexible Sealant Bostik Seal N Flex-1, Sikaflex AT Facade, Sikaflex MS or similar.
	**65 x 2.87mm 'D' head nail or 65 x 2.87 RounDrive nail** (ring shank hot dipped galvanised/stainless steel) For fixing Linea Oblique Weatherboard.
	**75 x 3.06mm 'D' head nail or 75 x 3.15 RounDrive nail** (hot dipped galvanised or ring shank stainless steel) For fixing Linea Oblique Weatherboard.
	40 x 2.8mm or longer HardieFlex™ nail. For fixing timber cavity battens and aluminium flashings.
	Meter box Refer electrical suppliers.
	**Head flashing** Required over window heads to be supplied by window installer. Material must comply with Table 20 and 21 of E2/AS1.
	**Exterior grade filler** CRC ADOS Builders Fill or similar two part filler to fill over nail holes

13 Details

The following generic details have been provided in this document for cavity construction methods.

Table 5

Details		
Description	**Cavity Construction**	
	Figure No.	**Page No.**
Framing set out	Figure 1	15
Cladding and James Hardie horizontal batten setout	Figure 2	16
Ground clearance	Figure 3	17
Soffit detail	Figure 4	17
No soffit detail	Figure 5	18
Vertical joint 200mm weatherboard width up to VH wind zone	Figure 6	18
Vertical joint 300mm weatherboard width up to VH wind zone	Figure 7	19
Vertical joint 200mm weatherboard width EH wind zone and SED	Figure 8	19
Vertical joint 300mm weatherboard width EH wind zone and SED	Figure 9	20
Internal corner	Figure 10	20
External aluminium box corner	Figure 11	21
External box corner	Figure 12	21
Window sill	Figure 13	22
Window head	Figure 14	22
Window jamb	Figure 15	23
Window jamb flashing	Figure 16	23
Over joist at floor level	Figure 17	24
Butt jointing of Vertical Linea Oblique Weatherboard	Figure 18	25
Trimline flashing joint at floor level	Figure 19	25
Trimline flashing joint external corner	Figure 20	26
Trimline joint	Figure 21	27
Drained flashing joint at floor level	Figure 22	28
Drained flashing joint at floor joist	Figure 23	29
Apron flashing detail	Figure 24	30
Parapet flashing	Figure 25	30
Roof to wall junction detail	Figure 26	31
Meter box at sill	Figure 27	31
Meter box at jamb	Figure 28	32
Meter box at head	Figure 29	32
Enclosed deck	Figure 30	33
Pipe penetration	Figure 31	34
Cladding installed	Figure 32	35
Garage head	Figure 33	36
Garage jamb	Figure 34	36

Figure 1: Framing set out

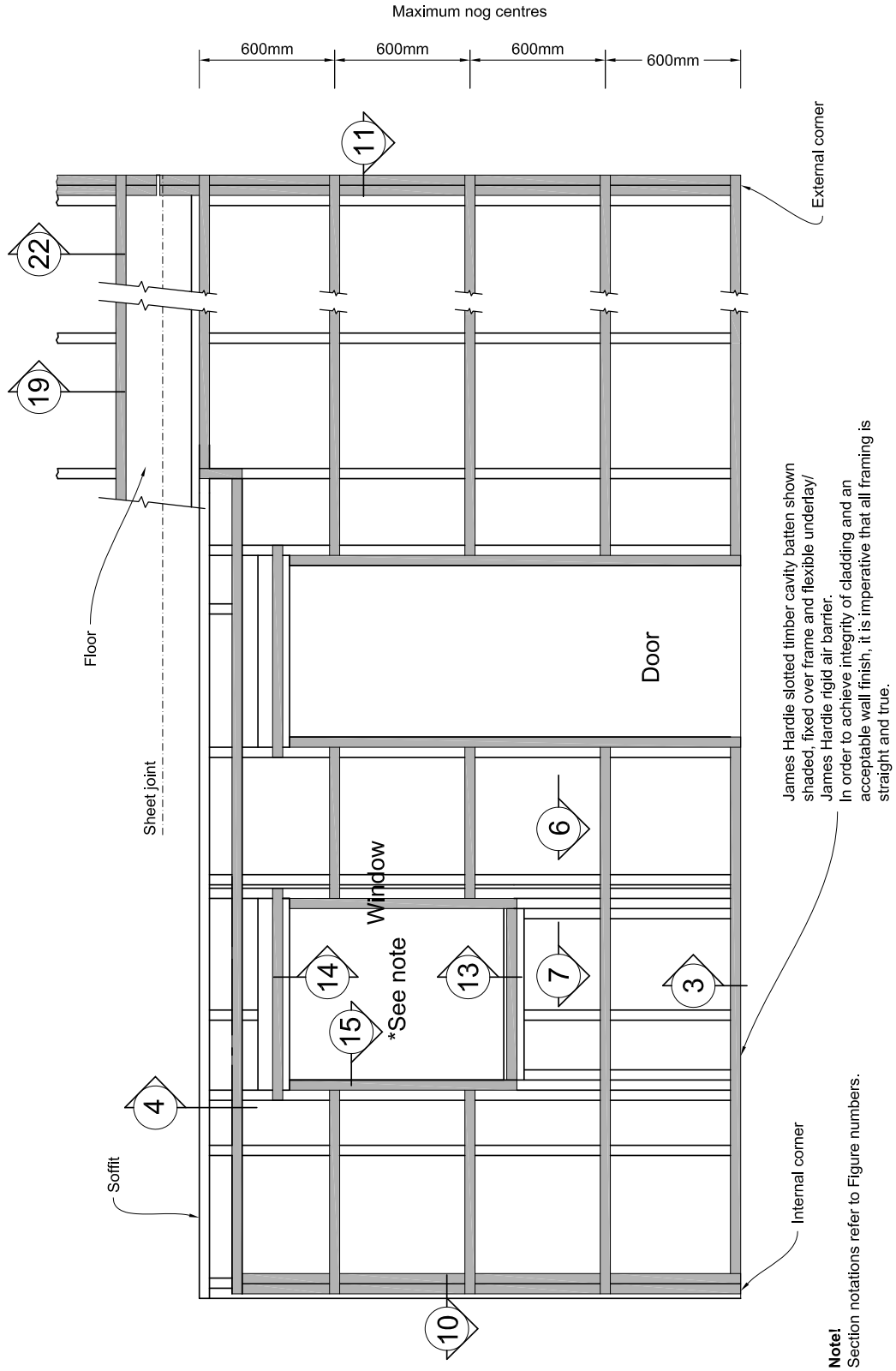
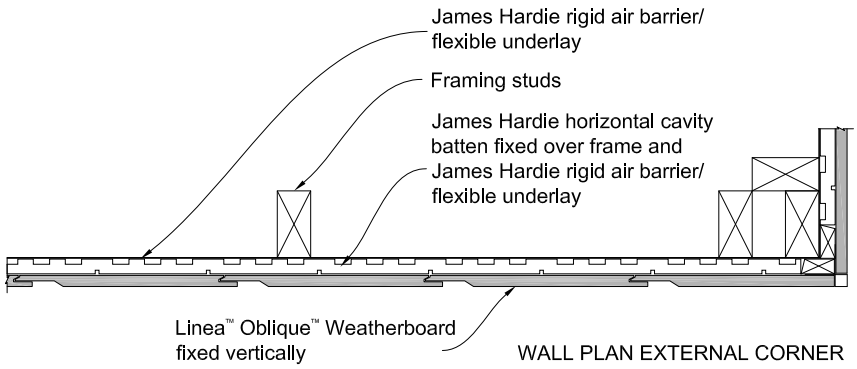
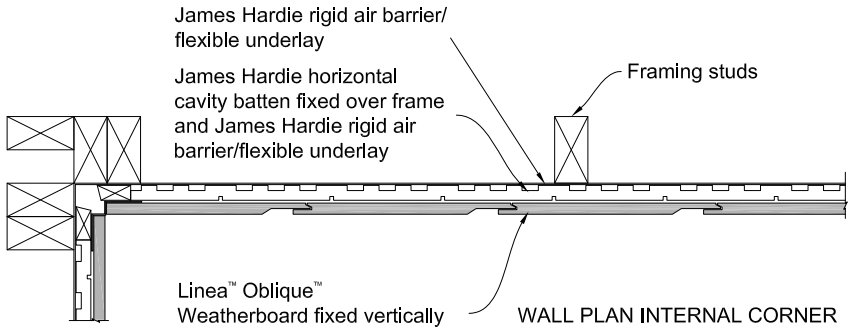


Figure 2: Cladding and James Hardie horizontal batten setout





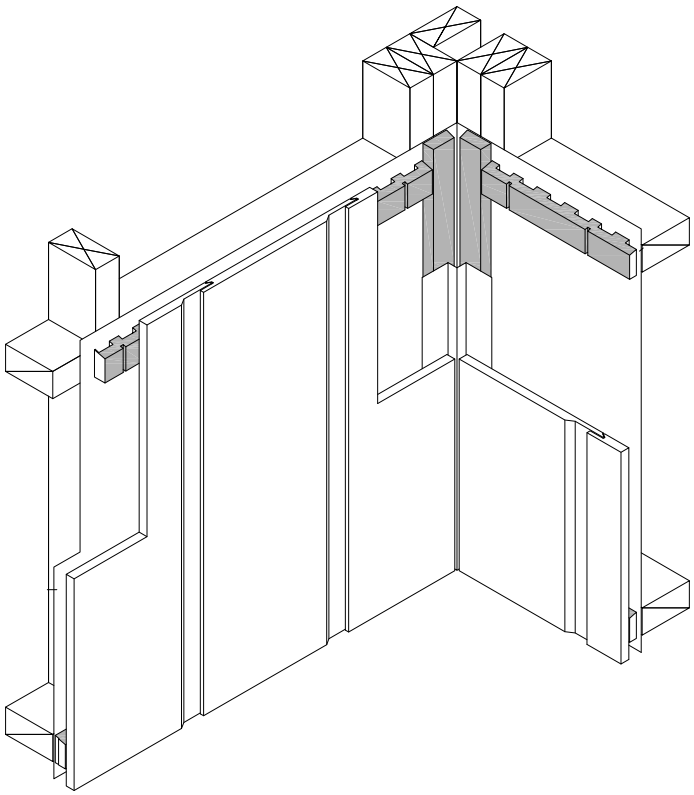


Figure 3: Ground clearance

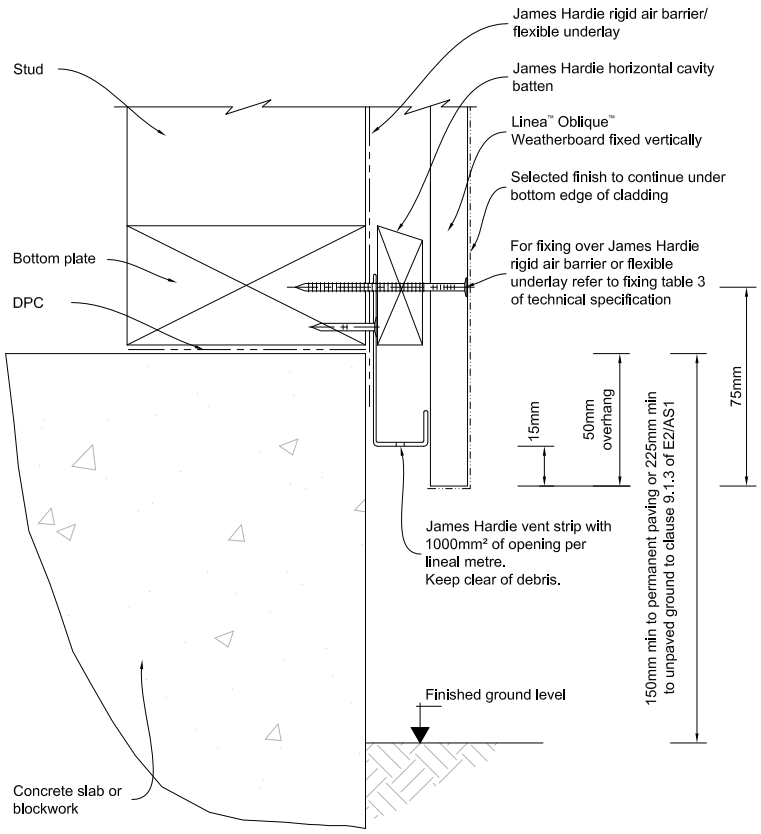


Figure 4: Soffit detail

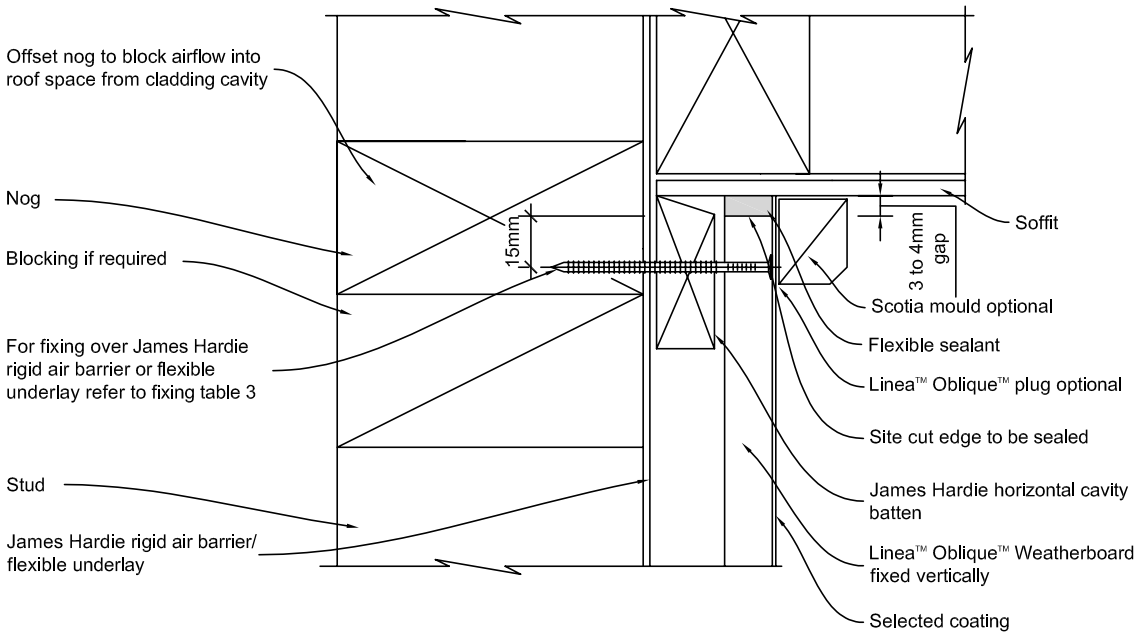


Figure 5: No soffit detail

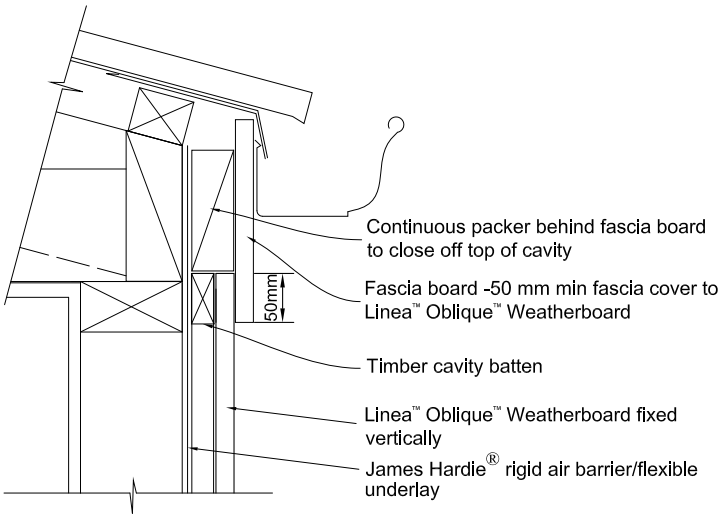


Figure 6: Vertical joint 200mm weatherboard width up to VH wind zone

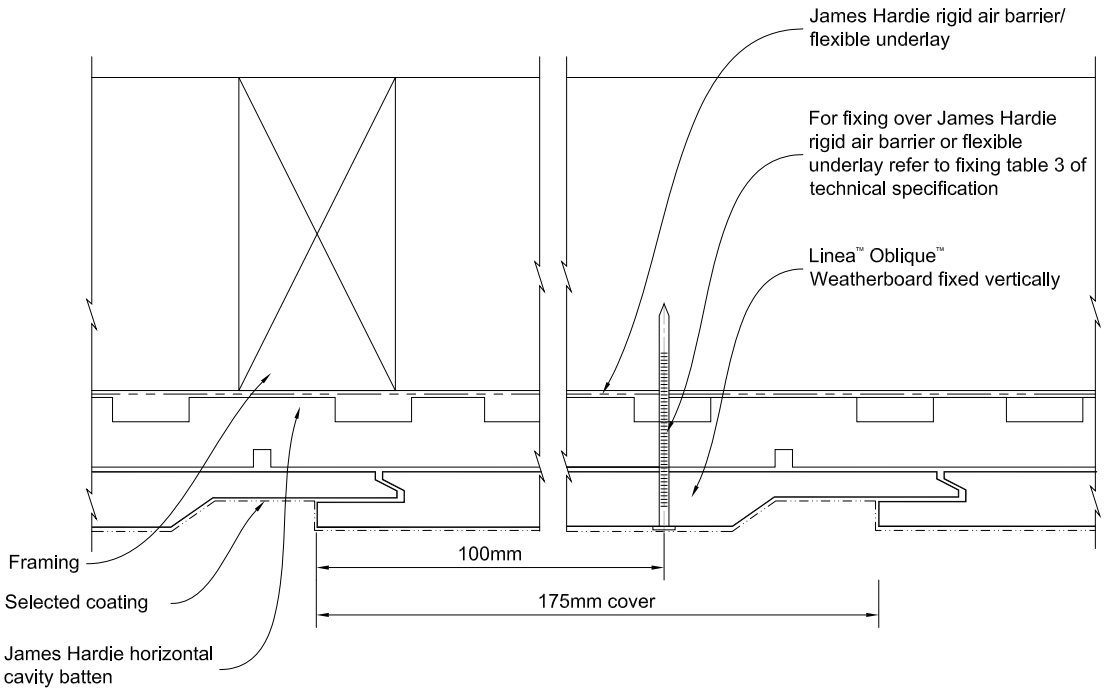
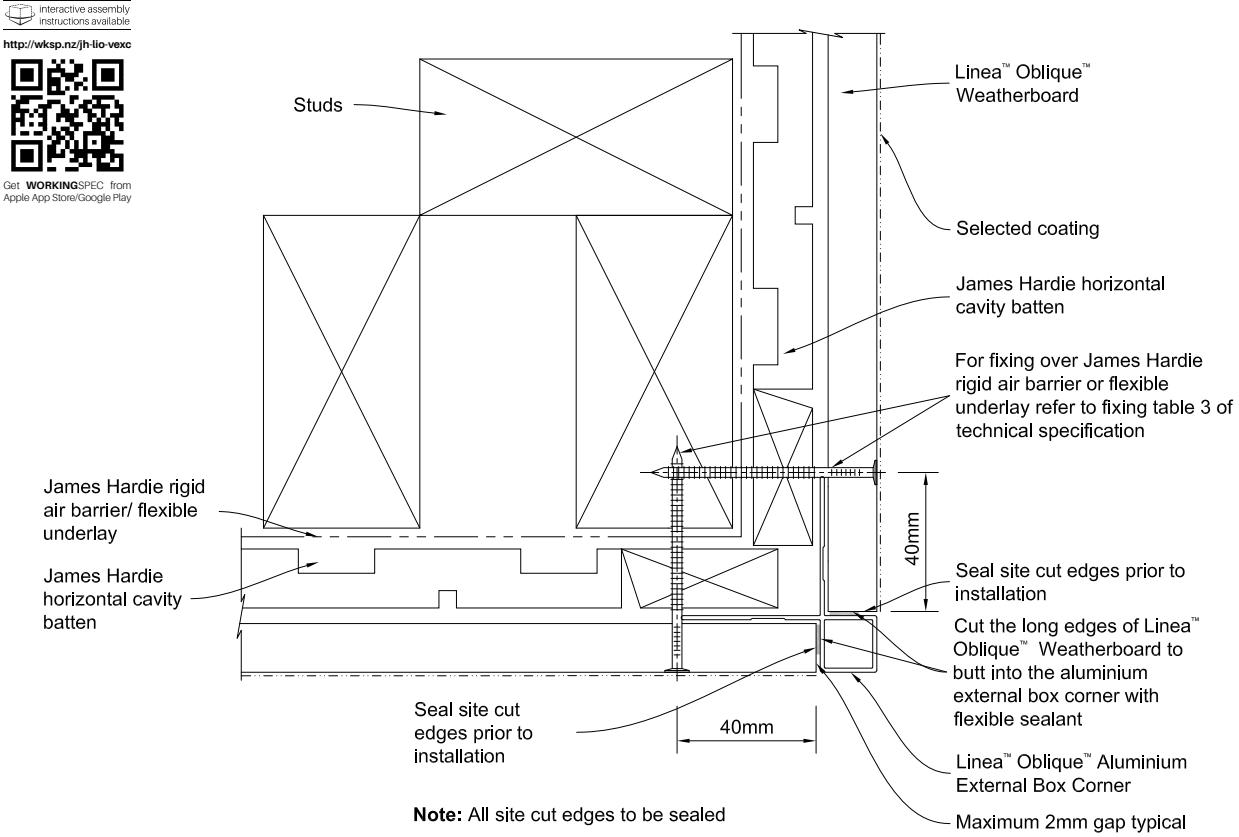


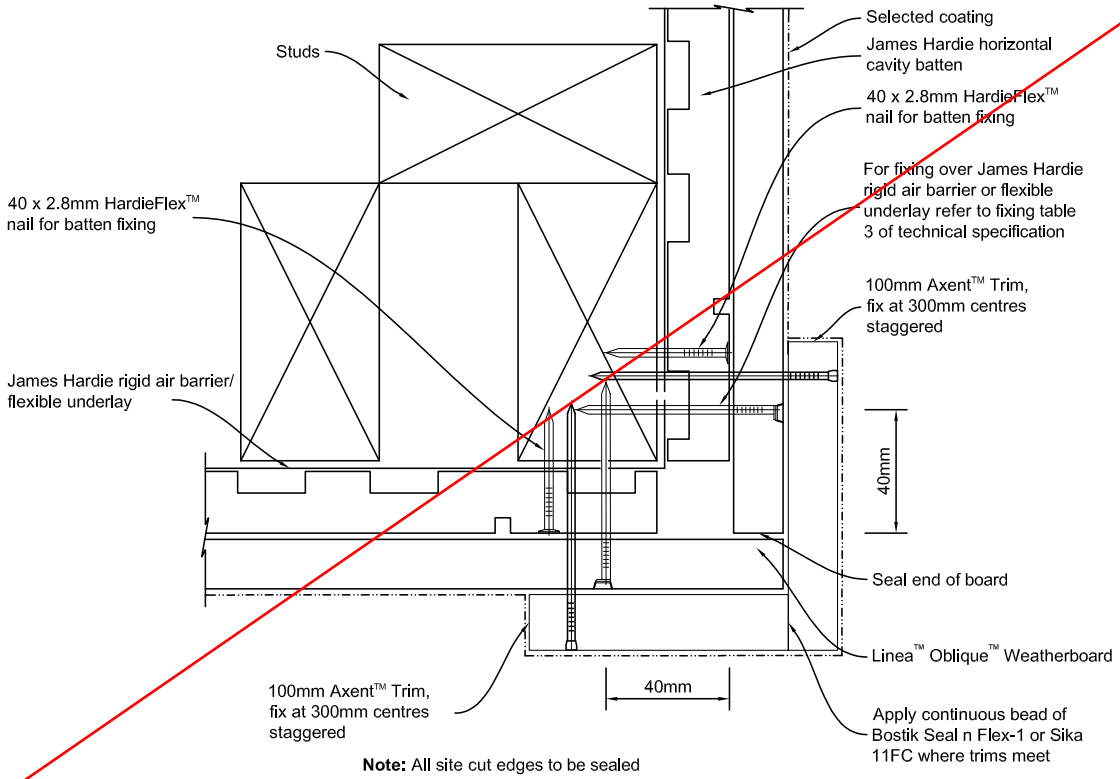
Figure 11: External aluminium box corner

interactive assembly instructions available
http://wksp.nz/jh-lio-vexc
Get WORKINGSPEC from Apple App Store/Google Play



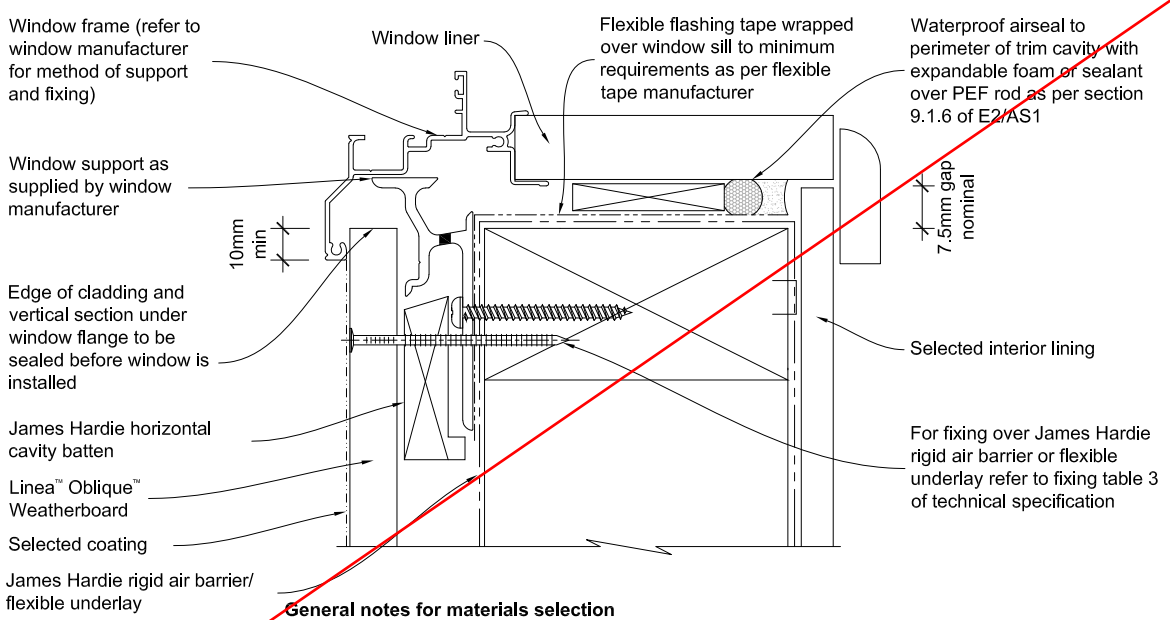
Note: All site cut edges to be sealed

Figure 12: External box corner



Note: All site cut edges to be sealed

Figure 13: Window sill



interactive assembly instructions available

http://wksp.nz/jh-lio-vwin

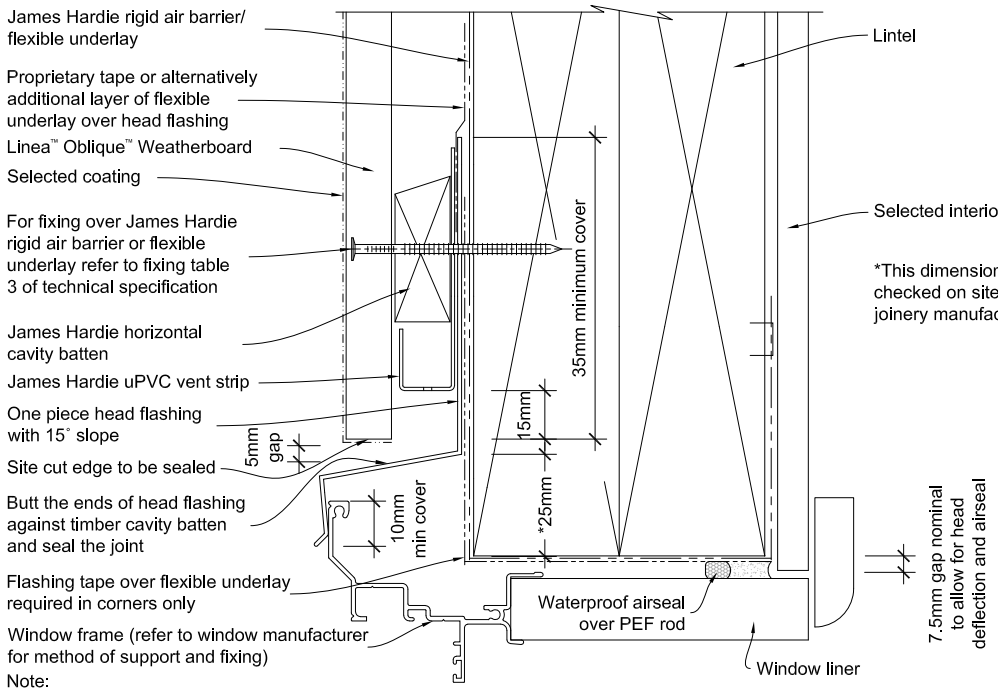
Get **WORKING**SPEC from Apple App Store/Google Play

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
4. When James Hardie rigid air barriers are used flashing tape to be applied to the entire opening

Refer to the manufacturer or supplier for technical information for these materials.

Figure 14: Window head



Note:

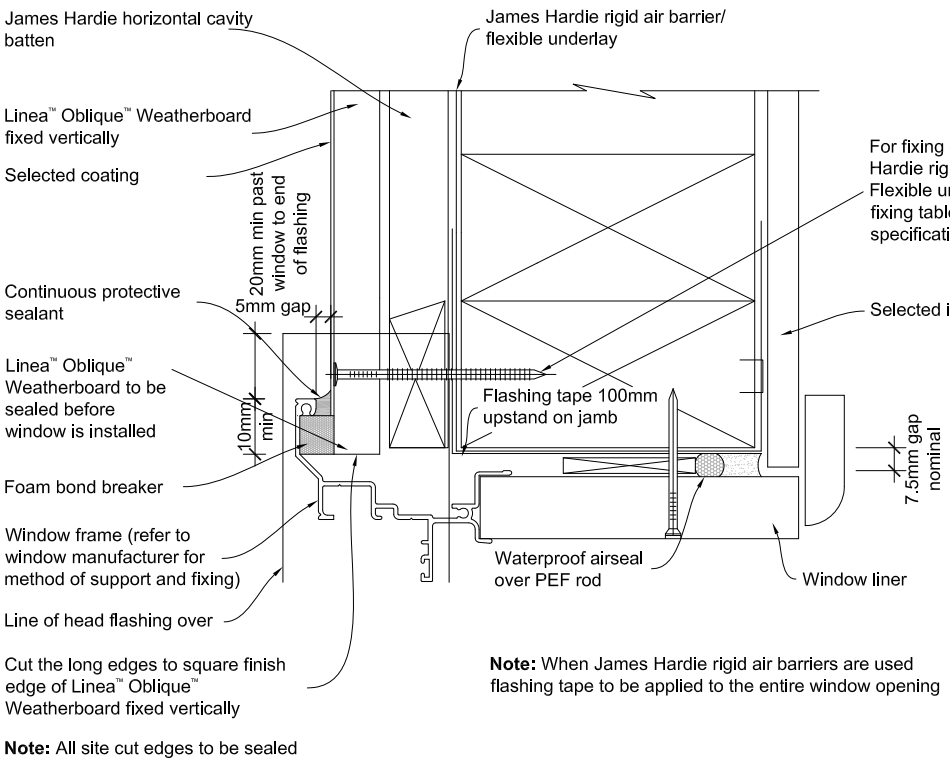
- When James Hardie rigid air barriers are used flashing tape to be applied to the entire window opening
- Sealant must be installed between head flashing and window flange in VH and EH wind zones and SED projects
- Alternatively, the head flashings can be formed with stop ends as per E2/AS1

interactive assembly instructions available

http://wksp.nz/jh-lio-vwin

Get **WORKING**SPEC from Apple App Store/Google Play

Figure 15: Window jamb



interactive assembly instructions available

http://wksp.nz/jh-lio-vwin

Get **WORKING**SPEC from Apple App Store/Google Play

Figure 16: Window jamb flashing

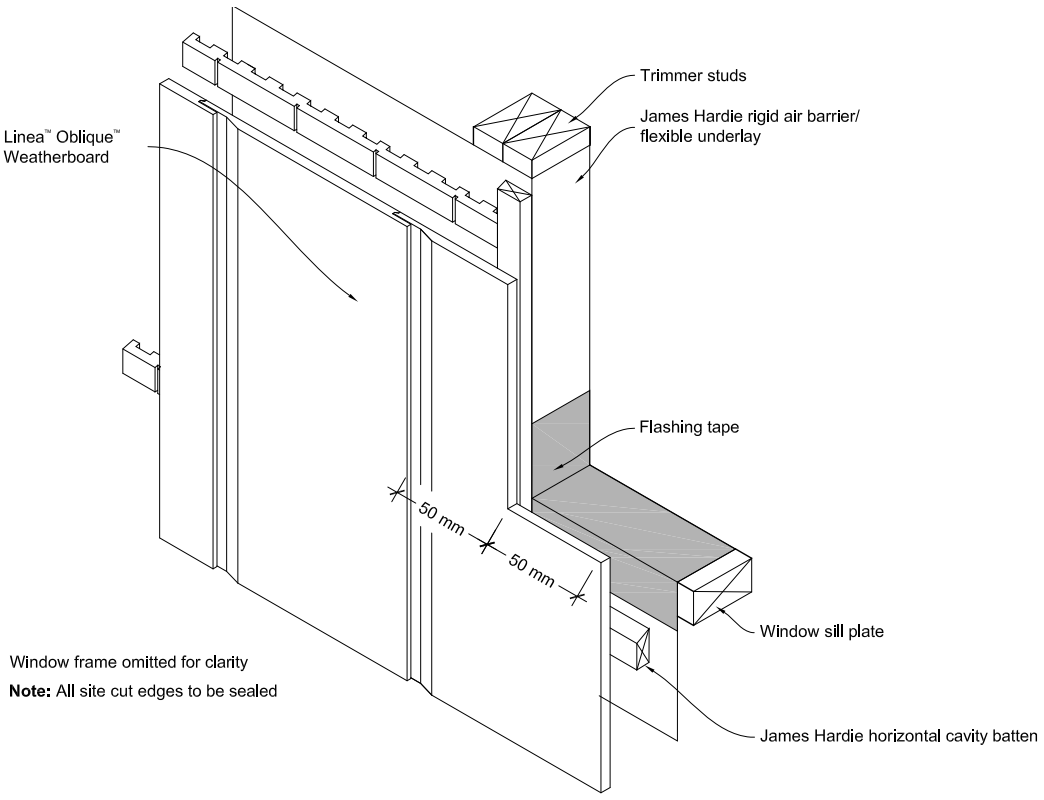


Figure 18: Butt jointing of Vertical Linea Oblique Weatherboard

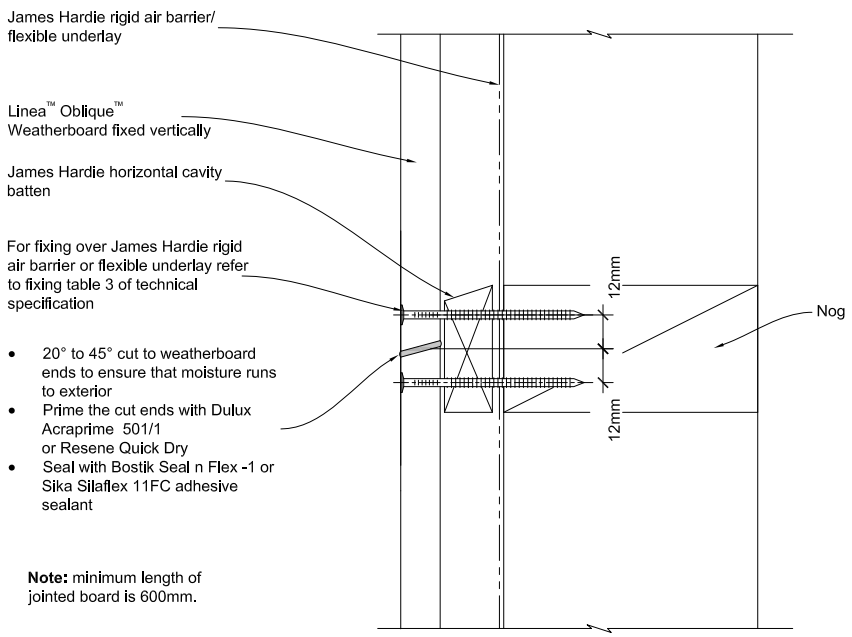
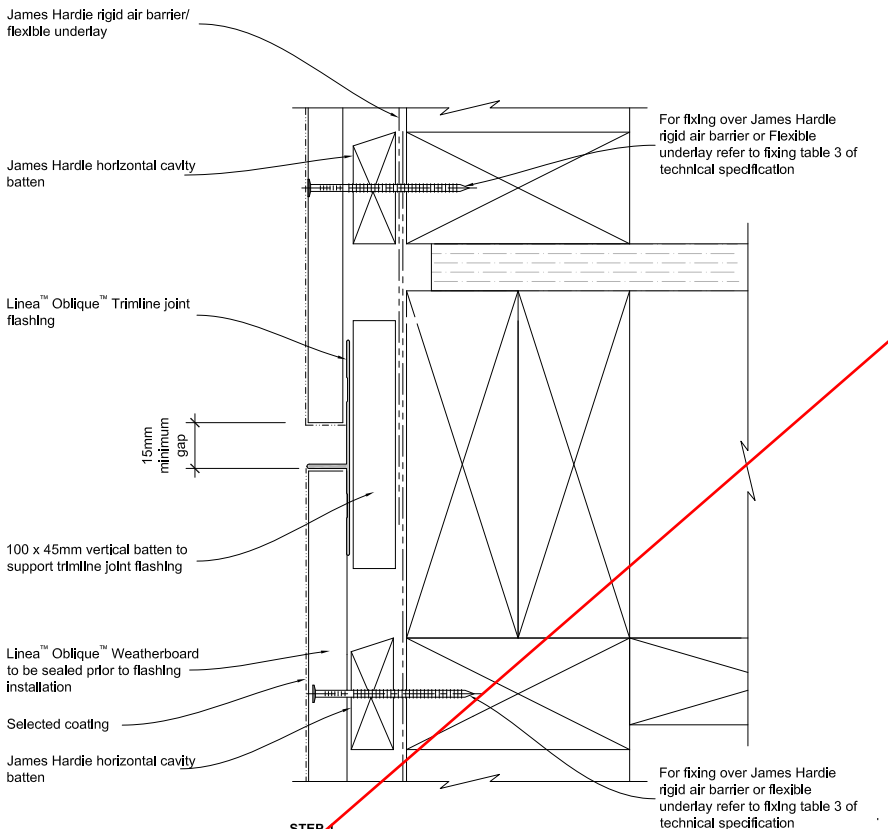


Figure 19: Trimline flashing joint at floor level



Interactive assembly instructions available
http://wksp.nz/jh-lio-vtrjfl
Get WORKINGSPEC from Apple App Store/Google Play

STEP 1

STEP 1
- Ensure flat James Hardie rigid air barrier / Flexible underlay is in place.

STEP 2
- James Hardie horizontal cavity batten to be installed over the studs and nogs. - Nylon strapping intermediate support to hold insulation in place between studs.

STEP 3
- Install the lower weatherboards with aluminium trimline flashing.
- Install the upper weatherboard keeping a 15mm gap.

Notes:
- The aluminium trimline flashing is installed prior to weatherboard. Apply two 6mm thick lines of adhesive sealant on the bottom portion of aluminium trimline flashing to seal. Take care to ensure continuous seal is formed between weatherboard and aluminium trimline flashing.
- The sealant must continue between flashing flange and weatherboard edge.
- Install purpose-made jointer 50mm over each end of trimline flashing and seal with flexible sealant to prevent water ingress.

Figure 31: Pipe penetration

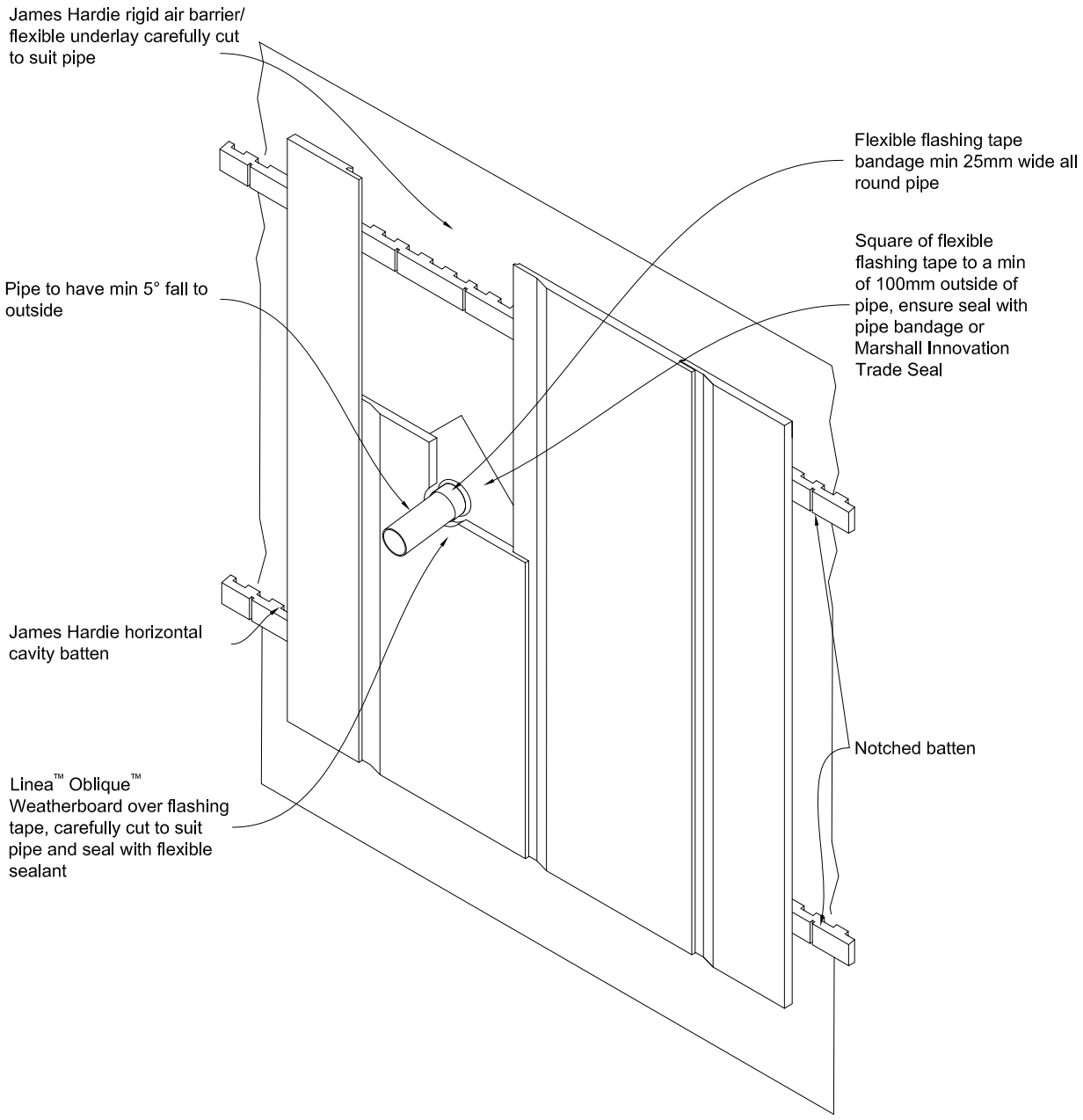
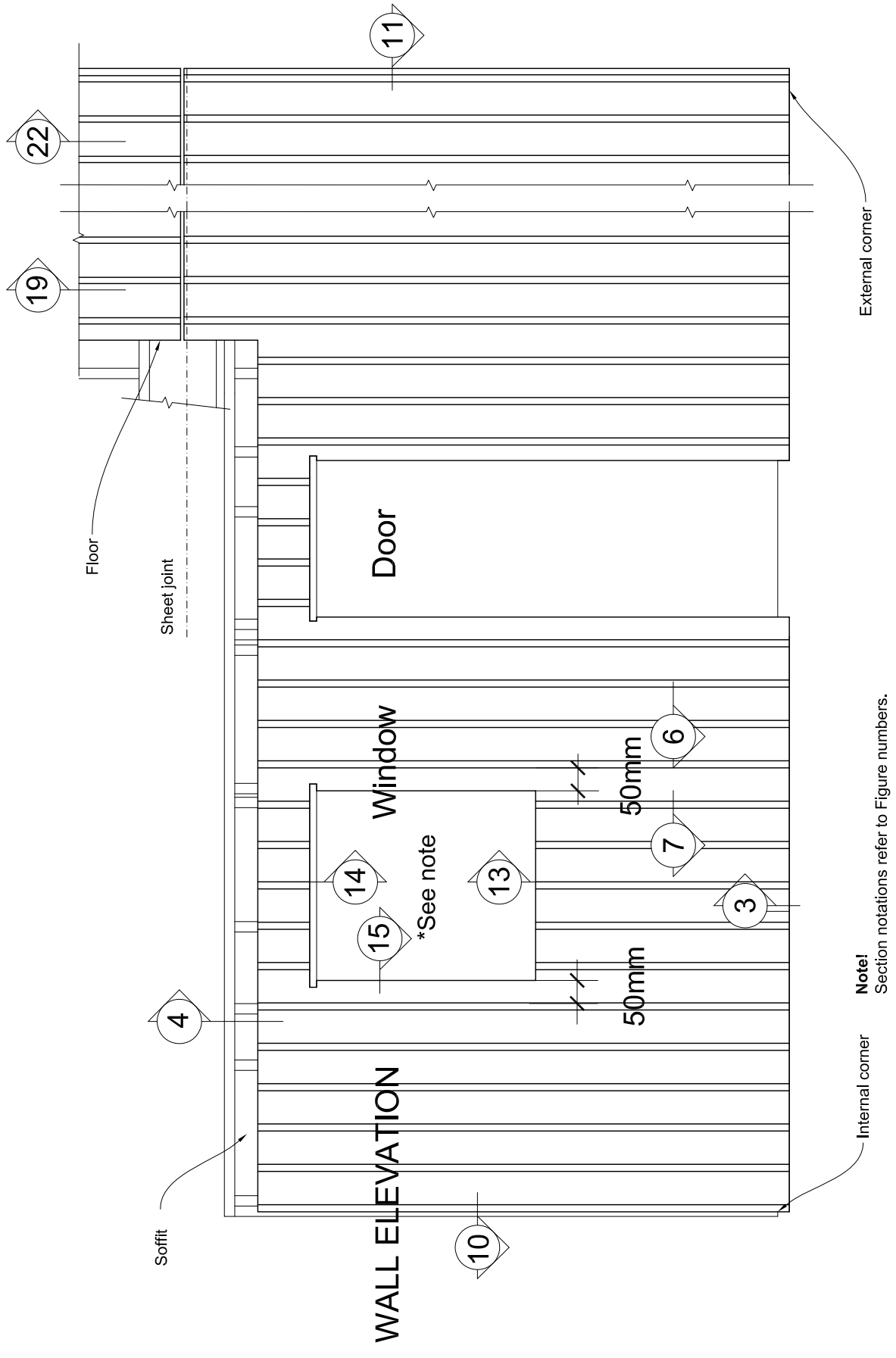


Figure 32: Cladding installed



Product Warranty

Linea™ Oblique™ WEATHERBOARD

James Hardie New Zealand Limited ("James Hardie") warrants for a period of 25 years from the date of purchase that the Linea™ Oblique™ 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 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 ("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. Linea™ Oblique™ Weatherboard has been appraised by BRANZ as an alternative solution and found to meet the required provisions of the NZBC when installed in accordance with the Linea™ Oblique™ Weatherboard Vertical Installation technical specification. 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.

Copyright April 2019 © James Hardie New Zealand Limited. TM and ® denotes a Trademark or Registered Mark owned by James Hardie Technology Limited.

Linea™ Oblique™ Weatherboard
Care and Maintenance

The extent and nature of maintenance required will depend on the geographical location and exposure of the building. It is the responsibility of the Specifier to determine any site specific maintenance requirements to comply with the New Zealand Building Code.

As a guide, it is recommended that the 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. Do not use a water blaster to wash down the cladding. Refer to your paint manufacturer for washing down requirements
- Re-coating exterior protective finishes. Always refer to your paint manufacturer for re-coating requirements
- Regular inspection and repair if necessary of the cladding joints, sealants, nail head fillers
- Cleaning out gutters, down pipes and overflow pipes as required
- Pruning back vegetation which is close to or touching the Linea™ Oblique™ Weatherboard as well as ensuring the NZBC ground clearance requirements are maintained, especially where gardens are concerned
- The clearance between the bottom edge of the Linea™ Oblique™ Weatherboard and the finished/unfinished ground must always be maintained.

Date: _____

Project: _____

Address: _____

_____

_____

Customer Name: _____

© 2022 James Hardie New Zealand Limited.
TM and ® denotes a Trademark or Registered Mark owned by James Hardie Technology Ltd.

BC221264

PRODUCT CERTIFICATE

James Hardie Linea™ Oblique™ Weatherboard Cavity Cladding

KEY INFORMATION

CERTIFICATE: **GM-CM30059 RevE**

1 SUMMARY OF DESCRIPTION OF BUILDING METHOD OR PRODUCT

Linea™ Oblique™ Weatherboard Cavity Cladding is a cavity-based fibre cement weatherboard wall cladding.

Linea™ Oblique™ Weatherboard Cavity Cladding consists of Linea™ Oblique™ Weatherboard, which is a rusticated profile fibre cement weatherboard, fixed horizontally or vertically over timber battens to form the cavity. Proprietary ventilated battens are used in the vertical application. The cladding is finished with a latex paint system.

The cladding 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 cavity. The cavity allows for any occasional ingress of water that may get past the external skin to drain to the exterior of the building, and any remaining moisture to dry by evaporation.

2 SUMMARY OF INTENDED USE OF BUILDING METHOD OR PRODUCT

Linea™ Oblique™ Weatherboard Cavity Cladding is designed to be used as part of an external cladding system for residential and commercial buildings where domestic construction techniques are used.

3 BUILDING CODE PROVISIONS

Linea™ Oblique™ Weatherboard Cavity Cladding if designed, used, installed and maintained in accordance with this Certificate, will meet the following provisions of the NZBC:

Clause B1 STRUCTURE:	Performance B1.3.1, B1.3.2 and B1.3.4 for the relevant physical conditions of B1.3.3 (a), (h), (j) and (q).
Clause B2 DURABILITY:	Performance B2.3.1 (b), 15 years and B2.3.2.
Clause C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE:	Performance C3.7
Clause E2 EXTERNAL MOISTURE:	Performance E2.3.2. E2.3.5, E2.3.6, E2.3.7
Clause F2 HAZARDOUS BUILDING MATERIALS:	Performance F2.3.1.

4 CERTIFICATE HOLDER DETAILS

James Hardie New Zealand Limited
Trading as James Hardie
1 O'Rorke Road, Penrose , Auckland 1006, New Zealand,
TechnicalTeam@jameshardie.co.nz
Tel: 0800 808 868,
www.jameshardie.co.nz

ISSUED	LAST UPDATE	RECERTIFICATION
26/04/2019	03/05/2022	03/05/2025

5 SIGNATURE

Herve Michoux, Global Mark Managing Director

6 PRODUCT CERTIFICATION BODY

Global-Mark Pty Ltd
57 Willis Street, Wellington, 6011
customer.service@global-mark.co.nz
+64 9 889 0622
www.global-mark.co.nz

The complaints process for this certificate can be found here:
https://www.global-mark.com.au/?s=complaint

This certificate is issued by an independent certification body accredited by JAS-ANZ, the product certification accreditation body appointed by the Chief Executive of the Ministry of Business, Innovation and Employment under the Building Act 2004.
This certificate may only be reproduced in its entirety. It is advised to check that this certificate is currently valid and not withdrawn or suspended by referring to the Register of Product Certificates on the Building Performance website http://www.building.govt.nz.

BC221264

PRODUCT CERTIFICATE

James Hardie Linea™ Oblique™ Weatherboard Cavity Cladding

7 CONDITIONS AND LIMITATIONS OF USE

1. Linea™ Oblique™ Weatherboard Cavity Cladding is certified as an external wall cladding for buildings within the following scope:
   a. the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
   b. with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
   c. situated in NZS 3604:2011 Wind Zones up to, and including Extra High.
2. Linea™ Oblique™ Weatherboard Cavity Cladding is certified as an external fixed wall cladding solution for buildings within the following scope:
   a. the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
   b. constructed with timber framing subject to specific engineering design; and,
   c. situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5 kPa.
3. Specification and Installation shall be undertaken in accordance with all relevant technical information as follow (collectively references as the applicable technical documentation)
   a. For the Horizontal applications, the BRANZ Appraisal No. 896 (2015) Amended 15 December 2015 Linea™ Oblique™ Weatherboard (Horizontal) Cavity Cladding and Linea™ Oblique™ Weatherboard Horizontal Cavity Technical Specification September 2018, and
   b. For the Vertical Application, the BRANZ Appraisal No. 897 (2015) Amended 15 December 2015 Linea™ Oblique™ Weatherboard (vertical) Cavity Cladding and Linea™ Oblique™ Weatherboard Vertical Cavity Technical Specification July 2018
4. Linea™ Oblique™ Weatherboard Cavity Cladding must only be installed vertically or horizontally on vertical surfaces.
5. Linea™ Oblique™ Weatherboard Cavity Cladding is certified for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. Only joinery compliant with the requirements of NZS 4211:2008 including amendment 1 for the relevant Wind Zone or wind pressure shall be used with Linea™ Oblique™ Weatherboard Cavity Cladding.
6. Linea™ Oblique™ Weatherboard Cavity Cladding can only be used with the ancillary components as described in this certificate.
7. All exposed faces, including top edges at sills and all bottom edges of Linea™ Oblique™ Weatherboard and fibre cement ancillary components must be finished with a latex exterior paint system complying with any of Parts 7, 8, 9, or 10 of AS 3730.
8. E2.3.5 and E2.3.6 compliance is limited to cavities created between the internal surface of the weatherboard and the sarking.

8 HEALTH AND SAFETY INFORMATION

Standard industry safety practices and manufacturer safety requirement as detailed in the technical literature including the applicable SDS must be observed at all time. Please refer to James Hardie SDS Fibre Cement Products Nov 2020

9 SUPPORTING INFORMATION ABOUT DESCRIPTION

Linea™ Oblique™ Weatherboards are rusticated profile weatherboards. The weatherboards are pre-primed with an acrylic primer on the front face and edges. Linea™ Oblique™ Weatherboards are 16 mm thick and are available 200 and 300 mm wide. The boards are supplied 2700 and 4200 mm long.
Linea™ Oblique™ 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 rusticated profile is machined on the top edge of the front face, and a rebated lap is machined on the bottom of the back face of the weatherboard. The front edge at the bottom of the board and the board ends are finished square. Linea™ Oblique™ Weatherboards are manufactured to meet the requirements of AS/NZS 2908.2.

James Hardie supplies the following ancillary components:

This certificate is issued by an independent certification body accredited by JAS-ANZ, the product certification accreditation body appointed by the Chief Executive of the Ministry of Business, Innovation and Employment under the Building Act 2004.

This certificate may only be reproduced in its entirety. It is advised to check that this certificate is currently valid and not withdrawn or suspended by referring to the Register of Product Certificates on the Building Performance website http://www.building.govt.nz. The purpose of construction site audits is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions. In issuing this certificate, Global-Mark has relied on the independent expert and/or laboratory advise or reports. In placing **the CodeMark mark** on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein.

PRODUCT CERTIFICATE

James Hardie Linea™ Oblique™ Weatherboard Cavity Cladding

- For the horizontal applications
  - Joint flashings – Oblique Trimline Joint Flashing and Vertical Joint Flashing. The joint flashings are available in extruded aluminium in 3000 mm lengths.
  - External and internal corner mouldings – 90° anodised aluminium external box corner available in 2700 and 4000 mm lengths, and 90° internal corner 'W' mould, available in 2700 mm lengths. Window jamb flashing – aluminium 'L' extrusion available in 3000 mm lengths.
  - Cavity vent strip – Stria aluminium cavity closure or uPVC vent strip, available in 3000 mm lengths.

- For the vertical applications
  - James Hardie horizontal cavity battens – 45 x 20 mm thick Radiata pine batten treated to Hazard Class H3.1. The top edge is bevelled with an 18° slope. The back face is grooved with 50 mm wide x 6 mm deep rebates at 150 mm centres, and the front face is grooved with 5 mm wide x 5 mm deep rebates at 150 mm centres. The grooves are offset on each face.
  - Oblique Trimline joint flashing – extruded aluminium in 3000 mm lengths.
  - Trimline jointers – aluminium horizontal, internal corner and external corner jointers to cover joints in the Trimline joint flashing.
  - External and internal corner mouldings – 90° anodised aluminium external box corner available in 2700 and 4000 mm lengths, and 90° internal corner 'W' mould, available in 2700 mm lengths. Cavity vent strip – uPVC, available in 3000 mm lengths.

Other components not supplied by James Hardie but meet the following requirements

- For the horizontal and vertical applications
  - Flexible wall underlay – building paper complying with NZBC Acceptable Solution E2/AS1, Table 23, or breather-type membranes covered by a valid Codemark Certification 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 wall 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 – James Hardie Rigid Air Barriers covered by BRANZ Appraisal No. 611 (2011). 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 Codemark Certification 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.
  - Cavity batten fixings - 40 x 2.8 mm flat head hot-dip galvanised nails.
  - Linea™ Oblique™ Weatherboard fixings (with flexible wall underlays) - 65 x 2.87 mm D-head or RounDrive hot-dip galvanised or stainless steel ring shank nails.
  - Linea™ Oblique™ Weatherboard fixings (with rigid wall underlays up to 10 mm thick) 75 x 3.06 mm D-head or RounDrive hot-dip galvanised or stainless steel ring shank nails
  - (Note: Stainless steel fixings must be Grade 316 and hot-dip galvanising must comply with AS/NZS 4680).
  - Joinery head flashings - extruded or 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.
  - Flexible sealant - sealant complying with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid Codemark Certification for use as a weather sealing sealant for exterior use.

This certificate is issued by an independent certification body accredited by JAS-ANZ, the product certification accreditation body appointed by the Chief Executive of the Ministry of Business, Innovation and Employment under the Building Act 2004.

This certificate may only be reproduced in its entirety. It is advised to check that this certificate is currently valid and not withdrawn or suspended by referring to the Register of Product Certificates on the Building Performance website http://www.building.govt.nz. The purpose of construction site audits is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions. In issuing this certificate, Global-Mark has relied on the independent expert and/or laboratory advise or reports. In placing **the CodeMark mark** on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein.

PRODUCT CERTIFICATE

James Hardie Linea™ Oblique™ Weatherboard Cavity Cladding

- For the horizontal applications
  - Timber trim and moulding for use around windows and door. Timber trim and moulding must be finished in accordance with NZBC.
  - Timber trim and moulding fixings - 60 x 3.15 mm or 75 x 3.15 mm hot-dip galvanised jolt head nails and stainless steel ring shank jolt head nail.
  - Stainless steel fixings must be Grade 316 and hot-dip galvanising must comply with AS/NZS 4680).
  - 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 Codemark Certification suitable for use around window, door and other wall penetration openings.

- For the vertical applications
  - 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 Codemark Certification suitable for use around window, door and other wall penetration openings.

10 SUPPORTING INFORMATION ABOUT INTENDED USE

NIL

11 SUPPORTING INFORMATION ABOUT CONDITIONS AND LIMITATIONS OF USE

Linea™ Oblique™ Weatherboard Cavity Cladding can be used to provide fire resistance rated construction, but this aspect has not been assessed and is outside the scope of this certificate.

12 BASIS FOR CERTIFICATION

The certification decision is based on independent technical review(s) of test report(s), engineering opinion(s) and other documented evidence(s), factory audit(s) and site review(s)

Code Clause	Compliance pathway	Evidence
B1	Alternative solution -Expert judgement	001, 002, 003,004, 005 and 006
B2	Alternative solution -Expert judgement	001, 002, 003,004, 005 and 006
C3	Alternative solution -Expert judgement	001, 002, 003,004, 005 and 006
E2	Alternative solution -Expert judgement	001, 002, 003,004, 005 and 006
F2	Alternative solution -Expert judgement	001, 002, 003,004, 005, 006 and 007

13 SUPPORTING DOCUMENTATION FOR CERTIFICATION

Ref	Author	Title	Date and/or revision
001	BRANZ	LINEA™ OBLIQUE™ - WEATHERBOARD (HORIZONTAL) CAVITY CLADDING - Appraisal No. 896[2015]	Amended 15 December 2015
002	BRANZ	LINEA™ OBLIQUE™ - WEATHERBOARD (VERTICAL) CAVITY CLADDING - Appraisal No. 897[2015]	Amended 15 December 2015
003 *	BRANZ	BRANZ Appraisals Means of Compliance - Basis of Appraisal - LINEA™ OBLIQUE™ - WEATHERBOARD (HORIZONTAL) CAVITY CLADDING - Appraisal No. 896[2015]	19/11/2015
004 *	BRANZ	BRANZ Appraisals Means of Compliance - Basis of Appraisal - LINEA™ OBLIQUE™ - WEATHERBOARD (VERTICAL) CAVITY CLADDING - Appraisal No. 897[2015]	19/11/2015

This certificate is issued by an independent certification body accredited by JAS-ANZ, the product certification accreditation body appointed by the Chief Executive of the Ministry of Business, Innovation and Employment under the Building Act 2004.

This certificate may only be reproduced in its entirety. It is advised to check that this certificate is currently valid and not withdrawn or suspended by referring to the Register of Product Certificates on the Building Performance website http://www.building.govt.nz. The purpose of construction site audits is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions. In issuing this certificate, Global-Mark has relied on the independent expert and/or laboratory advise or reports. In placing **the CodeMark mark** on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein.

PRODUCT CERTIFICATE

James Hardie Linea™ Oblique™ Weatherboard Cavity Cladding

BC221264

005	James Hardie New Zealand Limited	Linea™ Oblique™ Weatherboard Horizontal Cavity Technical Specification	September 2018
006	James Hardie New Zealand Limited	Linea™ Oblique™ Weatherboard Vertical Cavity Technical Specification	July 2018
007	James Hardie New Zealand Limited	LQA8N - SAFETY DATA SHEET- JAMES HARDIE FIBRE CEMENT SHEETS PRODUCTS	Version No.: 1.0 ISSUED Date : 18/06/2020

* These documents were provided commercial in confidence and are not publicly available

14 CONDITIONS RELATING TO NOTIFICATION

(a) the certificate holder notifies the product certification body in writing of any intended change to any of the following particulars:
(i) the name, address, or contact details of the certificate holder:
(ii) any address of a location where a certified product is produced or manufactured:

(b) the certificate holder notifies the product certification body in writing of any intended change, modification, or alteration to any of the following:
(i) the certified building method or product:
(ii) the method of its production or manufacture:
(iii) the product quality plan prepared in respect of the certified building method or product:
(iv) the application or installation instructions for the certified building method or product:
(v) any documentation relating to the use and maintenance of the certified building method or product:

(c) if the certificate holder has any reason to suspect that the certified building method or product does not comply with the Building Code, the certificate holder notifies the product certification body in writing of the reason for that suspicion:

(d) if the certificate holder or the product certification body finds that a certified building method or product that has been released on the market does not comply with the Building Code, the certificate holder discloses that fact in disclosure statements published in a form that is acceptable to the product certification body and to the chief executive:

(e) if the certificate is suspended or revoked, the certificate holder—
(i) notifies all customers to whom the building method or product is regularly supplied; and
(ii) immediately ceases using the certificate, the mark of conformity, and any reference to the number of the certificate.

End of the document

This certificate is issued by an independent certification body accredited by JAS-ANZ, the product certification accreditation body appointed by the Chief Executive of the Ministry of Business, Innovation and Employment under the Building Act 2004.

This certificate may only be reproduced in its entirety. It is advised to check that this certificate is currently valid and not withdrawn or suspended by referring to the Register of Product Certificates on the Building Performance website http://www.building.govt.nz. The purpose of construction site audits is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions. In issuing this certificate, Global-Mark has relied on the independent expert and/or laboratory advise or reports. In placing **the CodeMark mark** on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein.