



**WAIMAKARIRI**  
DISTRICT COUNCIL

**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](mailto:buildinginfo@wmk.govt.nz)

**BC No: 200253**

**SITE DETAILS:**

24 AWATERE STREET

PEGASUS

**LEGAL:**

LOT 1460 DP 479470

**APPROVED BUILDING CONSENT DOCUMENTS AND PLANS  
(FULL SET SUPPLIED)**

**- 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 3118906**

or

Email inspection bookings to: [bcbooking@wmk.govt.nz](mailto:bcbooking@wmk.govt.nz)

- Please refer to your inspection schedule for details of inspections to be carried out.
- 2-3 working day's notice should be given and provision 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

# 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](mailto: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.

**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.

### 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](http://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](mailto: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](http://www.mainpower.co.nz)  
[info@mainpower.co.nz](mailto:info@mainpower.co.nz)  
03 311 8300 (8am to 5pm, Monday to Friday)



**mainpower**

## Dial before you dig.

Always remember to locate underground cables and services before digging and avoid serious injury, supply disruption and costly repairs. Phone MainPower for cable location advice.

**03 311 8300**

**Think for Safety's Sake**

[www.mainpower.co.nz](http://www.mainpower.co.nz)

## 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](http://waimakariri.govt.nz) for more information, or contact Customer Services on 0800 965 468 (0800WMKGOV)

# ***DWELLING & 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**
- **Certificate of Title or Sales & Purchase Agreement**
- **PIM, Resource Consent – By Council**

### **PLEASE NOTE**

- Although your Consent documentation states 48 hours notice is required, it is not always possible to carry out an inspection within this period.
- 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

Tara Homes Limited 1474 Tram Road RD 5 Rangiora 7475	No.	BC200253
	Issue date	03 April 2020
	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	\$270000.00
Location	24 Awatere Street PEGASUS
Legal Description	LOT 1460 DP 479470 0.039900 Ha
Valuation No.	2163200882

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.

Please give at least 48 hours notice for the next required inspection.

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.**

<b>BC200253</b>
Compacted Hardfill - pre DPM - Excavation to be inspected by engineer also
Foundation / Floor Slab - To be inspected by engineer also
Structure Pre Roof Pre Wrap -
Building Wrap & Sill Tape -
Cavity Battens & Flashings - BGC Duragroove
Mid Height Veneer -
Drains - includes soakpit with overflow to roadside swale
Preline & Plumbing -
Prestopping -
Final -



## Form 5

# Building consent      BC200253

### Section 51, Building Act 2004

#### The building

Street address of building: 24 Awatere Street PEGASUS

Legal description of land where building is located: LOT 1460 DP 479470 0.039900 Ha

Valuation number: 2163200882

Building name:

Location of building within site/block number:

Level/unit number: 1

#### The owner

Name of owner: Tara Homes Limited

Contact person: Peter George Cloughley

Mailing address: 1474 Tram Road RD 5 Rangiora 7475

Street address/registered office:

Phone number: Landline: 033120222

Mobile: 0276089824

Daytime:

After hours: 033120222

Facsimile number:

Email address: peter@tara.net.nz

Website:

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

#### Building work

The following building work is authorised by this building consent:

DWELLING WITH ATTACHED GARAGE 24 AWATERE STREET PEGASUS LOT 1460 DP 479470

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 condition:

The Building Act 2004, s90, 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 two full working days in advance of the required inspection date. 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.

**Critical Siting:** The owner/applicant/agent will need to supply a Building Location Certificate for this Lot prior to the first inspection being booked. The certificate shall confirm that the building meets the District Plan requirements for critical finished floor levels (FFL) - 3.85m above the Lyttleton Vertical Datum 1937 (Jan 2018).

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.

Waste disposal units, or garbage grinders shall not be installed to a septic tank system.

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.

Occupational Health and Safety and the Labour Department 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

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

Licensed building practitioners records of work shall be provided to the building consent authority 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

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

Form 6 Application for Code Compliance



**Shirley Cresswell**  
**Building Unit Administrator**

On behalf of: Waimakariri District Council  
Date: 03 April 2020



**WAIMAKARIRI**  
DISTRICT COUNCIL

Private Bag 1005, Rangiora 7440  
Phone 0800 965 468 (0800 WMK GOV)  
Fax 03 313 4432 - waimakariri.govt.nz

## CODE COMPLIANCE CERTIFICATE APPLICATION

Under The Building Act 2004, Section 92

BC No.

Issued by:

### THE BUILDING

1. Site address:   
(Street / Road / Township)
2. Legal description of the land where the building is located:  
Lot:  DP:  Valuation Number:
3. Building Name (if applicable):
4. Location of building within site:   
(Only applicable to multi-development sites)

### THE OWNER

5. Owner's name:   
(Company or organisation name if applicable)
6. Contact person:
7. Mailing address:
8. Street address / Registered office:
9. Mobile:  Landline:  Email:

### THE AGENT

**PLEASE NOTE** - Authorisation is required from the owner to act as agent.

11. Agent's name:   
(Company or Organisation name if applicable)
12. Contact person:
13. Mailing address:
14. Street address / Registered office:
15. Mobile:  Landline:  Email:

## APPLICATION

16. I request that you issue a Code Compliance Certificate for this work under section 95 of the Building Act 2004.

The Code Compliance Certificate should be sent to: ☐ Owner ☐ Agent

17. I wish to receive my certificate in the following format:

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

Hard copy: ☐ (post) OR ☐ (pick-up) OR ☐ Email

18. All building work carried out under the Building Consent specified in this form was completed on:

## RESTRICTED BUILDING WORK

Did the building work include any restricted building work? ☐ Yes ☐ No

The Licensed Building Practitioner(s) who carried out or supervised the restricted building work is/are as follows:

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:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

### DESIGNER(S)

Name:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

### CERTIFYING DRAINLAYER

Name:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

### CERTIFYING PLUMBER

Name:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

### CERTIFYING GASFITTER

Name:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

### REGISTERED ELECTRICIAN

Name:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

### STRUCTURAL ENGINEER

Name:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

## SPECIFIED SYSTEMS

The following specified systems are contained on the compliance schedule for the building and, in the opinion of the personnel who installed them, are capable of performing to the performance standards set out in the Building Consent. Tick appropriate specified systems below:

- |   |   |
|---|---|
| <input type="checkbox"/> <b>There are no specified systems in the building</b>  |   |
| <input type="checkbox"/> SS1 Automatic systems for fire suppression             | <input type="checkbox"/> SS12/1 Audio loops                                     |
| <input type="checkbox"/> SS2 Emergency warning systems                          | <input type="checkbox"/> SS12/2 FM Radio and infrared beam transmission systems |
| <input type="checkbox"/> SS3/1 Automatic door                                   | <input type="checkbox"/> SS13/1 Mechanical smoke control                        |
| <input type="checkbox"/> SS3/2 Access controlled doors                          | <input type="checkbox"/> SS13/2 Natural smoke control                           |
| <input type="checkbox"/> SS3/3 Interfaced fire or smoke doors or windows        | <input type="checkbox"/> SS13/3 Smoke curtains                                  |
| <input type="checkbox"/> SS4 Emergency lighting systems                         | <input type="checkbox"/> SS14/1 Emergency power systems                         |
| <input type="checkbox"/> SS5 Escape route pressurisation systems                | <input type="checkbox"/> S14/2 Signs for SS1-13                                 |
| <input type="checkbox"/> SS6 Riser mains  | <input type="checkbox"/> SS15/1 Spoken information to facilitate evacuation     |
| <input type="checkbox"/> SS7 Automatic back-flow prevention                     | <input type="checkbox"/> SS15/2 Final exits                                     |
| <input type="checkbox"/> SS8/1 Passenger carrying lifts                         | <input type="checkbox"/> SS15/3 Fire separations                                |
| <input type="checkbox"/> SS8/2 Service lifts                                    | <input type="checkbox"/> SS15/4 Signs for facilitating evacuation               |
| <input type="checkbox"/> SS8/3 Escalator and moving walks                       | <input type="checkbox"/> SS15/5 Smoke separations                               |
| <input type="checkbox"/> SS9 Mechanical ventilation or air conditioning systems | <input type="checkbox"/> SS16 Cable cars  |
| <input type="checkbox"/> SS10 Building maintenance units                        |   |
| <input type="checkbox"/> SS11 Laboratory fume cupboards                         |   |

## ATTACHMENTS

The following documents are attached to this application (where applicable):

- ☐ Certificates that relate to the energy work (e.g. gas and electricity)
- ☐ Evidence that the specified systems are capable of performing to the performance standards set out in the building consent
- ☐ Proof of potability of drinking water from private well, and/or rain water catchment, supply (refer to New Zealand Drinking Water Standards 2005)
- ☐ Memoranda (records of building work) from licenced building practitioner(s) stating what restricted building work they carried out or supervised
- ☐ Other documents from personnel that carried out the work

## OWNER / AGENT AUTHORISATION

**PLEASE NOTE** - By entering your name in the box below you are giving your authority for the application to proceed.

Name:

Date:

I am the ☐ Owner ☐ Agent

**Note:** If acting on behalf, by entering your name above you hereby declare that you are authorised to act as Agent for the Owner.

**NB:** Ensure Agent Authorisation section is completed - see below.

## AGENT AUTHORISATION (TO BE AUTHORISED BY OWNER)

**PLEASE NOTE** - By entering your name in the box below you are giving your authority for this application to proceed.

I authorise  to act as Agent on my behalf for this Building Consent application under Sections 33 and 45 of the Building Act 2004.

With respect to this Building Consent application, I authorise  to act as Agent on my behalf for the application for Code Compliance Certificate under Section 92 of the Building Act 2004.

Name (Owner):

Date:

## TERMS OF TRADE

I/We understand that:

Building Consents shall be paid for when the consent is collected or if the consent is not collected 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.

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.

## 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.

### 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 will need to apply for a time extension\*.

\*Fees apply

### 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 to ensure that this can be arranged.

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.

### 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 and if authorised, the application for a Code Compliance Certificate under Section 92 of the Building Act 2004. They will receive all correspondence and must be authorised by the owner - see page 7. All amendments require new authorisation.

### FEES

**Please note** - All work for the issue of a Code Compliance Certificate will be invoiced and must be paid in full before the Code Compliance Certificate will be issued.

### NOTICE TO FIX

If a Notice to Fix is issued, it will state the building work that must be carried out and will set a timeframe in which this work must be completed. Once the work listed has been completed a further inspection should be booked by phoning Waimakariri District Council on 0800 965 468.



Private Bag 1005, Rangiora 7440  
Ph 03 311 8900, 03 327 6834 Fax 03 313 4432  
[www.waimakariri.govt.nz](http://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, Rangiora  
Private Bag 1005, Rangiora 7440  
Free Phone 0800 965 468  
Email [office@wmk.govt.nz](mailto:office@wmk.govt.nz)  
[waimakariri.govt.nz](http://waimakariri.govt.nz)

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**BUILDING CONSENT AND/OR PIM APPLICATION  
FOR DWELLINGS & OTHER WORK THAT DOES NOT FIT THE  
CRITERIA FOR SPECIFIED MINOR WORKS FIXED FEE  
NOT FOR COMMERCIAL PROJECTS**

Under The Building Act 2004, Sections 33, 45 & Schedule 1, Part 1,  
Section 2, BAA13

BC No.

## THE BUILDING

1. Site address:   
(Street / Road / Township)
2. Legal description of the land where the building is located:  
Lot:  DP:  Valuation Number:
3. Building Name (if applicable):
4. Location of building within site:   
(Only applicable to multi-development sites)
5. Number of levels:  6. Unit/Level No.:
7. Floor area m<sup>2</sup> - Existing:  New:  Total:
8. Current lawfully established use:   
(i.e. use on any previous consent for the existing building)
9. Year building first constructed:   
(Only applicable to existing buildings, approximate date is acceptable, eg 1920's)

## THE OWNER

10. Owner's name:   
(Company or organisation name if applicable)
11. Contact person:
12. Mailing address:
13. Street address / Registered office:
14. Mobile:  Landline:  Email:
15. The following evidence of ownership is attached to this application:  
☐ Copy of Certificate of Title OR ☐ Council to provide (additional charge of \$15)  
(Current within 1 month of being issued and must include a deposited plan [diagram])  
☐ Signed copy of Sale and Purchase Agreement  
(If Certificate of Title is not issued)

## THE AGENT

**PLEASE NOTE** - Authorisation is required from the owner to act as agent.

16. Agent's name:   
(Company or Organisation name if applicable)
17. Contact person:
18. Mailing address:
19. Street address / Registered office:
20. Mobile:  Landline:  Email:

## APPLICATION

21. 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 Schedule 1, Part 1, Section 2, BAA13)
 ☐ Amendment to Building Consent
- ☐ Building Consent for Above Ground Pool and/or Non-Exempt Small Heated Pool

22. 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/couriered (couriered will incur an additional cost).

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

☐ USB: ☐ (post) OR ☐ (pick-up) OR ☐ (courier)

☐ Hard copy (on site): ☐ (post) OR ☐ (pick-up) OR ☐ (courier)

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

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

☐ Owner
 ☐ Agent
 ☐ Or other (If other please complete below)

Company name:   
(If applicable)

Contact person:

Mailing address:

Mobile:  Landline:  Email:

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

## SPECIFY AND PROVIDE WITH APPLICATION

### APPLICANT TO COMPLETE

### OFFICE USE ONLY

#### Building Element – Site information

- |  |                          |                          |
|--|--------------------------|--------------------------|
| Completed application form                       | <input type="checkbox"/> | <input type="checkbox"/> |
| Set of plans / specifications (1 copy)           | <input type="checkbox"/> | <input type="checkbox"/> |
| Certificate of Title / Sales & Purchase (1 copy) | <input type="checkbox"/> | <input type="checkbox"/> |

#### ONLY FOR SWIMMING POOL:

#### Building Element – Drawn Information / Specifications / Details

- |  |                          |                          |
|--|--------------------------|--------------------------|
| Site plan, showing location of pool and existing buildings, location of fence, boundaries and existing waterways       | <input type="checkbox"/> | <input type="checkbox"/> |
| Fence construction. Show the height, gates, self closing device, construction type etc (see "A guide to pool fencing") | <input type="checkbox"/> | <input type="checkbox"/> |
| Also show how any doors or windows that form part of the fence will comply   | <input type="checkbox"/> | <input type="checkbox"/> |
| Brand and model of pool: <input type="text"/>  | <input type="checkbox"/> | <input type="checkbox"/> |
| Size of the pool: <input type="text"/>   | <input type="checkbox"/> | <input type="checkbox"/> |
| Drainage plan. Show discharge point  | <input type="checkbox"/> | <input type="checkbox"/> |
| Producer statement (where applicable)  | <input type="checkbox"/> | <input type="checkbox"/> |
| Installation instructions/manual   | <input type="checkbox"/> | <input type="checkbox"/> |
| Show filling point for pool (tap) and backflow protection  | <input type="checkbox"/> | <input type="checkbox"/> |

## PROJECT

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

26. Specify the intended use of the building (e.g. residential/show home)

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

If yes provide details

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

29. Intended life of the building:

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

30. Is this a staged consent: ☐ Yes ☐ No

If staged, provide details

(e.g. Stage 1 of 3)

31. 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?)

32. Estimated value (incl GST) \$

(i.e. the estimated aggregate of the values of all goods and services to be supplied for the building work and includes GST).

## GEOTECHNICAL REPORT

If a geotechnical report has been included in this application, please confirm that it has been uploaded to the Canterbury Geotechnical database by providing its unique report reference number below.

Report number:

## PROJECT INFORMATION MEMORANDUM

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
- ☐ 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

## BUILDING CODE COMPLIANCE

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

(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; if not applicable, put n/a)	Waiver / modification required (State nature of waiver or modification of building code required; if not applicable, put n/a)
<input type="checkbox"/> B1 Structure		
<input type="checkbox"/> B2 Durability		
<input type="checkbox"/> C1 - C6 Protection from fire		
<input type="checkbox"/> D1 Access routes		
<input type="checkbox"/> D2 Mechanical installations for access		
<input type="checkbox"/> E1 Surface water		
<input type="checkbox"/> E2 External moisture		
<input type="checkbox"/> E3 Internal moisture		
<input type="checkbox"/> F1 Hazardous agents on site		
<input type="checkbox"/> F2 Hazardous building materials		
<input type="checkbox"/> F3 Hazardous substances and processes		
<input type="checkbox"/> F4 Safety from falling		
<input type="checkbox"/> F5 Construction and demolition hazards		
<input type="checkbox"/> F6 Visibility in escape routes		
<input type="checkbox"/> F7 Warning systems		
<input type="checkbox"/> F8 Signs		
<input type="checkbox"/> F9 Means of restricting access to residential pools		
<input type="checkbox"/> G1 Personal hygiene		
<input type="checkbox"/> G2 Laundering		
<input type="checkbox"/> G3 Food preparation and prevention of contamination		
<input type="checkbox"/> G4 Ventilation		
<input type="checkbox"/> G5 Interior environment		
<input type="checkbox"/> G6 Airborne and impact sound		
<input type="checkbox"/> G7 Natural light		
<input type="checkbox"/> G8 Artificial light		
<input type="checkbox"/> G9 Electricity		
<input type="checkbox"/> G10 Piped services		
<input type="checkbox"/> G11 Gas as an energy source		
<input type="checkbox"/> G12 Water supplies		
<input type="checkbox"/> G13 Foul water		
<input type="checkbox"/> G14 Industrial liquid waste		
<input type="checkbox"/> G15 Solid waste		
<input type="checkbox"/> H1 Energy efficiency		

## COMPLIANCE SCHEDULE

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 ☐

## RESTRICTED BUILDING WORK

Does 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:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

### DESIGNER(S)

Name:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

### CERTIFYING DRAINLAYER

Name:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

### CERTIFYING PLUMBER

Name:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

### CERTIFYING GASFITTER

Name:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

### REGISTERED ELECTRICIAN

Name:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

### STRUCTURAL ENGINEER

Name:	<input type="text"/>	Reg. No.:	<input type="text"/>
Address:	<input type="text"/>		
Phone No.:	<input type="text"/>	Fax No.:	<input type="text"/>
Email:	<input type="text"/>		

## OWNER / AGENT AUTHORISATION

**PLEASE NOTE** - By entering your name in the box below you are giving your authority for the application to proceed.

Name:  Date:

I am the ☐ Owner ☐ Agent

**Note:** If acting on behalf, by entering your name above you hereby declare that you are authorised to act as Agent for the Owner.

**NB:** Ensure Agent Authorisation section is completed - see below.

## AGENT AUTHORISATION (TO BE AUTHORISED BY OWNER)

**PLEASE NOTE** - By entering your name in the box below you are giving your authority for this application to proceed.

I authorise  to act as Agent on my behalf for this Building Consent application under Sections 33 and 45 of the Building Act 2004.

With respect to this Building Consent application, I authorise  to act as Agent on my behalf for the application for Code Compliance Certificate under Section 92 of the Building Act 2004.

Name (Owner):  Date:

## TERMS OF TRADE

I/We understand that:

Building Consents shall be paid for when the consent is collected or if the consent is not collected 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.

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.

## DOCUMENTATION CHECKLIST

Applicants must mark all items provided with ☒ or leave blank if not applicable.

### 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
- ☐ Certificate of Title, or Sales and Purchase Agreement if C/T is not issued. Current C/T required (current within one month of application)
- ☐ One copy of all information required (all plans to be dimensioned, scaled and accurate. Plans preferred size A3)
- ☐ Application fee (as per Council Fees and Charges Schedule)

### 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 preferred size A3)
- ☐ 1 copy of each - specifications, producer statements, truss details (refer below)
- ☐ 1 copy - Certificate of Title or Sale and Purchase Agreement if C/T is not issued. Current C/T required (current within one month of application)
- ☐ Project Information Memorandum Development Contribution Notice (if applicable)
- ☐ Certificate attached to Project Information Memorandum (Resource Management Act)
- ☐ Certificate of design work from licensed building practitioner
- ☐ Restricted building work - see page 5
- ☐ Key personnel - see page 6
- ☐ See page 5 for a schedule confirming the building work will comply with the Building Code

BC200253

**OFFICE  
USE ONLY**  
These have  
been provided:

### APPLICATION FORM (One copy)

- ☐ Fully complete all sections
- ☐ Means of Compliance with NZBC - designer to complete
- ☐ Provide the correct legal description (Council can help with this)
- ☐ Provide one copy of the current Certificate 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)
- ☐ Sign and date the form
- ☐ Agent Authorisation (section completed where applicable)
- ☐ Certificate/s of design work (LBP)

### DESIGN BASIS (To be completed by the designer)

Please list the following basis for the building design:

- ☐ Wind zone
- ☐ Earthquake zone
- ☐ Snow zone/altitude
- ☐ Corrosion zone (if applicable)
- ☐ 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)

- ☐ Overview of site showing legal boundaries as per current 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

### DRAINAGE LAYOUT (One copy to scale usually 1:100 or 1:50)

- ☐ 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

### FOUNDATION LAYOUT (One copy to scale usually 1:100 or 1:50)

- ☐ 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)**

- ☐ 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)**

- ☐ 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)**

- ☐ 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
- ☐ Structural connections, posts to footings, beams to posts, trusses or beams to walls
- ☐ Component fixing information is to be provided for all structural and framing components
- ☐ Foundation and footing details and reinforcing. Show height from finished floor to ground level
- ☐ Pile details for timber floors
- ☐ Floor bracing details
- ☐ Timber grade and treatment
- ☐ Damp proof membranes, building papers and insulation systems/materials
- ☐ Flashing details and documents
- ☐ Roof penetrations
- ☐ Shower floor details and wall to shower base junction detail
- ☐ Sealing to wet area fixtures
- ☐ Water splash prevention
- ☐ 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. Multichoice specifications will not be accepted. A brief accurate specification is usually best.

- ☐ 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
- ☐ The specification can be written on the drawings as long as all materials are fully covered

**OFFICE  
USE ONLY**  
These have  
been provided:

☐
☐
☐
☐

BC200253

**IMPORTANT THINGS TO INCLUDE IN YOUR APPLICATION (One copy - where relevant)**

- ☐ The chartered professional engineer's Producer Statement
- ☐ The engineer's monitoring schedule if the engineer chooses to do site monitoring
- ☐ All structural calculations
- ☐ 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

**OFFICE  
USE ONLY**  
These have  
been provided:

☐

**GEOTECHNICAL REPORT**

- ☐ Unique report reference number provided, if applicable

☐

**OFFICE USE ONLY**

Further information required? ☐ Yes ☐ No

Date of acceptance:  Officer:

**OFFICE USE ONLY**

Amount paid: \$  Date:  Officer:

☐ Fee paid on application ☐ Deposit invoice sent

Date payment processed:  Receipt  Officer:

## 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.
- (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 – <http://www.legislation.govt.nz/act/public/2004/0072/latest/whole.html>

Building Levy Order 2005 – <http://www.legislation.govt.nz/regulation/public/2005/0033/latest/whole.html#DLM313989>

Building Research Levy Act 1969 - <http://www.legislation.govt.nz/act/public/1969/0023/latest/whole.html>

### 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 to ensure that this can be arranged.

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 will need to apply for a time extension\*.

\*Fees apply

### 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 and if authorised, the application for a Code Compliance Certificate under Section 92 of the Building Act 2004. They will receive all correspondence and must be authorised by the Owner - see page 8. All amendments require new authorisation.

TARA HOMES LIMITED (3766414) Registered

*Last updated on 11 Apr 2019*

To maintain this company [log on here](#)

[View previous names](#)

Company Summary	Addresses	Directors (1)	Shareholdings (2)	Documents (14)	PPSR Search
NZBN					
Company number:	3766414				
NZBN:	9429030725010				
Incorporation Date:	30 Mar 2012				
Company Status:	Registered				
Entity type:	NZ Limited Company				
Constitution filed:	<a href="#">Yes</a>				
AR filing month:	April , last filed on <a href="#">11 Apr 2019</a>				
	<a href="#">Annual return extract</a>				
Ultimate holding company	No				
<a href="#">Company addresses:</a>	Registered Office				
	HC Partners LP, Chartered				
	Accountants, 39 George Street,				
	Timaru, 7910 , New Zealand				
	Address for service				
	HC Partners LP, Chartered				
	Accountants, 39 George Street,				
	Timaru, 7910 , New Zealand				
	<a href="#">View all addresses</a>				
<a href="#">Directors</a>	Showing 1 of 1 directors				
	Peter George CLOUGHLEY				
	1474 Tram Road, Swannanoa, Rd				
	5, Rangiora, 7475 , New Zealand				
Company record link:	<a href="http://app.companiesoffice.govt.nz/co/3766414">http://app.companiesoffice.govt.nz/co/3766414</a>				

**Additional NZBN Information**

Trading

Name(s):

Phone

Number(s):

Email

Address(es):

Website(s):

Industry      E301120 Building,  
Classification(s)      house construction

[View all NZBN details](#)

*Generated on Monday, 16 March 2020 09:37:38 NZDT*



## LICENSED BUILDING PRACTITIONERS

### Form 2A Memorandum from Licensed Building Practitioner: Certificate of design work Section 45 and section 30C, Building Act 2004

#### THE BUILDING

Street address: 24 Awatere Street

Suburb:

Town / City: Pegasus

Postcode:

#### THE OWNER(S)

Name(s): Tara Homes

Mailing Address: 1474 Tram Road

Suburb:

PO Box / Private Bag:

Town / City: RD5 Rangiora

Postcode: 7475

Phone Number: 0276089824

Email: peter@tara.net.nz

#### BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the :

- 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.

#### IDENTIFICATION OF RESTRICTED BUILDING WORK (RBW)

I, Karen van der Mespel carried out the following design work that is restricted building work.

Design work that is restricted building work	Description	Carried out/Supervised	Reference to plans and specifications
--	-------------	------------------------	---------------------------------------

**PRIMARY STRUCTURE : B1**

All relating to B1	Including roof and wall framing and bracing. Excluding trusses by truss designer and foundations by structural engineer.	Carried out	Architectural plans Sheet A.01 - A.12 and architectural specification.
--------------------	--	-------------	--

**EXTERNAL MOISTURE MANAGEMENT SYSTEMS : E2**

All relating to E2	Including roof and wall cladding, damp proofing, waterproofing and ventilation.	Carried out	Architectural plans Sheet A.01 - A.12 and architectural specification.
--------------------	---	-------------	--

**FIRE SAFETY SYSTEMS : C1 - C6**

No record added			
-----------------	--	--	--

**WAIVERS AND MODIFICATIONS**

Waivers or modifications of the building code are required

- No

## ISSUED BY

Name: Karen van der Mespel

LBP number: BP133926

The practitioner is a: Design LBP

Design entity or company: Karen van der Mespel Architectural Drafting

Mailing Address: 160 East Belt, Rangiora, 7400

Street Address: 160 East Belt

Suburb:

Town/City: Rangiora

PO Box/Private bag:

Postcode: 7440

Phone number:

Mobile: 0220827730

After hours:

Fax:

Email: karenvandermespel@gmail.com

Website:


Register link: <https://lbp.ewr.govt.nz/PublicRegister/View.aspx?lbpid=BP133926>

## DECLARATION

I, Karen van der Mespel 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

Declaration made on 12/03/2020

Signature: 

Form 2A

**Memorandum from licensed building practitioner: Certificate of design work**  
**Section 30C or section 45, Building Act 2004**

**The building**

Street address of building: 24 Awatere Street, Pegasus

**The owner**

Name: Tara Homes Ltd

Address: 1474 Tram Road, RD 5, Rangiora 7475

Telephone number: 027 2822222

Email address: david@tara.net.nz

**Identification of design work that is restricted building work**

I carried out or supervised the following design work that is restricted building work:

<i><b>Design work that is restricted building work</b></i>	<i><b>Description</b></i>	<i><b>Carried out/ supervised</b></i>	<i><b>Reference to plans and specifications</b></i>
<i>[Tick]</i>	<i>[If appropriate, provide details of the restricted building work]</i>	<i>[Specify whether you carried out this design work or supervised someone else carrying out this design work]</i>	<i>[If appropriate, specify references]</i>

**Primary structure**

Foundations and subfloor framing	( ✓ )	TC2 Waffle Slab	Supervised	Refer to PS1 & Documentation from HFC
Walls	( )			
Roof	( )			
Columns and beams	( )			
Bracing	( )			
Other	( )			

**External moisture management systems**

Damp proofing	( )	N/A	( ) Carried out ( ) Supervised	N/A
Roof cladding or roof cladding system	( )	N/A	( ) Carried out ( ) Supervised	N/A
Ventilation system (for example, subfloor or cavity)	( )	N/A	( ) Carried out ( ) Supervised	N/A
Wall cladding or wall cladding system	( )	N/A	( ) Carried out ( ) Supervised	N/A
Waterproofing	( )	N/A	( ) Carried out ( ) Supervised	N/A
Other	( )	N/A	( ) Carried out ( ) Supervised	N/A

**Fire safety systems**

Emergency warning systems, evacuation and fire service operation systems, suppression or control systems, or other	( )	N/A	( ) Carried out ( ) Supervised	N/A
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**Note:** The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.

**Note:** continue on another page if necessary.

Are waivers or modifications of the building code required? ( ) Yes (X) No

If Yes, provide details of the waivers or modifications below:

Clause	Waiver/modification required
<i>[List relevant clause numbers of building code]</i>	<i>[Specify nature of waiver or modification of building code]</i>

**Note:** continue on another page if necessary.

**Issued by**

Name: Tom Watanabe (Chartered Professional Engineer) on behalf of HFC Civil & Structural (South) Limited

LBP or registration number: IPENZ CPEng No.1010912

The practitioner is a: ( ) Design LBP ( ) Registered architect (X) Chartered professional engineer

Mailing address: PO Box 28006, Christchurch 8242

Street address or registered office: Unit 4, 295 Blenheim Road, Upper Riccarton, Christchurch

Phone number: Landline: 03 339 7000 Mobile: 021 278 1561

Daytime: Not available After hours: Not available

Fax number: Not available

Email address: tom@hfc.co.nz

Website: www.hfc.co.nz

**Declaration**

I Tom Watanabe [name of practitioner]

certify that the design work that is restricted building work recorded on this form:

(a) complies with the building code; or

~~(b) complies with the building code subject to any waiver or modification of the building code recorded on this form.~~

Signature:

渡邊智明

Date: 4 March 2020

# 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: 17 January 2020

VENDOR: Black Dragon (Farnham) Limited - Director Bowen Zhang

PURCHASER: Tara Homes Limited

and/or nominee

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: 24 Awatere Street, Pegasus Canterbury

Estate: FREEHOLD

LEASEHOLD

STRATUM IN FREEHOLD

STRATUM IN LEASEHOLD

CROSSLEASE (FREEHOLD)

CROSSLEASE (LEASEHOLD)

(freehold if none is deleted)

Legal Description:

Area (more or less):

399 sqm

Lot/Flat/Unit:

Lot 1460

DP:

479470

Record of Title (unique identifier):

668760

## PAYMENT OF PURCHASE PRICE

Purchase price: \$124,347.83

\$126,956.52

\$13,000

Deposit (refer clause 2.0): \$12,437.83

deposit to be paid to Public Trust O/A NZ Real Estate Trust upon the confirmation date of this agreement (bank details BNZ 02-0500-0956500-00). Reference 564 570.

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

(1) By payment in cleared funds on the settlement date which is 30 April 2020 31 March 2020

OR

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

Interest rate for late settlement:

16 % p.a.

## CONDITIONS (refer clause 9.0)

Finance required (subclause 9.1):

Yes/No

Finance date: Satisfactory finance within 10 working days from date of this agreement

Yes/No

LIM required (subclause 9.3):

Yes/No

Building report required (subclause 9.4):

Yes/No

Toxicology report required (subclause 9.5):

Yes/No

OIA consent required (subclause 9.6):

Yes/No

OIA date (subclause 9.8):

Land Act consent required (subclause 9.7):

Yes/No

Land Act date (subclause 9.8):

## TENANCIES

Name of Tenant(s):

Yes/No

Particulars of any tenancies are set out in Schedule 4 or another schedule attached to this agreement by the parties.

## SALE BY:

Morris and Co Real Estate Ltd Head Office

Level 1, Conway Building

188 High Street

RANGIORA 7440

Ph: 03 310 6010

Manager: Claire Morris

Salesperson: Justin Hartley

(021 272 8310)

Jordan Reid

(021 213 4051)

contracts.morrisandco@raywhite.com

Licensed Real Estate Agent under Real Estate Agents Act 2008

Ray White

It is agreed that the vendor sells and the purchaser purchases the property, and the chattels included in Schedules 2 and 3, on the terms set out above and in the General Terms of Sale and any Further Terms of Sale.

Release date: 27 November 2019


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## 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.

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- (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, when sent to the email address provided for the party or the party's lawyer on the back page or any other email address notified subsequently in writing by the party or the party's lawyer;
  - (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.
- 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.

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- 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.
- 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;

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- (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
  - (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.

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- (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
    - (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.

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- 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.

## 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 untenable and it is untenable 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 untenable 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 untenable 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:
- two fifth* (a) the ~~tenth~~ working day after the date of this agreement; or
- (b) the settlement date.
- (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);
  - (c) then the purchaser may requisition the title under subclause 6.2 requiring the vendor:
  - (d) 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
  - (e) 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) All items included in the sale specified in Schedule 2 (if any) are delivered to the purchaser in their state of repair as at the date of this agreement (fair wear and tear excepted) but failure so to deliver them shall only create a right of compensation.
  - (2) All items included in the sale specified in Schedule 3 (if any), including any equipment, systems or devices specified in that schedule, 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 so to deliver them shall only create a right of compensation.
  - (3) All electrical and other installations on the property are free of any charge whatsoever.
  - (4) 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.
  - (5) 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.
  - (6) 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.
  - (7) 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
    - (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.
  - (8) Since the date of this agreement, the vendor has not given any consent or waiver which directly or indirectly affects the property.
  - (9) 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.
  - (10) Any chattels included in the sale are the unencumbered property of the vendor.

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- 7.4 If the property is or includes part only of a building, the warranty and undertaking in subclause 7.3(7) 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
    - (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

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- (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.

### 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.

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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 where the testing is in relation to methamphetamine, in accordance with the New Zealand Standard 8510:2017) 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 cancels 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
- (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; 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.

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- 10.4 If the claimant is unable to give notice under subclause 10.3 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.

#### 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

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- 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.

## 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.

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- (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 s11(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
  - (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.

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## 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 for statistical purposes to generate, publish and share with REINZ member agents and others, property appraisal data and market analysis material.
- 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](mailto:info@reinz.co.nz) or by post or telephone.

November 2019

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## FURTHER TERMS OF SALE

Further Terms continued on Appendix page

**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.

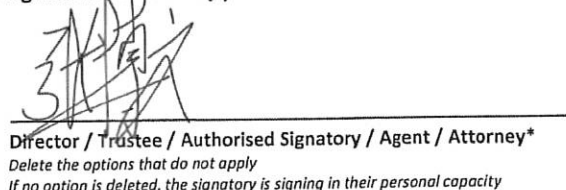
Where this agreement relates to the sale of a unit title property, the purchaser acknowledges that the purchaser has been provided with a pre-contract disclosure statement under section 146 of the Unit Titles Act.

### Signature of Purchaser(s):



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

### 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

\*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].

## SCHEDULE 2

The following items, which do not have an operational function,  
are included in the sale and are covered by the warranty in subclause 7.3(1).

Blinds

Curtains

Fixed floor-coverings

## SCHEDULE 3

The following items, which have an operational function,  
are included in the sale and are covered by the warranty in subclause 7.3(2).

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 (motor driven)

Curtains (motor driven)

## SCHEDULE 4

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:

## 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.

<b>Section 1 Vendor</b>	
1.(a) The vendor's registration number (if already registered):	122 856 338
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
<b>Section 2 Purchaser</b>	
2.(a) The purchaser is registered under the GST Act and/or will be so registered at settlement.	<input checked="" type="radio"/> Yes <input type="radio"/> No
2.(b) The purchaser intends at settlement to use the property for making taxable supplies.	<input checked="" type="radio"/> Yes <input type="radio"/> 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:	Tara Homes Limited
(ii) Address:	1474 Tram Road, RD5 Rangiora
(iii) Registration number (if already registered):	108 8182 816
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).	Yes/No
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
2.(e) The purchaser intends to direct the vendor to transfer title to the property to another party ("nominee").	<input checked="" type="radio"/> Yes <input type="radio"/> No
If the answer to question 2(e) is "Yes", then please continue. Otherwise, there is no need to complete this Schedule any further.	
<b>Section 3 Nominee</b>	
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).	Yes/No
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

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## Appendix

### 19.0 Deposit

The Vendor and Purchaser agree that the deposit payable under this Agreement will be lodged with Public Trust, to be held on behalf of the Vendor and the Purchaser. NZ Real Estate Trust is an independent third party trust account service provided by SafeKiwi (New Zealand) Limited. SafeKiwi (New Zealand) Limited acts as a stakeholder in respect of the deposits paid into NZ Real Estate Trust. Interest earned on the deposit whilst it is held by Public Trust is payable to SafeKiwi (New Zealand) Limited. Terms of Use can be viewed at [www.realestatetrust.co.nz/termsfuse](http://www.realestatetrust.co.nz/termsfuse).

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### 20.0 Overseas Investment Act - Eligibility to Purchase

The Purchaser warrants they understand they will have to complete the necessary Overseas Investment Office Residential land Act Statement pursuant to s.51A of the Overseas Investment Act 2005 with their lawyer or conveyancer at the time of settlement and they are legally entitled to complete the purchase of this property.

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#### Solicitor's Approval

This agreement is conditional upon the purchaser's solicitor approving the legal terms of this agreement on or before 5.00pm on the date three (3) working days after execution of this agreement by all parties.

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#### Solicitor's Approval

This agreement is conditional upon the vendor's solicitor approving the legal terms of this agreement on or before 5.00pm on the date three (3) working days after execution of this agreement by all parties.

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#### Due Diligence (Short Form)

This agreement is subject to and conditional upon the Purchaser (and/or its nominee) completing a due diligence investigation of all aspects of the property and being satisfied that the property is suitable in all respects to the Purchaser, within 12-10 working days from the date of this agreement. This condition is inserted for the sole benefit of the Purchaser.

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#### Purchaser's building warranties

The purchaser warrants that each dwelling constructed on a Lot and the landscaping of the relevant Lots shall be completed:

- In conformity with the applicable Design Guidelines, the Land Covenants, the consented design as approved by the Pegasus Town Design Review Panel, the applicable Building Consents, the applicable Regulatory Consents and the proper requirements of the Councils and the providers of relevant utility services;
- In a proper and tradesmanlike manner and in accordance with sound building, architectural and engineering practices;
- To a high quality finish which must be of a standard reasonably acceptable to the Vendor.

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#### Early access for construction

The purchaser may access the Lot prior to settlement in order to carry out the Lot Development. Where:

- The deposit has been paid in full under clause 2.0 and any conditions for the sole benefit of the purchaser have been satisfied or waived;
- The purchaser has obtained the consent (in writing) of the Pegasus Town Design Review Panel to the design plans for the proposed dwelling, then the vendor shall not unreasonably withhold its consent. Access given under this clause will not amount to possession of the Lot(s).

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#### Warranties under clause 7.3 (6) of the general terms of sale

The purchaser acknowledges and agrees that the vendor's warranties in clause 7.3(6) do not extend to any works done, caused or permitted to be done on the Lot by the purchaser prior to settlement.

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## 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 lists of items in Schedules 2 and 3 are 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.

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## AGREEMENT FOR SALE AND PURCHASE OF REAL ESTATE

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DATE: 17 January 2020

VENDOR: Black Dragon (Farnham) Limited - Director  
Bowen Zhang

Contact Details:

Email: isabella.niu@blackdragonltd.co.nz

### VENDOR'S LAWYERS:

Firm: Brandons

Individual Acting: Richard Brandon

Email: richard.brandon@brandons.co.nz

Contact Details:

PO Box 36

Wellington

6140

Ph: 04 472 6904

Fax: 04 499 2818

### Email Address for Service of Notices:

(subclause 1.4)

PURCHASER: Tara Homes Limited

Contact Details: 1474 Tram Road  
RD5 Rangiora

0276089824

peter@tara.net.nz

### PURCHASER'S LAWYERS:

Firm: Timpany Wilton

Individual Acting: Grant Pondfoot

Email: grant@timpanywilton.co.nz

Contact Details: P.O Box 240

Timaru 7940

03 687 7126

### Email Address for Service of Notices:

(subclause 1.4)

### LICENSED REAL ESTATE AGENT:

Agent's Name: Morris and Co Real Estate Ltd Head Office

Manager: Claire Morris

Salesperson: Justin Hartley

(021 272 8310)

Contact Details:

Ph: 03 310 6010

contracts.morrisandco@raywhite.com

BWZ PL

RayWhite.

## Consent by Owner Prior to Entry into Contractual Document

PROPERTY ADDRESS: 24 Awatere street, Pegasus

### ACKNOWLEDGEMENTS

I/We as Owner(s) ("we" hereafter) of the property located above hereby confirm that prior to entering into and signing the contract that: -

1. I/We were given a copy of the REA Approved Guide and advised of the Agent's in-house complaints process; and;
2. I/We then entered into this Contract as Owner(s).
3. That neither the Owner (or any party associated with the Owner) is a person who is an agent or employee of the Licensee Agent/Salesperson.
4. We have disclosed all earthquake and insurance claim numbers and information regarding status of claims to the Salesperson.
5. We undertake that we have made full disclosure of all relevant and material facts, matters, and documents to the Agent.
6. We were advised that we must provide proof to our solicitor of a NZ IRD Tax number and NZ bank account in my/our name.
7. We were advised we have further AML obligations under the Anti-Money Laundering Act 2009 which we agree we will discuss with our solicitor.

### DISCLOSURES

Relationship Disclosure I/We acknowledge that a relationship ~~exists / does not exist~~ between the Purchaser (or any party associated with the Purchaser) and the Licensee Agent / Salesperson and was disclosed to us prior to entering into and signing this Contract. Nature of existing relationship, if any: Peter (Tara Homes Director) has purchased other sections off me over the past 5-6 years and have become to know him well.  
Related Party Transaction I/We acknowledge that we were advised that the provisions of Section 134 and or 136 of the Real Estate Agents Act 2008 ~~do / do not~~ apply (Licensee Agent / Salesperson to delete if not relevant).

Further Disclosures I/We acknowledge that the following matters, statements, or documents (if any) were specifically stated to us or disclosed to us during the sale and marketing process and prior to entering into and signing this Contract:

Tara Homes wish to start making improvements on the section prior to settlement. Both parties are GST registered as the agreement for 1 Tuuka St Pegasus.

### FINAL ACKNOWLEDGEMENT

I/We further acknowledge that at the time we entered into this Contract we did so freely and voluntarily, without any influence or duress, and that we understood the Contract terms and conditions and were recommended to obtain legal advice and offered the right of other technical or specialist advice of our choice, before entering into the same.

### SIGNED

Owner: [Signature]

Date: 13 / 10 /2020 at 9 am/pm

Owner: \_\_\_\_\_

Date: / /20 at am/pm

Licensee Agent / Salesperson: [Signature]

Date: 13 / 10 /2020 at am/pm



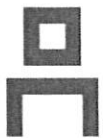
# ANTI-MONEY LAUNDERING

## Proving your identity when buying or selling a house

From 1 January 2019, real estate agents are required to verify the identity of their vendors in accordance with Anti-Money Laundering legislation. In some situations, real estate agents will also be required to verify the identity of purchasers. If your real estate agent cannot verify your identity in line with the legislation, they will not be able to act for you.

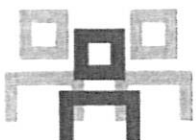
Identity verification can take days and sometimes weeks if a Trust or company is involved, or where parties reside overseas.

The below gives an indication of some of the documents your real estate agent may ask you to present in person or as a certified document as part of this process:



### Individuals:

Passport, NZ Firearms Licence or NZ Drivers Licence with another document such as a bank statement or statement issued by a Government agency. You will also need to provide a document with your residential address (for example, a utility bill).



### Trusts:

The Trust Deed and, for all trustees and settlors, the information required for individuals as noted above, together with information regarding the Trust's source of funds or wealth. Additional information may also be required for beneficiaries and appointers.



### Companies:

Details of the company, together with the information for individuals noted above for every individual with more than a 25% shareholding, all individuals with effective control of the company and all individuals acting on behalf of the company. Information regarding source of funds or wealth may also be required.

*Note: The above list is not exhaustive and is indicative only. Your real estate agent will assist you with the specific requirements in relation to your situation.*

**DISCLAIMER:** The material and information contained herein is for general information purposes only and is not intended to form professional legal advice. REINZ does not accept liability for any claim or other action that may arise directly or indirectly from the use of or reliance on the material and information provided herein. REINZ recommends you seek independent legal advice if you are unsure of your legal position.

## Consent by Purchaser Prior to Entry into Contractual Document

PROPERTY ADDRESS: 24 Awatere Street, Pegasus

Purchaser Name(s): Tara Homes Limited

Address: 1474 Tram Road, RD5 Rangiora

Phone: 027 608 9824 Email: peter@tara.net.nz

Solicitor: Grant Proudfoot Timpany Wilton  
(name) (firm)

### ACKNOWLEDGEMENTS

I/We as Purchaser(s) ("we" hereafter) of the above property hereby acknowledge that prior to entering into and signing this Contract that: -

1. I/We were given a copy of a REA Approved Guide and advised of the Agent's in-house complaints process; and
2. I/We then entered into this Contract as Purchaser(s).
3. I/We advised that neither ourselves as Purchaser (nor any party associated with the Purchaser) is an agent or employee of the Licensee Agent / Salesperson.
4. I/We were advised to make our own enquiry to verify the status of earthquake related claims and/or repairs to the above property.
5. We were advised that we must provide proof to our solicitor of a NZ IRD Tax number and NZ bank account in my/our name.
6. We were advised that our solicitor will have AML obligations under the Anti-Money Laundering Act 2009 as well as possibly OIA obligations under the Overseas Investment Act 2005 which we agree we will discuss with him/her.

### DISCLOSURES

Relationship Disclosure I/We acknowledge that a relationship exists / does not exist between the Owner (or any party associated with the Owner) and the Licensee Agent / Salesperson and was disclosed to us prior to entering into and signing the Contract. Nature of existing relationship if any: \_\_\_\_\_

Relationship/Related Party Transaction - we acknowledge that we were advised that the provisions of section 134 and/or 136 of the Real Estate Agents Act 2008 do / do not apply - (Agent/Salesperson to advise further OR delete if not relevant).

~~Multi-Offer - I/We further acknowledge that if we are entering into a multiple offer situation for the purchase of the property that we were advised of the terms upon which we may enter into the multiple offer situation, that it should be our best offer, and that we may be unsuccessful if our offer is not accepted.~~

Further Disclosures - I/We acknowledge that the following matters (if any) were specifically disclosed to us prior to entering into and signing this Contract: Low pressure sewage system located on site which is the responsibility of the owner, no sump is installed but one is needed.

Overseas Investment Act

- ☒ I/We understand that residential property purchases are now subject to the provisions of the Overseas Investment Act 2005 (OIA). Before any residential property is transferred to me/us, my lawyer will require me/us to complete a Residential Land Statement certifying that I/we meet the eligibility criteria.
- If I/we require OIA consent, do not have OIA consent and do not make our offer conditional upon obtaining it, we will be in breach of the OIA and may be liable for fines of up to \$300,000, I/ we may not be able to settle the transaction and may incur liability to the Owner (including losing my/our deposit).

IF YOU ARE UNCERTAIN ABOUT YOUR ELIGIBILITY OR WHETHER THE PROPERTY IS SUBJECT TO THE OIA, YOU MUST MAKE YOUR OFFER SUBJECT TO OBTAINING OVERSEAS INVESTMENT OFFICE CONSENT.

**AUCTIONS**

YOU MUST NOT BID AT AN AUCTION UNLESS YOU ARE ABLE TO BUY THE PROPERTY ON AN UNCONDITIONAL BASIS. YOU MAY INCUR FINES OF UP TO \$300,000 AND LIABILITY TO THE OWNER IF YOU PURCHASE THE PROPERTY AT AUCTION IN CIRCUMSTANCES WHERE YOU DO NOT MEET THE ELIGIBILITY CRITERIA IN THE OIA. OBTAIN LEGAL ADVICE BEFORE BIDDING IF YOU ARE UNSURE WHETHER YOU MEET THE ELIGIBILITY CRITERIA.


Customer Due Diligence

- ☒ I/we understand and acknowledge that before my lawyer can act for me, they must complete customer due diligence (CDD) on me under the Anti-Money Laundering and Countering Financing of Terrorism Act 2009 (AML/CFTA). If my lawyer cannot complete customer due diligence on me and cannot act for me for as a result, I may not be able to satisfy conditions under the agreement or settle the property purchase. This may result in me incurring liability to the Owner.


FINAL ACKNOWLEDGEMENT

We further confirm and acknowledge that at the time of entry into this Contract we did so freely and voluntarily, without pressure, undue influence or duress, and that we understood the Contract terms and conditions and were recommended to obtain legal advice and offered the right of other technical or specialist advice of our choice before entering into the same.

SIGNED

Purchaser:  Date: 13 / 1 / 2020 at 2 am/pm

Purchaser: \_\_\_\_\_ Date: / / 20 at \_\_\_\_\_ am/pm

Licensee Agent / Salesperson:  Date: 13 / 1 / 2020 at \_\_\_\_\_ am/pm

**Please Note:**

If you are intending to purchase the property as trustees of a trust, all trustees must sign this form.

If a company is purchasing the property, by signing this form you acknowledge that you are duly authorised to sign this form on the company's behalf.



31 March 2020

Our Reference: BC200253.01

Tara Homes Limited  
1474 Tram Road  
RD 5  
Rangiora 7475

Dear Sir/Madam

## PROJECT INFORMATION MEMORANDUM

Please find enclosed your Project Information Memorandum in respect of the proposed work at 24 Awatere Street PEGASUS.

Prior to **commencing building work**, the applicant must ensure that a Building Consent has been applied for and issued and that any "authorisations" have been obtained and any conditions of the PIM have been verified. These include:

### **Liquefaction hazard – Pegasus TC2 equivalent area**

Lot specific Penetrometer tests will be required for a property within the TC2 equivalent land classification of Pegasus Town, in accordance with Section 3 of the NZS 3604:2011 Standard.

***Please note:*** Penetrometer testing has been undertaken on the property by **Mike Wilton Consulting Engineers** – this will be reviewed as part of the Building Consent process.

### **Stormwater Disposal – condition 12.9 of RC135124**

The applicant is advised that all Stormwater from roofs shall discharge to ground via soakpits constructed in accordance with the Waimakariri District Council Standard Drawing 600-330A. The soakpits shall be wrapped with geotextile to prevent the ingress of silts. The soakpits shall be fitted with an overflow which shall be piped into the subsurface drainage system beneath the swales or directly into the piped system.

### **Sewer – condition 10.2 of RC135124**

The applicant is advised that a Simplex (Domestic) EOne Grinder Pump Station has been installed on each lot within stage 13. The on-site pump station, pipes and the boundary connection, excluding the stainless steel ball isolating valve shall be the property and responsibility of the landowner.

### **Minimum Finished Floor level**

As per Waimakariri District Council District Plan Rule 27.1.1.10 the finished floor level of all habitable rooms shall not be less than 3.85m above mean sea level.

### **Building Location Certificate**

The applicant is made aware that as the District plan requires a minimum finished floor level to be achieved within this subdivision, a building location certificate may be required during the Building Consent process and all levels are to refer back to a fixed Benchmark Datum located in the paved areas.



The approval plan along with any Development Contribution notification or Resource Consent Certificate (where applicable) attached to this Project Information Memorandum must be included with the Building Consent for the project (when issued). Any significant departure from the original plans may require that a new Project Information Memorandum be issued.

Yours faithfully



Joanna Eckersley  
PIMs Officer



**3 Project Information Memorandum [continued]**

**Project Information Memorandum**

**Sections 31-38, Building Act 2004**

**Application**

Tara Homes Limited 1474 Tram Road RD 5 Rangiora 7475	No.	BC200253.01
	Issue date	31 March 2020
	Received date	13 March 2020
	Responsible Officer	Joanna Eckersley

**Project**

Description	DWELLING WITH ATTACHED GARAGE
Intended Life	Indefinite (50+)
Intended Use	Residential
Estimated Value	\$270000.00
Location	24 Awatere Street PEGASUS
Legal Description	LOT 1460 DP 479470 0.039900 Ha
Valuation No.	2163200882

This project information memorandum is confirmation that the proposed building work may be undertaken, subject to the provisions of the Building Act 2004, and any requirements of the building consent.

This project information memorandum includes:

- \_\_\_ Information identifying special features of the land concerned
- \_\_\_ Information about the land or building concerned notified to the Council by any statutory organisation having the power to classify land or buildings
- \_\_\_ Details of relevant utility systems
- \_\_\_ Details of authorisations which have been granted
- \_\_\_ Notification of any other authorisations which must be obtained before the proposed building work may be undertaken
- \_\_\_ Important information

All boundary survey pegs are to be located by discovery or redefinition and flagged before work is commenced.

A current copy of the certificate of title is to be submitted with the building consent application.

The certificate of title may make reference to land covenants - a copy of which should be submitted with the Building Consent application.

No part of the structure is to exceed the Councils recession plane.



#### 4 Project Information Memorandum [continued]

This project Information Memorandum does not purport to be a full report on every aspect of the property which is likely to be relevant to the building works proposed. It is information that is known to the Council at the date of the issue of this memorandum. It is issued pursuant to Sections 30-39 of the Building Act 2004.

##### INFORMATION IDENTIFYING RELEVANT SPECIAL FEATURES OF THE LAND

Wind Zone High

Snow Zone 4

Earthquake Zone 2

This building project is located approximately 3.5m above mean sea level

The ASML is given for snow loading only and not to be used as datum for minimum floor levels or other design purposes

##### Comments:

##### Minimum Finished Floor level

As per Waimakariri District Council District Plan Rule 27.1.1.10 the finished floor level of all habitable rooms shall not be less than 3.85m above mean sea level.

##### Attachments:

Nil

##### INFORMATION ABOUT THE LAND OR BUILDINGS NOTIFIED TO THE COUNCIL BY ANY STATUTORY ORGANISATION HAVING THE POWER TO CLASSIFY LAND OR BUILDINGS

Environment Canterbury (Canterbury Regional Council)

##### Comments:

##### Environment Canterbury (Canterbury Regional Council) Liquefaction hazard study

The shading on the enclosed ECAN liquefaction study map identifies areas where liquefaction assessment is needed and where a site specific geotechnical investigation and report is required as part of a Building Consent application.

##### Installing a Woodburner / solid Fuel Burner, or other forms of heating in your home.

The applicant is advised to check with Environment Canterbury (Canterbury Regional Council) as to what type of fire if any may be installed into your proposed dwelling, this is determined by the Clean Air Zones. Tel: 0800324636 – This property is located **Outside of the Clean Air Zone**

##### Attachments:

ECAN liquefaction hazard map

##### DETAILS OF RELEVANT UTILITY SYSTEMS (administered by the Waimakariri District Council)

##### PLEASE NOTE:

**It is the applicant's responsibility to locate all service laterals prior to commencing any building work. If further information is required on any of the services please contact the Waimakariri District Council Utilities Department on 0800965468**

##### Sewer

Is a connection to a public sewer scheme available?

Yes

If yes, which public sewer scheme?

Eastern District

Is the property already connected?

Yes

**Please note:** As per condition 10.2 of RC135124 – Sewer connection to Low pressure Sewer System (Domestic) EOne Grinder Pump Station (installed by Developer)

##### Comments:

Connect to the service lateral provided in compliance with conditions of the Resource Consent for this development



**5 Project Information Memorandum [continued]**

The reticulation shall gravitate to the existing main located in **Awatere Street**. The reticulation design shall incorporate the following minimum requirements:

- a) The shared lateral between the road boundary and the sewer main (into which the shared lateral discharges) shall be verified for grade related capacity and condition.
- b) If lateral grade related capacity in (a) above is not satisfactory, then the sub divider shall install a new lateral within the road reserve to connect to the public main.
- c) The minimum grade for this shared lateral within the road reserve shall be a minimum of 1 in 80.

**Notes:**

Sewer connections must be installed by registered drainlayers. It is the property owner's responsibility to arrange connections. New connections to sewer mains must be inspected and approved by the Council prior to backfilling.

A trench opening permit is required to open a footpath or street.

A Capital charge is payable where the property has not previously paid sewer rates.

**Water**

Is a connection to a public water supply available?

Yes

If yes, which public water supply?

Pegasus Town

Is the property already connected?

Yes

**Comments:**

Connect to the service lateral provided in compliance with conditions of the Resource Consent for this development

**Notes:**

Water connections to property boundaries are installed by the Council after the receipt of charges payable.

A capital charge is payable where the property has not previously paid water rates.

**Stormwater**

Is a connection to a public drainage system available?

Yes

Is the property already connected?

No

Discharge point: via Soakpit to Roadside swale

**Comments:**

Connect to the service lateral provided in compliance with conditions of the Resource Consent for this development

**Notes:**

Stormwater connections must be installed by registered drainlayers. It is the property owner's responsibility to arrange connection. New connections to drainage systems must be inspected and approved by the Council prior to backfilling.

A trench opening permit is required if crossing a footpath.

A Capital charge is payable where the property has not previously paid urban drainage rates.

**Attachments**

"As Built" services plan

Soakpit Standard Drawing 600-330A

**DETAILS OF AUTHORISATIONS THAT HAVE BEEN GRANTED**

Resource Consent

**Comments:**

RC135124 – Stage 13B of Residential subdivision – 224c issued

**Attachments:**

A copy of the 224c is attached for reference

Copies of the above noted Resource Consent Decision can be emailed if requested.



**6 Project Information Memorandum [continued]**

**DETAILS OF AUTHORISATIONS THAT MUST BE OBTAINED BEFORE BUILDING CAN COMMENCE:**

Minimum Finished Floor level

**Comments:**

**Minimum Finished Floor level**

As per Waimakariri District Council District Plan Rule 27.1.1.10 the finished floor level of all habitable rooms shall not be less than 3.85m above mean sea level.

**Attachments:**

Nil

**DETAILS OF VEHICLE CROSSING (ENTRANCEWAY), TYPE OF FRONTAGE AND TRENCH OPENING PERMIT**

**Vehicle Crossing (Entranceway)**

Is formation of a vehicle crossing from road edge to property boundary required? Yes  
Type of access required: DWG 600-220A (Urban with swale) – as per permit # VC200057

**Advice Notes**

This property is within a **Silent file area** - SF014 Taerutu

**What is a Silent File area?**

A silent file area is an area indicated on attached planning map 148 as having cultural and/or spiritual significance to the local iwi (Te Nai Tuahuriri and Te Runanga o Ngai Tahu) and identifies the general areas, sites and features of significance, without marking specific locations. Where earthworks result in the discovery of material suspected to be a taonga, Koiwi or Maori Archaeological site, all site works shall cease and the consent holder shall notify Te Ngai Tuahuriri Runanga, the New Zealand Police, the Plan implementation Unit of the Waimakariri District Council and Heritage New Zealand of the discovery. For further information please contact the Duty Planner on 0800965468

This project information memorandum is confirmation that the proposed building work may be undertaken subject to the provisions of the Building Act 2004 and any requirements of the building consent **Not yet Approved**.

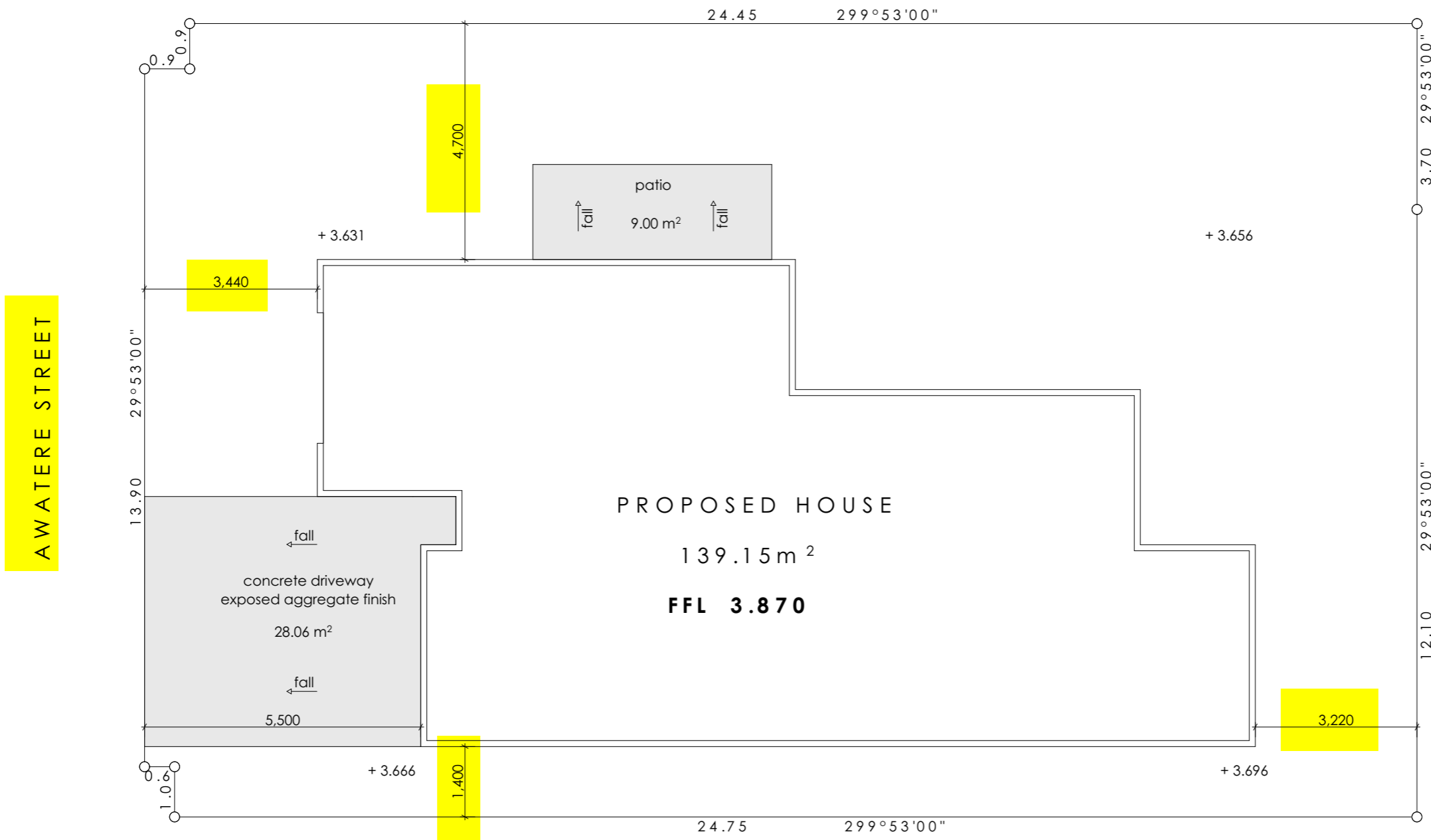
**Signed for and on behalf of the Council:**

**Name:** Joanna Eckersley

**Date:** 31/03/2020



APPROVED PIM APPLICATION  
Refer to PIM report for conditions of  
this application  
BC200253 31/03/2020 Joannae



**SITE PLAN**  
1:100

Site Datum (NTS)  
**RM91**  
Corner Awatere & Tuaki Street  
R.L 2.881



**Legal Description:**

Lot 1460  
DP 479470  
Site area: 399m<sup>2</sup>  
Site coverage: 39.6%

**Site Design Parameters:**

Wind zone: High  
Earthquake zone: 2  
Corrosion zone: C  
Snow zone: N4

All paved areas as indicated on  
Site Plan to be exposed  
aggregate concrete.

Wash from exposed aggregate  
process is not to drain into the  
stormwater system.

190mm max step up at all doors

DRAWING TITLE:

Site Plan

DRAWING ISSUE:

Consent

PROJECT:

New House

CLIENT:

Tara Homes

ADDRESS:

24 Awatere Street  
**Pegasus**

DATE:

13/03/2020

FILE No:

20008

DRAWN:

KVDM

CHECKED:

SHEET No:

**A.01**

**SCALE : 1:100 @ A3**

**APPROVED PIM APPLICATION**  
Refer to PIM report for conditions of  
this application  
BC200253 31/03/2020 Joannae



**FLOOR PLAN**  
1:100

**KAREN VAN DER MESPEL**  
ARCHITECTURAL DRAFTING  
022 082 7730  
karenvandermespel@gmail.com

**Note:**

Owner to confirm details of:

- Joinery
- Electrical
- Finishes
- Decoration
- Bathroom fittings
- Heat pump

See truss design for lintel sizes.

Tiled splashbacks to vanities & Kitchen & laundry benches with sealant to fitting junction.

3 coat waterbourne enamel paint finish to wet areas. Resene Spacecote Low Sheen Kitchen & Bathroom or similar.

Vinyl flooring to Kitchen, Bathroom & Ensuite floors.

Seal underside skirting before fixing.

Downlights to be IC or IC-F rated.

Erect work site barriers where required to comply with NZBC F5.

Electric lighting to provide 20 lux min illuminance at floor level as per table 1, G8/AS1

Hot water cylinder to be 250L mains pressure

Hot and cold water to be run in polybutylene pipework

- ⊕sd smoke alarm to NZBC F7 with test and hush buttons
- ⊗fv Manrose SF125 extract fan with ducting to soffit outlet

DRAWING TITLE:

**Floor Plan**

DRAWING ISSUE:

**Consent**

PROJECT:

**New House**

CLIENT:

**Tara Homes**

ADDRESS:

**24 Awatere Street  
Pegasus**

DATE:

**13/03/2020**

FILE No:

**20008**

DRAWN:

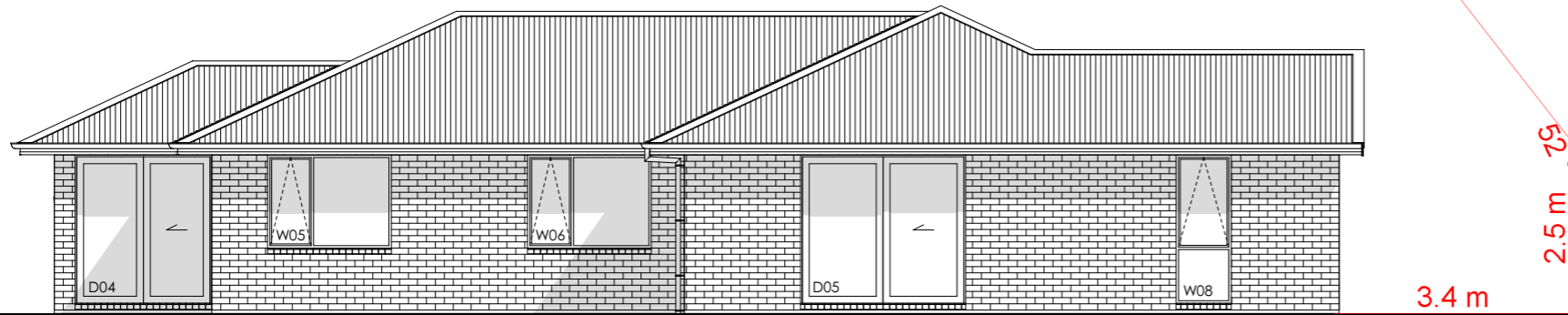
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SHEET No:

**A.02**

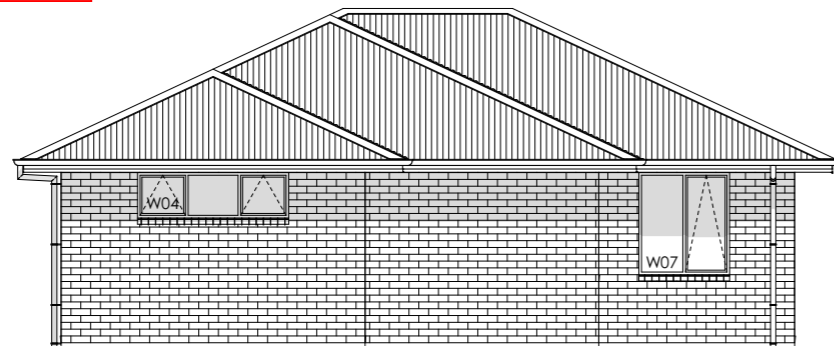
**SCALE : 1:100 @ A3**



APPROVED PIM APPLICATION  
Refer to PIM report for conditions of  
this application  
BC200253 31/03/2020 Joannae

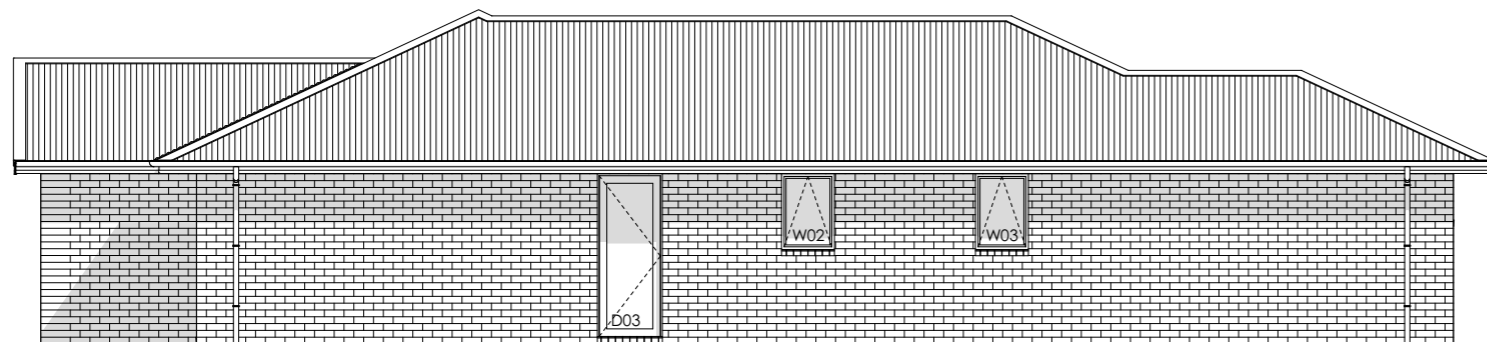
**NORTH ELEVATION**  
1:100

BUILDING ENVELOPE RISK MATRIX		
North Elevation		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	High risk	1
Number of storeys	Low risk	0
Roof/wall intersection design	Low risk	0
Eaves width	Medium risk	1
Envelope complexity	Low risk	0
Deck design	Low risk	0
<b>Total Risk Score:</b>		<b>2</b>



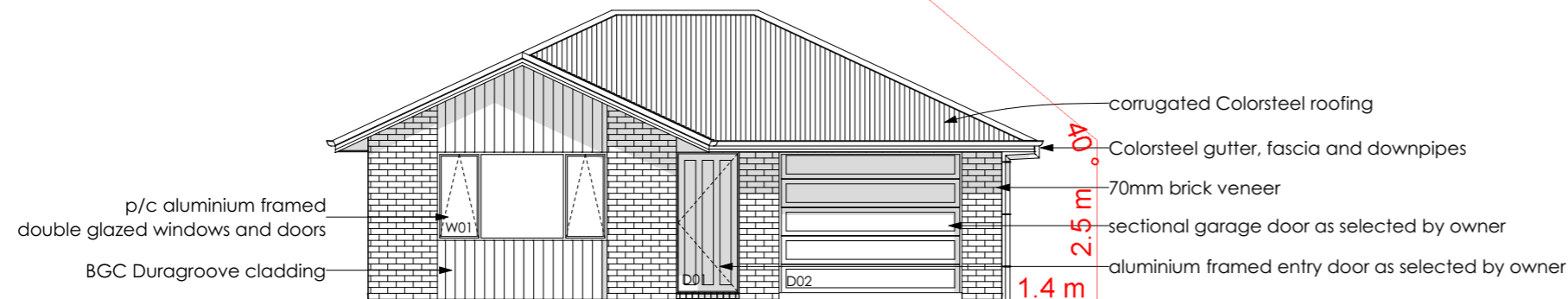
**EAST ELEVATION**  
1:100

BUILDING ENVELOPE RISK MATRIX		
East Elevation		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	High risk	1
Number of storeys	Low risk	0
Roof/wall intersection design	Low risk	0
Eaves width	Medium risk	1
Envelope complexity	Low risk	0
Deck design	Low risk	0
<b>Total Risk Score:</b>		<b>2</b>



**SOUTH ELEVATION**  
1:100

BUILDING ENVELOPE RISK MATRIX		
South Elevation		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	High risk	1
Number of storeys	Low risk	0
Roof/wall intersection design	Low risk	0
Eaves width	Medium risk	1
Envelope complexity	Low risk	0
Deck design	Low risk	0
<b>Total Risk Score:</b>		<b>2</b>



**WEST ELEVATION**  
1:100

BUILDING ENVELOPE RISK MATRIX		
West Elevation		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	High risk	1
Number of storeys	Low risk	0
Roof/wall intersection design	Low risk	0
Eaves width	High risk	2
Envelope complexity	Medium risk	1
Deck design	Low risk	0
<b>Total Risk Score:</b>		<b>4</b>

**KAREN VAN DER MESPEN**  
ARCHITECTURAL DRAFTING  
022 082 7730  
karenvandermespe@gmail.com

DRAWING TITLE:

Elevations

DRAWING ISSUE:

Consent

PROJECT:

New House

CLIENT:

Tara Homes

ADDRESS:

24 Awatere Street  
**Pegasus**

DATE:

13/03/2020

FILE No:

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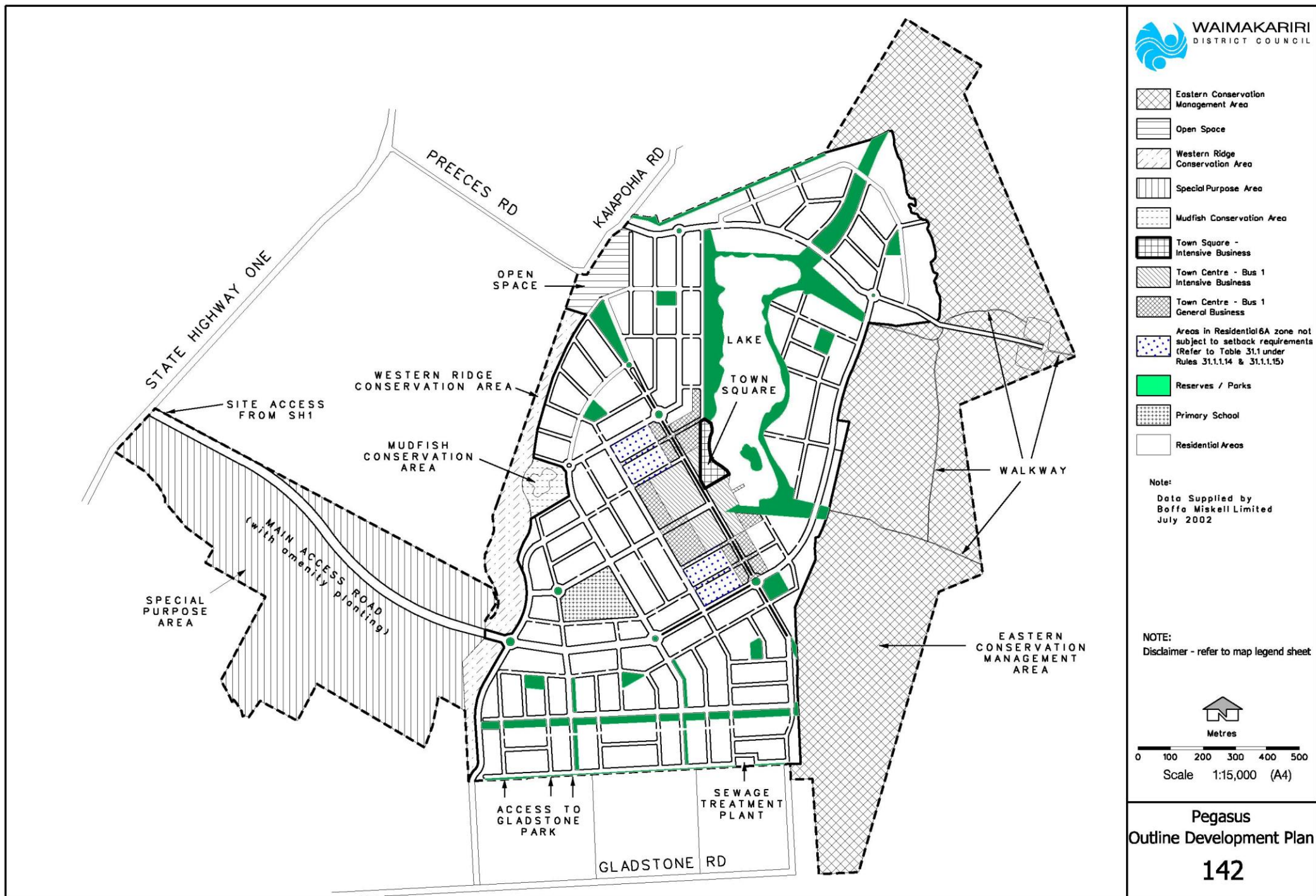
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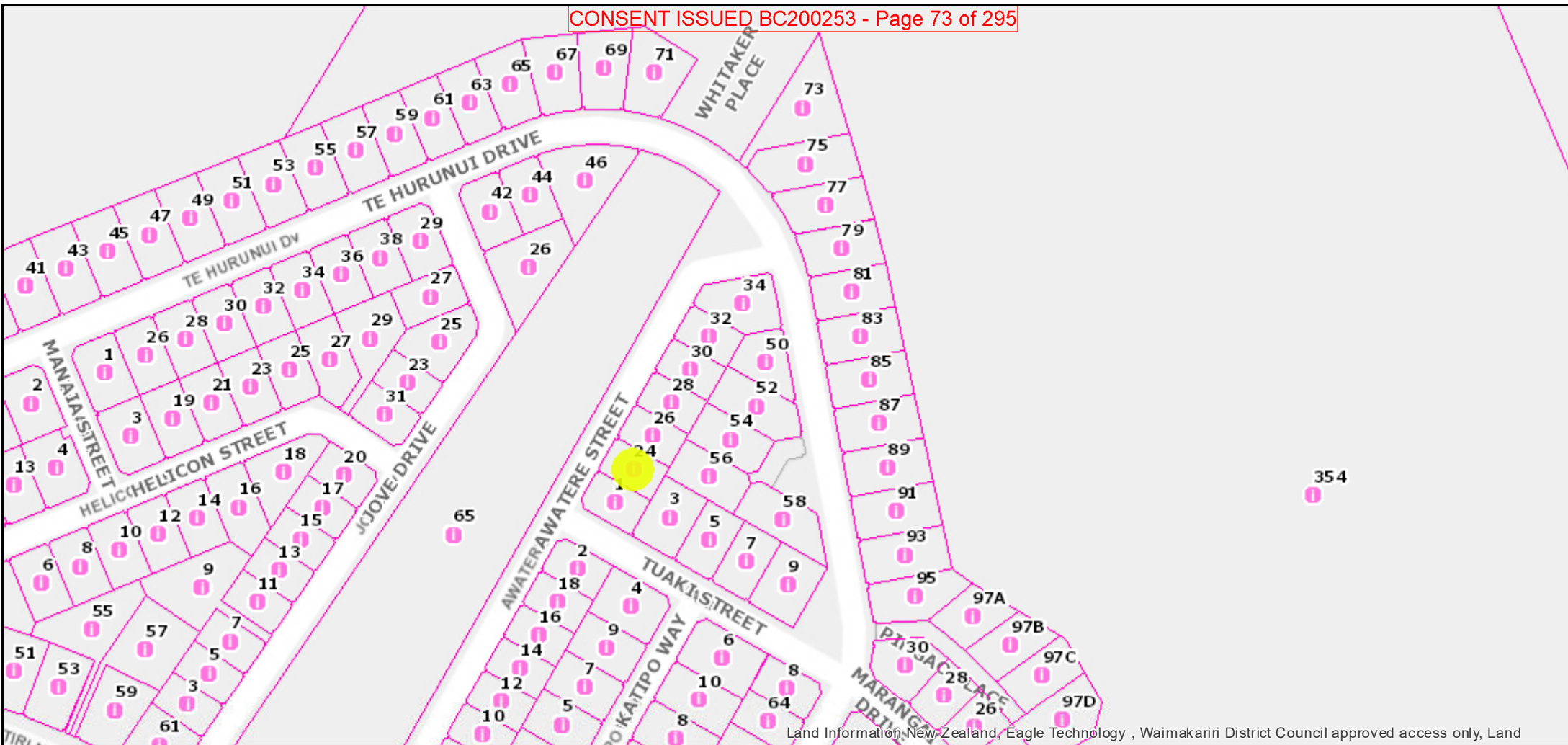
KVDM

CHECKED:

SHEET No:

**A.03****SCALE : 1:100 @ A3**





## Legend

- Properties < 1 ha
- Properties > 1 ha
- Property Boundaries
- Deposited Land Parcels
- Approved to Survey Land Parcels



## District Plan & Property

Date: 31/03/2020

Author: joannae@WMK

0 25 50 75 100

Meters

Scale @ A4 - 1:2257



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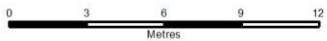
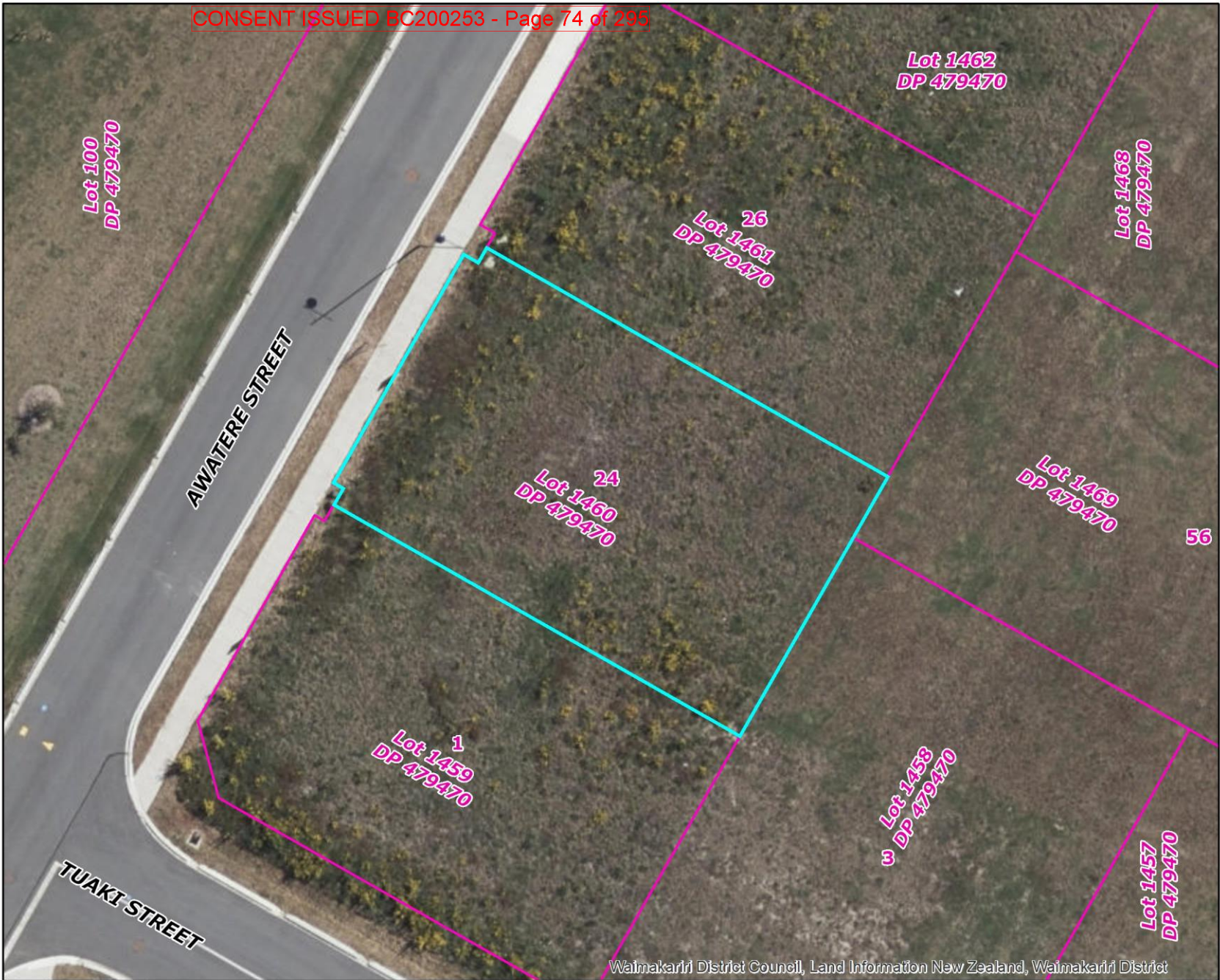
The location of Council services are shown indicatively only and no guarantee is given as to the accuracy of the information. The user of the information has the responsibility confirm the exact location of the service prior to commencing any construction including potholing and protecting existing services. Contractors will be held responsible for all damage to Council property. The Council does not guarantee the existence of service laterals to vacant lots, regardless of whether a lateral is shown or not. The Waimakariri District Council does not give and expressly disclaims any warranty, as to the accuracy or completeness of the information or its fitness for any purpose.

Flood information on this map is based on modelling outputs and the accuracy of this data is limited by the assumptions used in the model. The Council reserves the right to update this information and cannot guarantee that the information is accurate and up to date at all times. An experienced practitioner should be consulted if this information is to be used for Building or Development purposes. Please refer to the District Plan and the Council's Planning Unit if you wish to use this information for planning purposes. Anyone who acts on any of this information does so at their own risk.

Map Created by WAIMAP Utilities at 12:48:02 PM

Legend

- Road
- Property Address
- River
- Approved to Survey Land Parcel
- Property Boundary
- Land Parcel



Scale 1:293  
Original Size - A4

Property Information

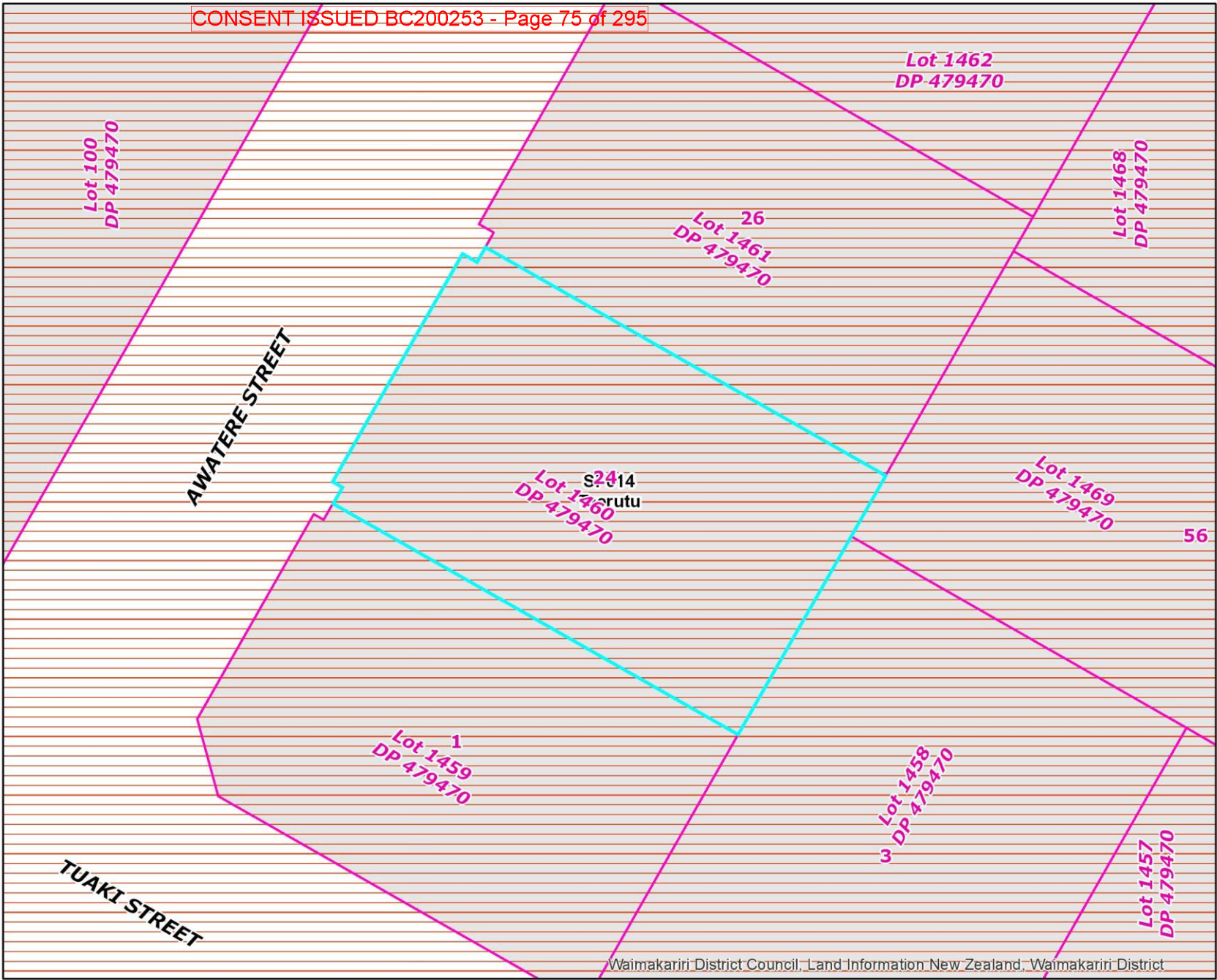
Date: 31/03/2020

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Legend

- Road
- Property Address
- River
- Approved to Survey Land Parcel
- Property Boundary
- Land Parcel
- Waahi Tapu/Waahi Taonga Points
- Waahi Tapu/Waahi Taonga Areas
- Silent File



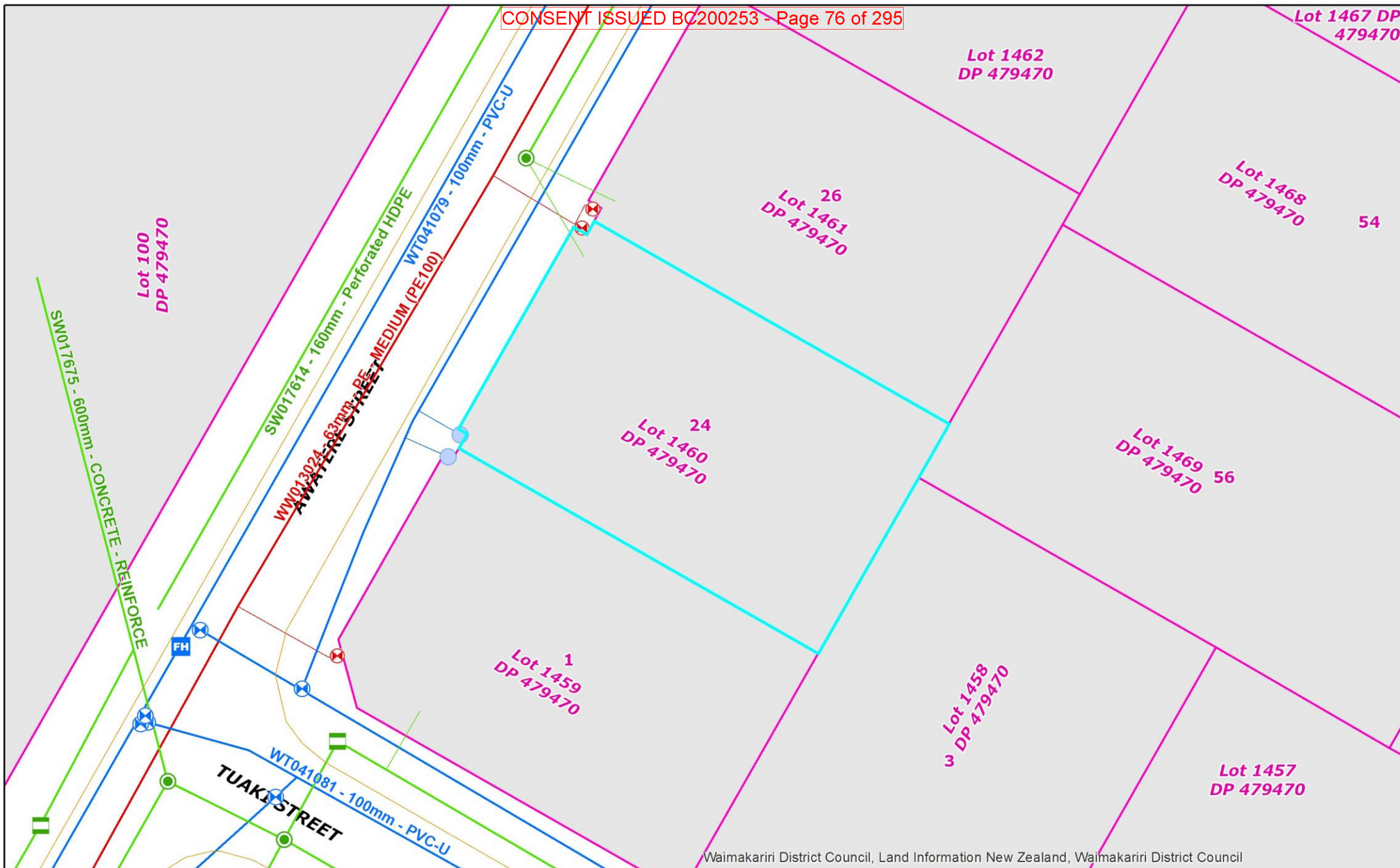
Scale 1:293  
Original Size - A4

Silent File

Date: 31/03/2020

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0 3 6 9 12  
Metres

Scale 1:292  
Original Size - A4

## Utilities














Date: 31/03/2020

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## WATER SUPPLY

	Main
	Abandoned Main
	Lateral
	Hurunui Main
	Facility
	Endcap
	Hydrant
	Valve
	Node
	Well
	Pump
	Tank
	Toby

















## WATER RACE

	Water Race Pond
	Water Race

## STORMWATER

	Main
	Abandoned Main
	Lateral
	Kerb
	Swale
	Channel Other
	Channel WDC
	Facility
	Manhole
	End
	Valve
	Node
	Pump
	Sump
	Inspection
	Inspection Chamber

## WASTEWATER

	Main
	Abandoned Main
	Lateral
	Facility
	Manhole - Standard
	Manhole - Vented
	Flush Tank
	Lamphole
	Rodding Eye
	Unknown
	Valve
	Node
	Pump
	Septic Tank
	Inspection
	Inspection Chamber

## DISCLAIMER:

While reasonable measures have been taken to ensure the accuracy of the information contained in this map, the Waimakariri District Council shall have no liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this map or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.

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The location of Council services are shown indicatively only and no guarantee is given as to the accuracy of the information. The user of the information has the responsibility to confirm the exact location of the service prior to commencing any construction including potholing and protecting existing services.

Contractors will be held responsible for all damage to Council property.

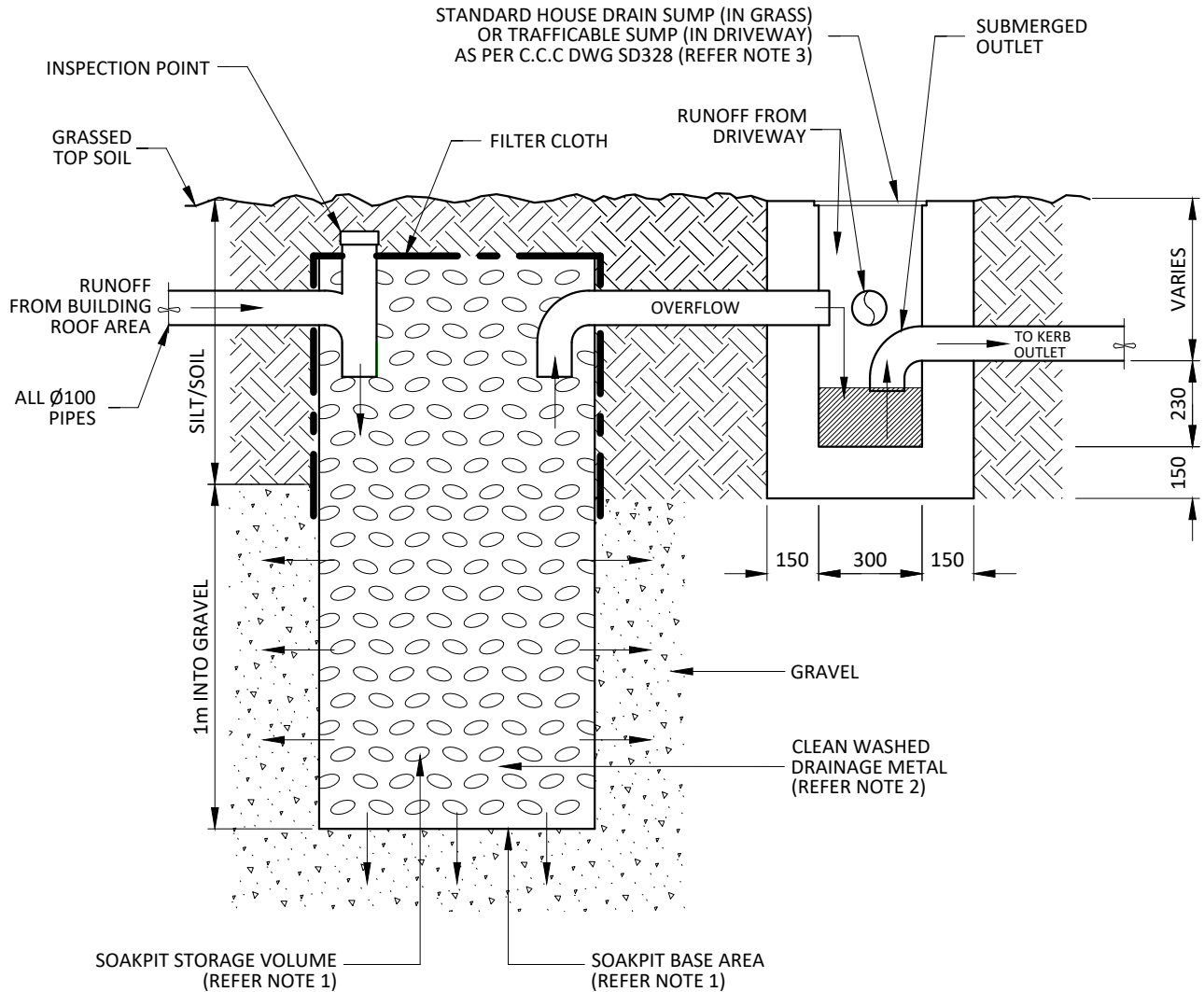
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An experienced practitioner should be consulted if this information is to be used for Building or Development purposes.

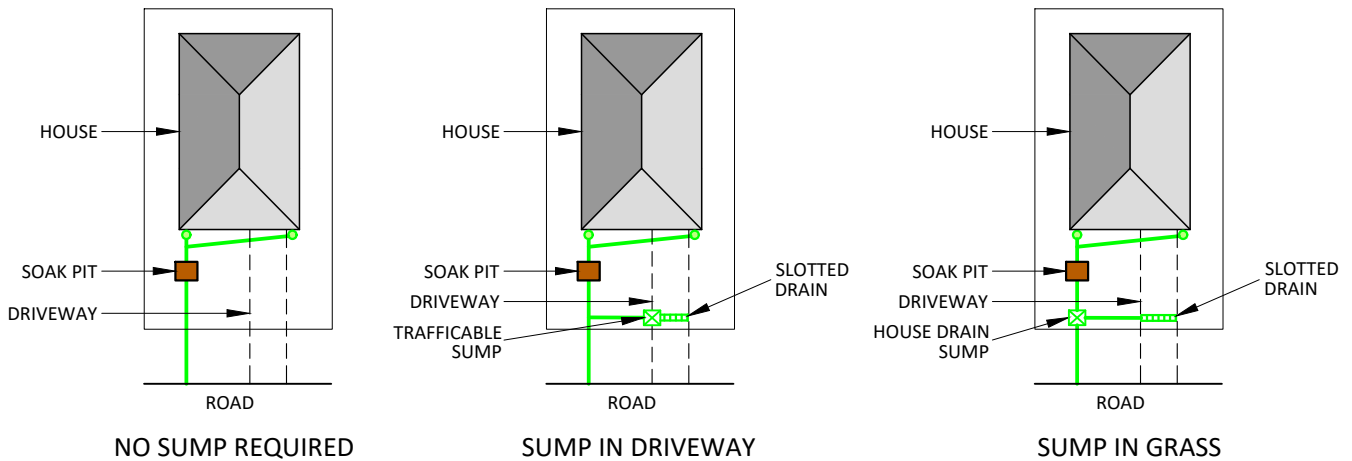
Please refer to the District Plan and the Council's Planning Unit if you wish to use this information for planning purposes.

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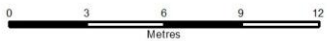
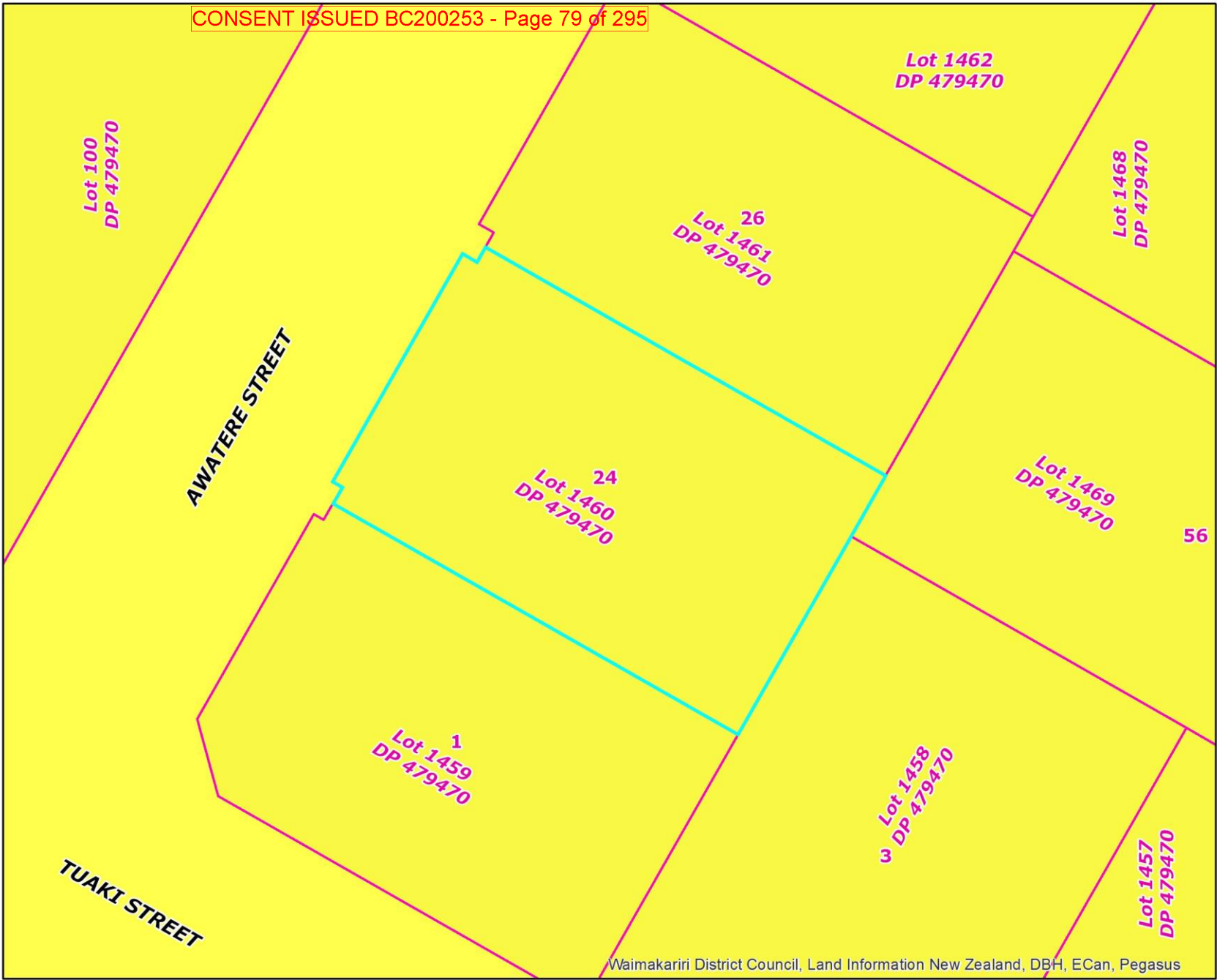
### NOTES:

1. SOAK PIT SIZING - PROVIDE 1m<sup>2</sup> OF BASE AREA PER 100m<sup>2</sup> OF ROOF AREA AND 2m<sup>3</sup> OF STORAGE VOLUME PER 100m<sup>2</sup> OF ROOF AREA (ALLOW 0.38 FACTOR FOR VOID SPACE) OR ALTERNATIVELY PROVIDE FULL DESIGN CALCULATIONS IN ACCORDANCE WITH VERIFICATION METHOD E1/VM1 SECTION 9.
2. CLEAN WASHED DRAINAGE METAL - TO BE EITHER TAILINGS 20mm-40mm, ROUNDS 40mm-65mm, BOULDERS 65mm-120mm, ROCKS 100mm-150mm OR SIMILAR.
3. A HOUSE DRAIN SUMP OR SMALL TRAFFICABLE SUMP IS ONLY REQUIRED WHERE RUNOFF FROM THE DRIVEWAY IS CONNECTED TO THE OUTLET PIPE (REFER INDICATIVE LAYOUT DIAGRAMS BELOW).



Legend

- Road
  - Property Address
  - River
  - Approved to Survey Land Parcel
  - Property Boundary
  - Land Parcel
- Liquefaction Risk**
- Broadly Equivalent To TC1
  - Broadly Equivalent To TC2
  - TC2
  - TC3
  - Further Geotechnical Assessment Required
  - Red Zone
  - DBH not zoned
  - Damaging liquefaction unlikely
  - Liquefaction assessment needed



Scale 1:293  
Original Size - A4

Liquefaction Risk

Date: 31/03/2020

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# TA Approvals

<b>Territorial Authority</b>	Waimakariri District Council TA Certification Division	<b>TA Reference</b>	RC135124
<b>Survey Number</b>	LT 479470	<b>Survey Purpose</b>	LT Subdivision
<b>Surveyor Reference</b>	60079 Stage 13b Pegasus RC135124	<b>Land District</b>	Canterbury
<b>Surveyor</b>	Neil Andrew Cox		
<b>Surveyor Firm</b>	Wood & Partners Consultants Ltd		
<b>Dataset Description</b>	Lots 1-3, 100-101, 1428-1437, 1443-1453 & 1455-1490 being a Subdivision of Lot 100 DP 474538		

## TA Certificates

Pursuant to Section 224(c) Resource Management Act 1991 I hereby certify that all the conditions of the subdivision consent have been complied with to the satisfaction of the Waimakariri District Council TA Certification Division. Dated this 16th day of October 2014.



## Signature

Signed by Yvonne Sally Fear, Authorised Officer, on 16/10/2014 11:44 AM

## Receipt Information

<b>Transaction Receipt Number</b>	8319862
<b>Signing Certificate (Distinguished Name)</b>	Fear, Yvonne Sally
<b>Signing Certificate (Serial Number)</b>	1292460487
<b>Signature Date</b>	16/10/2014

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

# **SECTION 2**

## **Geotech, Engineer**

## **Reports & Conditions**

## **PS1 & 2**

- Calculations**
- A4 Details**



# MIKE WILTON CONSULTING

CIVIL & STRUCTURAL ENGINEER

soil testing + foundation design  
residential + commercial buildings  
retaining walls  
roads, driveways + carparks  
subdivision design

20077

28<sup>th</sup> February 2020Email: [peter@tara.net.nz](mailto:peter@tara.net.nz)

Tara Homes Ltd  
1474 Tram Road,  
RD 5  
Rangiora 7475

Ph 027 608 9824

WAIMAKARIRI DISTRICT COUNCIL  
Plans and specifications APPROVED in accordance  
with the Building Act 2004, clause 49 and the Building  
Regulations 1992, Clause 3  
200253 1/04/2020 Chrisk

Dear Peter,

**Re: Soil Tests for Lot 1460 @ Awatere Street, Pegasus**

A Ground Inspection of the site carried out on the 28<sup>th</sup> February 2020 reveals that the ground appears stable with no signs of instability or ground cracking and therefore the site is recommended suitable for the new proposed house development. Note the site is in TC2 Green Zone, Rural and Unmapped, and no visual signs of liquefaction or ground cracking were noted.

To verify the ground conditions four Scala Penetrometer Tests and two Boreholes were carried out on the above site to a depth of 1.0m and 0.7m respectively (see Test Result and Test Location Plan, Sheet 1).

The ground consists of dry brown sand with minor sub-rounded gravels and roots 0-300mm followed by light brown moist fine to medium sand with rounded gravels from 300-700mm and then the hand auger met refusal due to gravel/ hard ground.

The Ultimate ground bearing was greater than 400kPa from 300mm to 700mm depth. Note 300kPa is required for houses with standard foundation.

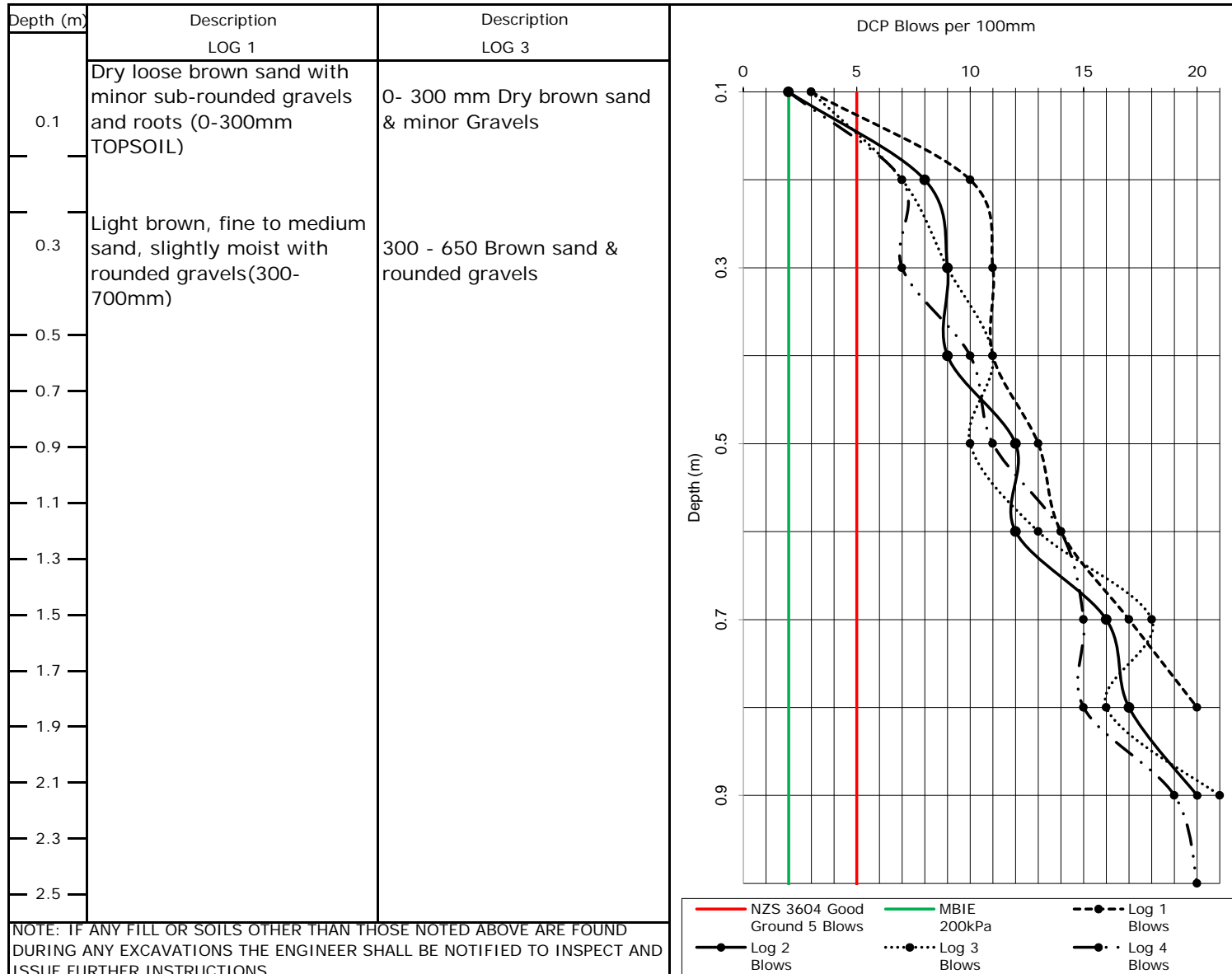
For the proposed house development, a standard foundation complying to NZS 3604 is suitable for this site

Yours faithfully,

Mike Wilton  
B.E. Civil MIPENZ 058341  
Civil & Structural Engineer

Adrian Collis  
B.E. Civil CPEng 160987  
Civil & Structural Engineer

Client: <b>TARA HOMES</b>	JOB NO	<b>20077</b>	DATE	<b>27/02/2020</b>
Project: <b>LOT 1460, Awatere Street, Pegasus</b>	LOG	<b>1 to 4</b>	PAGE	<b>1 of 1</b>
Note:	LOT	1460	BY	<b>HL</b>





WAIMAKARIRI DISTRICT COUNCIL  
Plans and specifications APPROVED in accordance  
with the Building Act 2004, clause 49 and the Building  
Regulations 1992, Clause 3  
200253 1/04/2020 Chrisk

**HFC GROUP**  
CIVIL & STRUCTURAL ENGINEERS

STRUCTURAL CALCULATIONS FOR  
24 AWATERE STREET, PEGASUS

PREPARED FOR  
TARA HOMES LTD

JOB NO. 20-090

4 March 2020

## CONTENTS

SECTION	DESCRIPTION
A	Producer Statement Design (PS1)
B	Design Certificate (Form 2A)
C	Inspection Schedule
D	Design Features Report
E	Design Calculations

4 March 2020

HFC Job No.20-090

1474 Tram Road, RD 5  
Rangiora 7475

AUCK@HFC.CO.NZ  
CHCH@HFC.CO.NZ

Attention: Tara Homes Ltd

Dear Sir/Madam,

**Re 24 AWATERE STREET, PEGASUS**

**PS1 LIMITATIONS WITH REGARD TO B2 DURABILITY**

Please find attached our PS1 producer statement and supporting documentation.

A Producer Statement for Clause B2 – Structural Durability of the Building Code has been requested. We can confirm that for the structural elements shown on our documentation are likely to comply with the Building code requirements as follows:

- Steel members – Steel Protection is specified by the Architect generally but should otherwise be in accordance with clause 3.6(SNZ TS 3404) of Acceptable Solution B2/AS1. We note this is on a time to first maintenance basis;
- Concrete members – concrete covers in accordance with the specification and NZS3101.
- Timber members – timber durability is covered in accordance with the specification and compliance with Table 1A of B2/AS1.
- Weather tightness and waterproofing details and materials are specifically excluded from our PS1
- The Producer Statements issued should not be relied on to establish compliance with the building code clauses E1, E2, E3. Weathertightness and waterproofing design, materials, proprietary products, construction and/or inspections are specifically excluded from these producer statements.
- The durability of structural building work is reliant on protection from external water and moisture being achieved and maintained throughout the life of the building or structure. Protection against external water and moisture is dependent on appropriate detailing, materials, proprietary products and construction practices which HFC does not design/or inspect for compliance with the requirements of the building code.
- HFC accepts no liability in contract, tort, or otherwise (including negligence) for the failure of the building or structure to meet or perform to the requirements of the Building Act 2004 (or any subsequent Act) and any regulations made there under (or any amendment or substitution thereof) in relation to:
  - External water and/or moisture
  - The loss of structural durability or strength to the building or structure as a result of external moisture entering the building or structure, or the effects thereof.

If you have any queries regarding the above, please phone to discuss at your convenience.

渡邊智明

Tom Watanabe

For and on Behalf of  
HFC; Civil and Structural (South) Ltd.

T: 09 367 1070  
T: 03 339 7000

P.O. BOX 109 106, NEW MARKET, AUCKLAND  
P.O. BOX 28 006, BECKENHAM, CHRISTCHURCH

**HFC | GROUP**  
**CIVIL & STRUCTURAL ENGINEERS**



# PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on page 2)

Building Code Clause(s) **B1 & B2** with limitations as per attached cover letter

ISSUED BY: **HFC: Civil & Structural (South) Limited**

(Design Firm)

TO: **Tara Homes Ltd**

(Owner/Developer)

TO BE SUPPLIED TO: **Waimakariri District Council**

(Building Consent Authority)

IN RESPECT OF: **Proposed New Residence (Foundation Only)**

(Description of Building Work)

**WAIMAKARIRI DISTRICT COUNCIL**  
Plans and specifications APPROVED in accordance with the Building Act 2004, clause 49 and the Building Regulations 1992, Clause 3  
200253 1/04/2020 Chrisk

AT: **24 Awatere Street, Pegasus**

(Address)

LOT **1460**

DP **479470**

SO

We have been engaged by the owner/developer referred to above to provide **Structural Engineering Service including Foundation Design** in respect of the requirements of

(Extent of Engagement)

Clause(s) **B1 & B2** (as per attached cover letter) 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: **B1/VM1, AS1, VM4 & B2** (as per attached cover letter)

☒ Compliance Documents issued by the Ministry of Business, Innovation & Employment. Refer to below list as appropriate or (verification method / acceptable solution)  
☐ Alternative solution as per the attached schedule. **NZS3603, NZS3604, NZS4229, MBIE guidance document, 'Repairing and rebuilding houses affected by the Canterbury earthquakes'**

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

**24 Awatere Street** and numbered **S99 - S101**

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: **Ultimate Bearing Capacity of 300kPa as per Mike Wilton Consulting report**

(i) Site verification of the following design assumptions **Ref. 20077 dated 28 February 2020 (attached)**;

(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, **Tomoaki Watanabe**

(Name of Design Professional)

am:

☒ CPEng

Reg. No 1010912, #

Auckland Producer Statement

☐ Reg Arch

Author Reg. No. 2818#

I am a Member of: ☒ IPENZ ☐ NZIA and hold the following qualifications: **BE, ME, 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 **Tomoaki Watanabe**

ON BEHALF OF **HFC: Civil & Structural (South) Limited**

(Design Firm)

Date **4 March 2020**

(signature)

渡邊智明

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

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

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

## GUIDANCE ON USE OF PRODUCER STATEMENTS

Producer statements were first introduced with the Building Act 1992. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects, Institution of Professional Engineers New Zealand, Association of Consulting Engineers New Zealand in consultation with the Building Officials Institute of New Zealand. The original suite of producer statements has been revised at the date of this form as a result of enactment of the Building Act (2004) by these organisations to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with reasonable grounds for the issue of a Building Consent or a Code Compliance Certificate, without having to duplicate design or construction checking undertaken by others.

<b>PS1 Design</b>	Intended for use by a suitably qualified independent design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;
<b>PS2 Design Review</b>	Intended for use by a suitably qualified independent design professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;
<b>PS3 Construction</b>	Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2003 <sup>1</sup> or Schedules E1/E2 of NZIA's SCC 2007 <sup>2</sup>
<b>PS4 Construction Review</b>	Intended for use by a suitably qualified independent design professional who undertakes construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.
This must be accompanied by a statement of completion of building work (Schedule 6).	

The following guidelines are provided by ACENZ, IPENZ and NZIA to interpret the Producer Statement.

### Competence of Design Professional

This statement is made by a Design Firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its designers.

A competent design professional will have a professional qualification and proven current competence through registration on a national competence-based register, either as a Chartered Professional Engineer (CPEng) or a Registered Architect.

Membership of a professional body, such as the Institution of Professional Engineers New Zealand (IPENZ) or the New Zealand Institute of Architects (NZIA), provides additional assurance of the designer's standing within the profession. If the design firm is a member of the Association of Consulting Engineers New Zealand (ACENZ), this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent design professional".

### \* Professional Indemnity Insurance

As part of membership requirements, ACENZ requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI insurance minimum stated on the front of this form reflects standard, small projects. If the parties deem this inappropriate for large projects the minimum may be up to \$500,000.

### Professional Services during Construction Phase

There are several levels of service which a Design Firm may provide during the construction phase of a project (CM1-CM5)<sup>3</sup> (OL1-OL4)<sup>2</sup>. The Building Consent Authority is encouraged to require that the service to be provided by the Design Firm is appropriate for the project concerned.

### Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design Firm's engagement.

### Attached Particulars

Attached particulars referred to in this producer statement refer to supplementary information appended to the producer statement.

### Refer Also:

<sup>1</sup> *Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2003*

<sup>2</sup> *NZIA Standard Conditions of Contract SCC 2007 (1st edition)*

<sup>3</sup> *Guideline on the Briefing & Engagement for Consulting Engineering Services (ACENZ/IPENZ 2004)*

[www.acenz.org.nz](http://www.acenz.org.nz)  
[www.ipenz.org.nz](http://www.ipenz.org.nz)  
[www.nzia.co.nz](http://www.nzia.co.nz)



4 March 2020

**Specific Structural Inspection Schedule for Proposed New Residence  
(Foundation Only) at  
24 Awatere Street, Pegasus**

To whom it may concern

HFC recommend the following minimum structural inspections be carried out by a Chartered Professional Engineer (or nominated representative) to enable the issue of a PS4 – Producer Statement - Construction Review. We recommend the construction monitoring level of CM3 be provided for these structural elements listed below. Please refer to the ACENZ/IPENZ construction monitoring guide in the following page.

Structural Inspection Schedule		
Element	Inspection of:	Number of inspections
Ground	Cut inspection to be completed by HFC: Civil & Structural (south) Ltd	1+
Foundation	Pre-pour inspection to be completed by HFC: Civil & Structural (south) Ltd	1+
Total number of inspections required:		2+

Notes:

1. It is the responsibility of the owner's agent or contractor to check the building consent conditions carefully and ensure all the necessary inspections are undertaken before enclosing or covering any structural works. Please notify the HFC Engineer when inspections are to be required with at least 48hrs notice.
2. Inspections may be combined or added to at the discretion of the CPEng engineer.
3. Issue of a PS4 Producer Statement – Construction Review is dependent on the satisfactory completion of the specified works, and only issued for the work which has been inspected, and found to be in compliance with the structural documentation. We may reject to sign off PS4 for the item which we have not inspected. For retrospective approval, we may ask invasive investigation & ask contractor for PS3 Producer Statement – Construction prior to the issue of a PS4.
4. For engineering enquiries & inspection booking relating to this project, please contact the HFC office (Denise Tinga) direct on 03 339 7000 quoting reference #20-090.

Yours faithfully  
per: HFC Civil and Structural (South) Ltd

渡邊 智明

Tom Watanabe  
Senior Structural Engineer  
BE, ME, CMEngNZ, CPEng, IntPE(NZ)

WAIMAKARIRI DISTRICT COUNCIL  
Plans and specifications APPROVED in accordance  
with the Building Act 2004, clause 49 and the Building  
Regulations 1992, Clause 3  
200253 1/04/2020 Chrisk

# ACENZ / IPENZ Construction Monitoring Guide

CONSTRUCTION MONITORING SERVICE		
LEVEL	REVIEW	COMMENT
CM1	Monitor the outputs from another party's quality assurance programme against the requirements of the plans and specifications. Visit the works at a frequency agreed with the client to review important materials of construction critical work procedures and/or completed plant or components. Be available to advise the constructor on the technical interpretation of the plans and specifications	This level is only a secondary service. It may be appropriate where: - For the design consultant when another party is engaged to provide a higher level of construction monitoring or review during the period of construction or - When the project works are the subject of a performance based specification and performance testing is undertaken and monitored by others.
CM2	Review, preferable at the earliest opportunity, a sample of <u>each</u> important work procedure, material of construction and component for compliance with the requirements of the plans and specifications and review a representative sample of <u>each</u> important completed work prior to enclosure or completion as appropriate. Be available to provide the constructor with technical interpretation of the plans and specification.	This level of service is appropriate for smaller projects of a routine nature being undertaken by an experienced and competent constructor and where a higher than normal risk of non-compliance is acceptable. It provides for the review of a representative sample of work procedures and materials of construction. The assurance of compliance of the finished work is dependent upon the constructor completing the work to at least the same standard as the representative sample reviewed.
CM3	Review, to an extent agreed with the client, <u>random samples</u> of important work procedures, for compliance with the requirements of the plans and specifications and review <u>important</u> completed work prior to enclosure or on completion as appropriate. Be available to provide the constructor with technical interpretation of the plans and specifications.	This level of service is appropriate for medium sized projects of a routine nature being undertaken by an experienced constructor when a normal risk of non-compliance is acceptable.
CM4	Review, at a frequency agreed with the client, <u>regular samples</u> of work procedures, materials of construction and components for compliance with the requirements of the plans and specifications and review the <u>majority</u> of completed work prior to the enclosure or on completion as appropriate.	This level of service is appropriate for projects where a lower than normal risk of non-compliance is required.
CM5	Maintain personnel on site to <u>constantly</u> review work procedures, materials of construction and components for compliance with the requirements of the plans and specifications and review completed work prior to enclosure or on completion as appropriate.	This level of service is appropriate for- Major projects -Projects where the consequences of failure are critical- Projects involving innovative or complex construction procedures. The level of service provides the client with the greatest assurance that the completed work complies with the requirements of the plans and specifications.

## **D                      Design Features Report**

These calculations relate to the proposed new residence at 24 Awatere Street, Pegasus.

The foundation has been designed as TC2 waffle slab as per MBIE guideline Option 4. 2m loss of support to the exterior and 4m loss of support to the interior are checked.

## **E                      Design Calculations**

Job:	Waffle Foundation Design				Page:
Section:	24 Awatere Street, Pegasus				1
Job no:	20-090	Designed:	ML	Rev:	
Date:	4-03-20	Checked:	TW	A	

Building Address: 24 Awatere Street, Pegasus

## STATIC BEARING:

### SOIL BEARING CAPACITY:

Allowable (SLS): 100 kPa  
 Ultimate (ULS): 300 kPa  
 Hardfill Depth: 225 mm

### RIB BEARING:

Rib width: 100 mm Slab thickness: 85 mm  
 Rib spacing: 850 mm (crs) Pod size: 750 mm sq. x 215 mm  
 Bot. Cover: 50 mm Slab Cover: 30 mm

Gravity Load  $G = 3.18$  kPa (incl. tiles & ribs)

General Areas  $Q = 1.5$  kPa Point Load: 1.8 kN

Garage Area  $Q = 2.5$  kPa Point Load: 13 kN

Critical  $Q = 2.5$  kPa 13 kN

Assume: 0.425 m UDL goes to the rib.

SLS [  $G + y_s Q$  ]  $G = 3.18$  kPa Qudl= 1.75 kPa  
 (no tiles) Qc= 9.1 kN

Load under rib:  $G + Qudl = 21$  kPa (LBW < 10kN/m similar)  
 $G + Qc = 115$  kPa

Max pressure at subsoil = 69.0 kPa < 100 OK

ULS [  $1.2G + 1.5Q$  ]  $G = 3.52$  kPa Qudl= 3.75 kPa  
 Qc= 19.5 kN

$G + Qudl = 31$  kPa  
 $G + Qc = 232$  kPa

Max pressure at subsoil = 139 kPa < 150 OK

### MAIN **EXTERNAL** BEAM BEARING

External

Beam Depth: 215 mm (excluding slab)  
 Beam Width: 300 mm

Permanent Loads:	Load (kPa)	Tribut. (m)	Line Load (kN/m)
Foundation	5.16	0.3	1.548
Ground floor (slab)	2.04	0.425	0.87
Walls	1.8	2.4	4.32
Roof & Ceiling	0.4	3.3	1.30
floor(if 2 storey)			0
$G =$			8.04 kN/m

Brick cladding

Coloursteel roofing

Imposed Loads:	Load (kPa)	Tribut. (m)	Line Load (kN/m)
Ground floor	1.5	0.425	0.6375
Roof	0.25	3.3	0.8125
1st floor(if 2 storey)			0
$Q =$			1.45 kN/m

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Snow Load	Load (kPa)	Tribut. (m)	Line Load (kN/m)
Roof	0.441	3.3	1.43
Suls =			1.43 kN/m
Ssls =			0.96 kN/m

Sg = 0.9 kPa  
Pitch = 25 degrees  
Mu = 0.49

Wind Load	Load (kPa)	Tribut. (m)	Line Load (kN/m)
Roof	-1.5	3.3	-4.9
Wuls =			-4.9 kN/m
Wsls =			-3.27 kN/m

#### SLS Load Combinations

[G + ysQ]	9.05 kN/m
[G + Ssls]	9.00 kN/m
[G + Wsls]	4.77 kN/m

**Critical Case:**  
**9.05 kN/m**

Max pressure at subsoil = 30.2 kPa < 100

OK

#### ULS Load Combinations

[1.2G + 1.5Q]	11.82 kN/m
[0.9G + Wuls]	2.36 kN/m
[1.2G + Suls + ycQ]	11.66 kN/m

**Critical Case:**  
**11.82 kN/m**

Max pressure at subsoil = 39.4 kPa < 150

OK

#### MAIN **INTERNAL** BEAM BEARING

Internal

Beam Depth: 215 mm (excluding slab)  
Beam Width: 300 mm

Permanent Loads:	Load (kPa)	Tribut. (m)	Line Load (kN/m)
Foundation	5.16	0.3	1.548
Ground floor (slab)	2.04	0.85	1.73
Walls	0.3	2.4	0.72
Roof & Ceiling	0.4	3.6	1.44
floor(if 2 storey)	0.55	0	0
G =			5.44 kN/m

Internal wall framing  
Coloursteel roofing

Imposed Loads:	Load (kPa)	Tribut. (m)	Line Load (kN/m)
Ground floor	1.5	0.85	1.275
Roof	0.25	3.6	0.9
1st floor(if 2 storey)	1.5	0	0
Q =			2.175 kN/m

Snow Load	Load (kPa)	Tribut. (m)	Line Load (kN/m)
Roof	0.441	3.6	1.59
Suls =			1.59 kN/m
Ssls =			1.06 kN/m

Sg = 0.9 kPa  
Pitch = 25 degrees  
Mu = 0.49

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Wind Load	Load (kPa)	Tribut. (m)	Line Load (kN/m)
Roof	-1.5	3.6	-5.4
Wuls =			-5.4 kN/m
Wsls =			-3.62 kN/m

#### SLS Load Combinations

[G + ysQ]	6.96 kN/m	
[G + Ssls]	6.51 kN/m	<b>Critical Case:</b>
[G + Wsls]	1.82 kN/m	<b>6.96 kN/m</b>

Max pressure at subsoil = 23.2 kPa < 100 OK

#### ULS Load Combinations

[1.2G + 1.5Q]	11.82 kN/m	
[0.9G + Wuls]	1.83 kN/m	<b>Critical Case:</b>
[1.2G + Suls + ycQ]	10.22 kN/m	<b>11.82 kN/m</b>

Max pressure at subsoil = 39.4 kPa < 150 OK

### LOSS OF SUPPORT:

**TWO-WAY SLAB:** Slab thickness : 0.085 m  $f_c'$  : 25 MPa  
Max. slab span : 0.85 m  $E_c$  : 23500 MPa

Load case:  $[G + Eu + ycQ]$  UDL (kN) 4.18 Point Load (kN) 5.2 (Page 1)

M-UDL: 0.19 kNm/m  $M^*_{uls}$  = 0.74 kNm/m  
M-P: 0.55 kNm/m  $V^*_{uls}$  = 0.36 kN/m

Mesh type: SE62

As= 146 mm<sup>2</sup>/m  $f_y$ = 500 MPa T= 73 kN  
d= 40 mm a= 3.44 mm jd= 38.28 mm

Flexure  $\phi M_n$  = 2.38 kNm > 0.74 OK

Shear  $\phi V_n$  = OK by observation

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**RIB BEAMS:**

Rib depth = **215** mm      d-bottom      250 mm      Rib spacing:  
 Total h =      300 mm      d-top      270 mm      0.85 m  
    flange beff      **700** mm (total)

**(a) 4.0m - Simply Supported**

**Loads on Rib:**

*Load Case*

*[G + 0.3Q]*

General Areas:	Rib beam		0.52 kN/m
	G-slab	3.18 kPa	2.71 kN/m
	Q-slab	0.45 kPa	0.38 kN/m
	Total Line Load:		3.60 kN/m
	Point Load:		0.72 kN
Garage Areas:	G-slab	2.93 kPa	2.49 kN/m
	Q-slab	0.75 kPa	0.64 kN/m
	Total Line Load:		3.65 kN/m
	Point Load:		5.2 kN

**Critical Cases, UDL:**

**3.65 kN/m**

**Point Load:**

**5.2 kN**

*(at midspan)*

**M\* = 7.29 kNm**

**V\* = 3.65 kN**

**Rib Bottom Steel:**

**HD 10**

**n = 1**

**fy = 500 Mpa**

**Flexure:**

As = 78.54 mm<sup>2</sup>

T = 39.27 kN

a = 2.64 mm

jd = 248.68 mm

**øMn = 8.30 kNm**

**> 7.29**

**OK**

**Shear:**

pw = 3.14E-03

vb = 0.5071 Mpa

Vc = 12.68 kN

Links:

**R 0 250** crs

Vs = 0.00 kN

Provide Shear Fibre Reinf. **None**

Vfd = 0.00 kN

**øVn = 9.51 kN**

**> 3.65**

**OK**

**Deflections:**

Ec = 23500 MPa

Irib = 301.15403 x10<sup>6</sup> mm<sup>4</sup>

**Δmid = 1.72 mm**

**= span / 2329**

**OK**



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**Shear:**      pw = 7.27E-03      vb = 0.7133 Mpa      Vc = 17.74 kN  
                  Links: **R 0 250** crs      Vs = 0.00 kN  
                  Provide Shear Fibre Reinf. **None**      Vfd = 0.00 kN

$\phi V_n = 13.31 \text{ kN} > 13.22$       **OK**

**Deflections:**      Ec = 23500 MPa      Irib = 301.15403 x10<sup>6</sup> mm<sup>4</sup>

$\Delta_{end} = 5.76 \text{ mm} = \text{span} / 347$       **OK**

**MAIN BEAMS (EXT):**      Total h = 300 mm      d-bottom = 250 mm  
    w = 300 mm      d-top = 270 mm  
    Rebate = 50x100 mm<sup>2</sup>      Rebate area = 5000 mm<sup>2</sup>

**(a) 4.0m Simply Supported**

**Loads on main Beams:**      G line load = 8.04 kN/m      **Point Load**  
                  *Load Case*      Q line Load = 1.45 kN/m  
                  *[G + 0.3Q]*      **Combination = 8.47 kN/m**      **0 kN**

**M\* = 16.94 kNm      V\* = 16.94 kN**

**Beam Bottom Steel:**      HD **12**      n = **2**      fy = **500** Mpa

**Flexure:**      As = 226.19 mm<sup>2</sup>      T = 113.10 kN  
                                  a = 17.74 mm      jd = 241.13 mm

$\phi M_n = 23.18 \text{ kNm} > 22.90$       **OK**

**Shear:**      pw = 2.66E-03      vb = 0.4831 Mpa      Vc = 36.23 kN  
                  Links: **R 0 250** crs      Vs = 0.00 kN  
                  Provide Shear Fibre Reinf. **None**      Vfd = 0.00 kN

$\phi V_n = 27.17 \text{ kN} > 16.94$       **OK**

**Deflections:**      Ec = 23500 MPa      Ibeam = 390.63 x10<sup>6</sup> mm<sup>4</sup>

*UDL*       $\Delta_{mid} = 3.08 \text{ mm}$

*Pt.Ld*       $\Delta_{mid} = 0.00 \text{ mm}$

**3.08 mm**

span/ 1301

**OK**

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**(b) 2.0m - Cantilever**

		<i>kN/m</i>	<i>kN</i>	<i>kN</i>
		UDL	Pt.Ld (2)	Pt.Ld
Loads on main Beams:	Combination =	8.47	3.31	0

Load Case

[G + Eu + ycQ]

M\* = 23.55 kNm

V\* = 18.13 kN

Beam Top Steel:

HD 12

n = 2

fy = 500 Mpa

Mesh: SE62

flange Eff Width = 600 mm

Flexure:

As = 313.79 mm<sup>2</sup>

T = 156.90 kN

a = 24.61 mm

jd = 257.69 mm

øMn = 34.37 kNm

> 23.55

OK

Shear:

pw = 4.13E-03

vb = 0.5564 Mpa

Vc = 45.07 kN

Links:

R 0 250 crs

Vs = 0.00 kN

Provide Shear Fibre Reinf.

None

Vfd = 0.00 kN

øVn = 33.80 kN

> 18.13

OK

Deflections:

Ec = 23500 MPa

Ibeam = 492.08 x10<sup>6</sup> mm<sup>4</sup>

UDL

Δend = 1.46 mm

Pt.Ld

Δend = 0.25 mm

1.72 mm

span/ 1163

OK

**Truss Point Loads:**

Static Bearing:

Beam P1 \* = 0 kN

Pad Size: 0 mm L

(ULS - assume under 1.2G + Su + ycQ)

0 mm W

Pressure on beam + pad = 0.00 kPa

UDL from floor:

1.2G =

3.82 kPa

(~half pod trib width

ycQ =

0.6 kPa

to edge beam)

Pressure on beam + pad =

8.52 kPa

Total Pressure on beam + pad =

8.52 kPa

< 150

OK

Pressure at subsoil =

8.52 kPa

< 150

OK

Pad for point load is not required.

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**MAIN BEAMS (INT):**

Total h = 300 mm d-bottom 250 mm  
w = 300 mm d-top 270 mm

**(a) 4.0m Simply Supported**

**Loads on main Beams:**

Load Case

[G + 0.3Q]

G line load = 5.44 kN/m Point Load  
Q line Load = 2.18 kN/m  
Combination = 6.09 kN/m **0 kN**

M\* = 12.19 kNm V\* = 12.19 kN

**Beam Bottom Steel:**

HD **12** n = **2** fy = **500** Mpa

**Flexure:**

As = 226.19 mm<sup>2</sup> T = 113.10 kN  
a = 17.74 mm jd = 241.13 mm

øMn = 23.18 kNm > 12.19 **OK**

**Shear:**

pw = 3.02E-03 vb = 0.5008 Mpa Vc = 37.56 kN

Links: R **0** **250** crs Vs = 0.00 kN

Provide Shear Fibre Reinf. **None**

Vfd = 0.00 kN

øVn = 28.17 kN > 12.19 **OK**

**Deflections:**

UDL

Ec = 23500 MPa lbeam = 390.63 x10<sup>6</sup> mm<sup>4</sup>

Pt.Ld

Δmid = 2.21 mm

Δmid = 0.00 mm

2.21 mm

span/ 1807 **OK**

**(b) 2.0m - Cantilever**

**Loads on main Beams:**

Load Case

[G + 0.3Q]

Combination = UDL Pt.Ld (2) Pt.Ld  
6.09 5.88 **0**

M\* = 23.94 kNm V\* = 18.07 kN

**Beam Top Steel:**

HD **12** n = **2** fy = **500** Mpa  
Mesh: SE62 flange Eff Width = 900 mm

**Flexure:**

As = 357.59 mm<sup>2</sup> T = 178.80 kN  
a = 28.05 mm jd = 255.98 mm

øMn = 38.90 kNm > 23.94 **OK**

**Shear:**

pw = 4.41E-03 vb = 0.5707 Mpa Vc = 46.23 kN

Links: R **0** **250** crs Vs = 0.00 kN

Provide Shear Fibre Reinf. **None**

Vfd = 0.00 kN

øVn = 34.67 kN > 18.07 **OK**

**Deflections:**

UDL

Ec = 23500 MPa lbeam = 492.08 x10<sup>6</sup> mm<sup>4</sup>

Pt.Ld

Δend = 1.05 mm

Δend = 0.00 mm

1.05 mm

span/ 1897 **OK**

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### Summary:

Slab			
Slab Thickness	85 mm	Reinforcing:	SE62

General Ribs					
Rib Width	100 mm	Rib Steel	Top	1	HD 10
Rib Spacing (crs)	850 mm		Bottom	1	HD 10

Garage Ribs					
Rib Width	100 mm	Rib Steel	Top	1	HD 10
Rib Spacing (crs)	850 mm		Bottom	1	HD 10

External Main Beams					
Beam Width	300 mm	Beam Steel	Top	2	HD 12
Beam Depth	215 mm		Bottom	2	HD 12

Internal Main Beams					
Beam Width	300 mm	Beam Steel	Top	2	HD 12
Beam Depth	215 mm		Bottom	2	HD 12

Minimum Hardfill depth = 225 mm

Pads:                      0 L  
                                    0 W

Pads are not required.

# SECTION 3

## Truss Details & Bracing Details

(Include Fixings of Gib & Ecoply)

- 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](mailto:buildinginfo@wmk.govt.nz)



**Date:** 3 March 2020  
**Fabricator:** VIP Frames & Trusses  
**Job Name:** Tara Homes  
 New House  
 Lot 1460 - 24 Awatere Street  
 Pegasus

-- 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

**Building Consent No:** 200253  
 (Provided by relevant Consenting Authority at time of Consent application)

**Attn:** City/District Council

We have been engaged to provide the trusses and frames for the above project.  
 To allow completion of the consent application we have supplied the following information.

- (a) Truss Layout and Producer Statement.
- (b) Any slab thickening requirements detailed.
- (c) All truss loaded lintels that are either inside or outside the requirements of NZS3604:2011.
- (d) All roof bracing details as required by NZS3604:2011.

**E-MAILED**

On advice from the building project owner, the structure will be designed under the following parameters:

<b>Wind Zone</b>	<u>High</u>	<b>Altitude</b>	<u>100m</u>
		<b>Snow (Open Ground Load)</b>	<u>0.900 kPa</u>
<b>Roof Material</b>	<u>Longrun</u>	<b>Snow (Basic Roof Load)</b>	<u>0.441 kPa</u>

**Treatment Definition:**

<b>External Walls -</b>	H1.2 Treated
<b>Internals Walls -</b>	H1.2 Treated
<b>Trusses -</b>	H1.2 Treated

WAIMAKARIRI DISTRICT COUNCIL  
 Plans and specifications APPROVED in accordance  
 with the Building Act 2004, clause 49 and the Building  
 Regulations 1992, Clause 3  
 200253 1/04/2020 Chrisk

We can advise that the following will be provided at the time of truss manufacture to both the building owner and your office:

- (1) A full 'as-built' layout and Producer Statement.
- (2) Specific Truss/Truss fixings done as per NZS3604:2011, Clause 10.2.2.6.1
- (3) Specific top plate to stud fixings that comply with NZS3604:2011, Table 8.18
- (4) Specific lintel Fixings outside NZS3604:2011.

It should be noted that the details provided have been designed to comply with the Building Code and the relevant standards. Any increase above these standards is only at the preference and request of the building owner.

Acknowledgement of this letter, along with the Building Consent number, is required by our company as soon as possible.

Council Contacts:

Consents Officer: C Keegan 00679 9397693  
 Fax #: \_\_\_\_\_  
 Phone: \_\_\_\_\_

Please forward to:

VIP Frames & Trusses  
 65-67 Wickham Street  
 Ph (03) 389-8200



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.mitek.nz.co.nz

MiTek 20/20 Engineering 4.7.301.0

Printed: 08:14:46 03 Mar 2020

## PRODUCER STATEMENT for MiTek 20/20<sup>®</sup> TRUSS DESIGN - Version 4.7

ISSUED BY: **MiTek New Zealand Limited**

TO: **VIP Frames & Trusses**

IN RESPECT OF: **MiTek<sup>®</sup> Truss Designs**

This producer statement covers the MiTek 20/20<sup>®</sup> truss design and the structural performance of the GANG-NAIL<sup>®</sup> connector plate for the job reference **80445** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MiTek 20/20<sup>®</sup> truss design program has been developed by MiTek New Zealand Limited for the design of MiTek<sup>®</sup> timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> 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: Tuesday, 3 March 2020**

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  
200253 1/04/2020 Chrisk

Job: 80445  
 Description: New House  
 Building Consent No.:  
 MiTek 20/20 Engineering 4.7.301.0

Site: New House  
 Phone: 027 460-24  
 Lot 1460-24 Awatere Street  
 Pegasus

BC200253  
 Phone:

MiTek New Zealand Limited

Printed: 08:14:46 03 Mar 2020

## MITEK FABRICATOR DESIGN STATEMENT

This statement is issued by MiTek accredited fabricator **VIP Frames & Trusses**, being licensed to use the MiTek 20/20® software, to the client listed above and may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

### MiTek 20/20® TRUSS DESIGN DATA

The MiTek 20/20® computer design for this job is based on the following design parameters entered into the program. The Fabricator shall ensure that these job details are current and relevant to the project for the design of the MiTek® trusses.

#### Job Details

##### Roof Truss

Timber Group: sg8`  
**Roof**  
 Material: Galv Iron .5mm  
 Dead Load: 0.210 kPa  
 Restraints: 900 mm centres  
 Live Load: Qur = 0.250 kPa  
 Qc = 1.100 kN

Importance Level : 2

Design Working Life : 50 years

Pitch: 25.000 deg

Nominal Overhang: 600 mm

##### Ceiling

Material: Gib Board 12mm  
 Dead Load: 0.200 kPa  
 Restraints: 600 mm centres  
 Live Load: Qc = 1.400 kN

##### Wind

Area: High (44.0 m/s )  
 Pressure Coeff: Cpe = varies; Cpi = -0.30, 0.20

##### Snow

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)
GE1	1D	4480	25.000	900	J13	1	1867	25.000	900	S13	1	4480	25.000	900
*H1	1	2152	18.249	900	*R1	2	1500	25.000	900	S14	1	4480	25.000	900
*H2	2	5900	18.249	900	*R2	5	913	25.000	900	S15	1	2687	25.000	682
*H3	1	967	18.248	900	*R3	5	913	25.000	900	S16	1	2687	25.000	682
*H4	1	2460	18.249	900	*R4	1	901	25.000	900	V1	1	2145	25.000	900
*H5	1	5652	18.249	900	*R5	1	1325	25.000	900	V2	1	1244	25.000	900
*H6	2	3467	18.249	900	*R6	1	1580	25.000	900	V3	1	1448	25.000	900
J1	2	2687	25.000	900	*R7	1	1580	25.000	900	V4	1	2348	25.000	900
J2	1	2687	25.000	900	S1	1	6535	25.000	900	J4	1	2687	25.000	900
J3	2	2687	25.000	900	S3	1	4333	25.000	900	J4A	1	2687	25.000	900
J5	2	1787	25.000	900	S4	4	6870	25.000	900	J8	1	2512	25.000	900
J6	2	1787	25.000	900	S6	2	3780	25.000	900	S5	1	3780	25.000	900
J7	1	2512	25.000	900	S7	1	3780	25.000	900	S2	1	4333	25.000	900
J9	1	1612	25.000	900	S8	1	7220	25.000	747	T1	1	6535	25.000	900
J10	1	1612	25.000	900	S9	1	7220	25.000	900	T2	1	6870	25.000	900
J11	1	1867	25.000	900	S10	2	4334	25.000	900	S12	1	4334	25.000	900
J12	1	1867	25.000	900	S11	1	4334	25.000	900	S17	1	4480	25.000	900

Total quantity : 71

WAIMAKARIRI DISTRICT COUNCIL  
 Plans and specifications APPROVED in accordance  
 with the Building Act 2004, clause 49 and the Building  
 Regulations 1992, Clause 3  
 200253 1/04/2020 Chrisk

The computer design input has been carried out by:

Signed: 

Date: ...Tuesday, 3 March 2020....

Name of Detailer: Anton Musson

Qualifications and Title: Detailer

On behalf of: VIP Frames & Trusses

## VIP Frames &amp; Trusses

Consent Issued BC200253 - Page 107 of 295

Job: 80445  
Description: New House  
Building Consent No.:  
MiTek 20/20 Engineering 4.7.301.0

Site: New House  
Phone: Lot 1400 - 24 Awatere Street  
Pegasus

BC200253  
Phone:

MiTek New Zealand Limited

Printed: 08:14:27 03 Mar 2020

## TRUSS FIXING SELECTION REPORT - Characteristic Loads

Fixings are selected from the LUMBERLOK Brochure 08/2014 (Timber Connectors Characteristic Loadings Data)

### MiTek® Truss List

Legend: \* = detail only, ? = input only, Txx = failed design, Ø = non certified, Unmarked trusses = designed successfully

Truss	Qty	Span (mm)	Joint	Down (kN)	Uplift (kN)	Bearing	----- Fixing ----- Qty Selected	
GE1	1D	4480	A			Wide	No fixing selected	
*H1	1	2152						Refer NZS3604:2011 Tables 15.6
*H2	2	5900						Refer NZS3604:2011 Tables 15.6
*H3	1	967						Refer NZS3604:2011 Tables 15.6
*H4	1	2460						Refer NZS3604:2011 Tables 15.6
*H5	1	5652						Refer NZS3604:2011 Tables 15.6
*H6	2	3467						Refer NZS3604:2011 Tables 15.6
J1	2	2687	B	3.832	0.789	Cross	2	Pair of Wire Dog Staples
			E	0.538	0.396	Butt	2	Pair of 3.15d Nails
			D	3.738	2.406	Cross	2	Pair of Wire Dog Staples
J2	1	2687	B	3.911	1.067	Cross	1	Pair of Wire Dog Staples
			F	1.809	1.134	Butt	1	JH 47x90
			D	0.840	0.543	Butt	1	JH 47x90
J3	2	2687	B	3.911	1.067	Cross	2	Pair of Wire Dog Staples
			F	1.809	1.134	Butt	2	JH 47x90
			D	0.840	0.543	Butt	2	JH 47x90
J5	2	1787	B	3.026	0.733	Cross	2	Pair of Wire Dog Staples
			E	1.138	0.565	Butt	2	JH 47x90
			D	0.788	0.514	Butt	2	Pair of 3.15d Nails
J6	2	1787	B	2.645	0.901	Cross	2	Pair of Wire Dog Staples
			D	0.928	0.511	Butt	2	JH 47x90
J7	1	2512	C	3.571	1.330	Cross	1	Pair of Wire Dog Staples
			G	1.727	0.768	Butt	1	JH 47x90
			E	0.769	0.658	Butt	1	Pair of 3.15d Nails
			B	1.034	0.581	Cross	1	Pair of Wire Dog Staples
J9	1	1612	B	2.855	0.662	Cross	1	Pair of Wire Dog Staples
			D	0.472	0.047	Butt	1	Pair of 3.15d Nails
			C	1.163	0.927	Butt	1	JH 47x90
J10	1	1612	B	2.441	0.845	Cross	1	Pair of Wire Dog Staples
			D	0.778	0.394	Butt	1	Pair of 3.15d Nails
J11	1	1867	B	3.114	0.763	Cross	1	Pair of Wire Dog Staples
			E	1.219	0.637	Butt	1	JH 47x90
			D	0.802	0.522	Butt	1	JH 47x90
J12	1	1867	B	2.737	0.927	Cross	1	Pair of Wire Dog Staples
			D	0.991	0.565	Butt	1	JH 47x90
J13	1	1867	B	2.737	0.927	Cross	1	Pair of Wire Dog Staples
			D	0.991	0.565	Butt	1	JH 47x90
*R1	2	1500						Refer NZS3604:2011 Tables 15.6
*R2	5	913						Refer NZS3604:2011 Tables 15.6
*R3	5	913						Refer NZS3604:2011 Tables 15.6
*R4	1	901						Refer NZS3604:2011 Tables 15.6
*R5	1	1325						Refer NZS3604:2011 Tables 15.6
*R6	1	1580						Refer NZS3604:2011 Tables 15.6
*R7	1	1580						Refer NZS3604:2011 Tables 15.6
S1	1	6535	F	5.372	3.278	Butt	1	JH 47x90
			E	5.422	3.259	Cross	1	CT400
S3	1	4333	B	4.619	1.983	Cross	1	Pair of Wire Dog Staples
			G	3.453	2.406	Butt	1	JH 47x90
S4	4	6870	B	6.103	3.217	Cross	4	CT400
			F	6.031	3.164	Cross	4	Pair of Wire Dog Staples
			I	0.889	0.602	Cross	4	Pair of Wire Dog Staples
S6	2	3780	B	3.999	1.954	Cross	2	Pair of Wire Dog Staples
			D	3.060	1.883	Cross	2	Pair of Wire Dog Staples
S7	1	3780	B	3.939	1.946	Cross	1	Pair of Wire Dog Staples
			D	3.939	1.946	Cross	1	Pair of Wire Dog Staples
S8	1	7220	F	4.341	2.701	Cross	1	Pair of Wire Dog Staples
			G	6.257	2.691	Cross	1	Pair of Wire Dog Staples
S9	1	7220	G	5.349	3.265	Cross	1	CT400
			H	6.603	3.179	Cross	1	Pair of Wire Dog Staples
S10	2	4334	B	4.021	1.976	Cross	2	Pair of Wire Dog Staples
			G	4.492	1.502	Cross	2	Pair of Wire Dog Staples
S11	1	4334	B	3.836	1.988	Cross	1	Pair of Wire Dog Staples
			H	5.473	1.545	Cross	1	Pair of Wire Dog Staples
S13	1	4480	B	4.515	2.296	Cross	1	Pair of Wire Dog Staples
			D	4.515	2.296	Cross	1	Pair of Wire Dog Staples
S14	1	4480	A	3.648	2.234	Cross	1	Pair of Wire Dog Staples
			C	4.567	2.303	Cross	1	Pair of Wire Dog Staples
S15	1	2687	E	1.781	1.128	Butt	1	JH 47x90
			C	2.458	0.952	Cross	1	Pair of Wire Dog Staples
S16	1	2687	E	1.781	1.128	Butt	1	JH 47x90
			C	2.458	0.952	Cross	1	Pair of Wire Dog Staples
V1	1	2145	A			Wide		No fixing selected
V2	1	1244	A			Wide		No fixing selected
V3	1	1448	A			Wide		No fixing selected
V4	1	2348	A			Wide		No fixing selected
J4	1	2687	B	4.380	1.784	Cross	1	Pair of Wire Dog Staples
			F	2.486	1.661	Butt	1	JH 47x90

WAIMAKARIRI DISTRICT COUNCIL  
Plans and specifications APPROVED in accordance  
with the Building Act 2004, clause 49 and the Building  
Regulations 1992, Clause 3  
200253 1/04/2020 Chrisk

VIP Frames & Trusses

Job: 80445  
Description: New House  
Building Consent No.:  
MITek 20/20 Engineering 4.7.301.0

Site: New House  
Phone: Lot 1400 - 24 Awatere Street  
Pegasus

BC200253  
Phone:

MITek New Zealand Limited

Printed: 08:14:27 03 Mar 2020

Truss	Qty	Span (mm)	Joint	Down (kN)	Uplift (kN)	Bearing	----- Fixing ----- Qty Selected
J4A	1	2687	B	4.380	1.784	Cross	1 Pair of Wire Dog Staples
			F	2.486	1.661	Butt	1 JH 47x90
J8	1	2512	B	4.069	1.636	Cross	1 Pair of Wire Dog Staples
			F	2.094	1.412	Butt	1 JH 47x90
S5	1	3780	B	4.882	2.745	Cross	1 Pair of Wire Dog Staples
			F	4.931	3.477	Cross	1 CT400
S2	1	4333	B	6.991	3.719	Cross	1 CT400
			J	7.836	5.091	Butt	1 Pair of MultiGrips
T1	1	6535	H	11.249	7.243	Butt	No fixing selected. Specific engineering design required for down loads.
			F	10.267	6.500	Cross	1 CT400
T2	1	6870	B	4.651	2.390	Cross	1 Pair of Wire Dog Staples
			G	5.592	3.145	Cross	1 Pair of Wire Dog Staples
			M	6.438	4.417	Cross	1 CT400
S12	1	4334	B	5.933	3.226	Cross	1 CT400
			I	12.458	6.824	Cross	1 CT400
S17	1	4480	A	13.778	8.607	Cross	1 CT400
			E	9.637	5.531	Cross	1 CT400

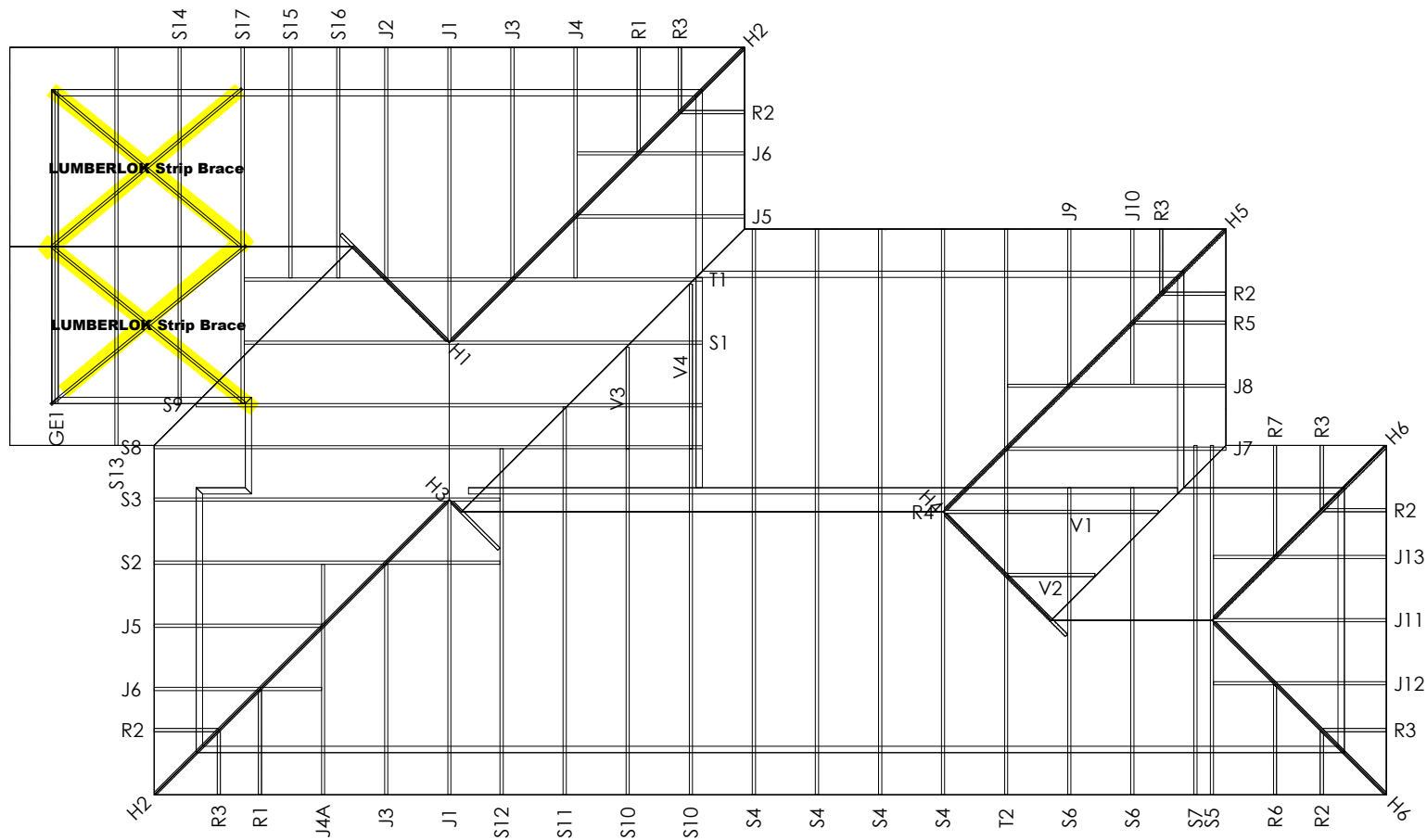
Fixing List

Qty	Selected Fixing
54	Pair of Wire Dog Staples
7	Pair of 3.15d Nails
23	JH 47x90
14	CT400
1	Pair of MultiGrips
6	No fixing selected

WAIMAKARIRI DISTRICT COUNCIL  
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200253 1/04/2020 Chrisk

**Note:**  
1) Fixings have been selected based on loading only. Please check that selected fixings are practical for each situation and that appropriate nailing can be applied on site.  
2) Fixings are selected from the LUMBERLOK Brochure 08/2014 (Timber Connectors Characteristic Loadings Data) with down and uplift characteristic loads of at least the values shown for each joint.

# Roof Bracing



WAIMAKARIRI DISTRICT COUNCIL  
Plans and specifications APPROVED in accordance  
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200253 1/04/2020 Chrisk



200 Maces Road  
PO Box 35-193 Christchurch  
Ph (03) 389 8200

JOB No **80445**

Client: Tara Homes  
Job Name: New House  
Address: Lot 1460 - 24 Awatere Street  
Pegasus

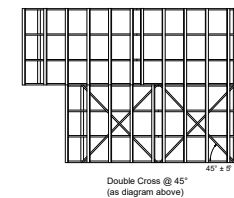
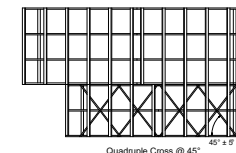
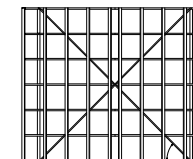
Pitch: 25.000  
Roof Material: Galv Iron .5mm  
Soffit Overhang: 600  
Wind Area: High  
Snow Load: 0.441

Trusses And Rafters At 900 Centres  
Unless Stated Otherwise

DRAWN BY Anton Musson

DATE 3 Mar,2020 PAGE 1 of

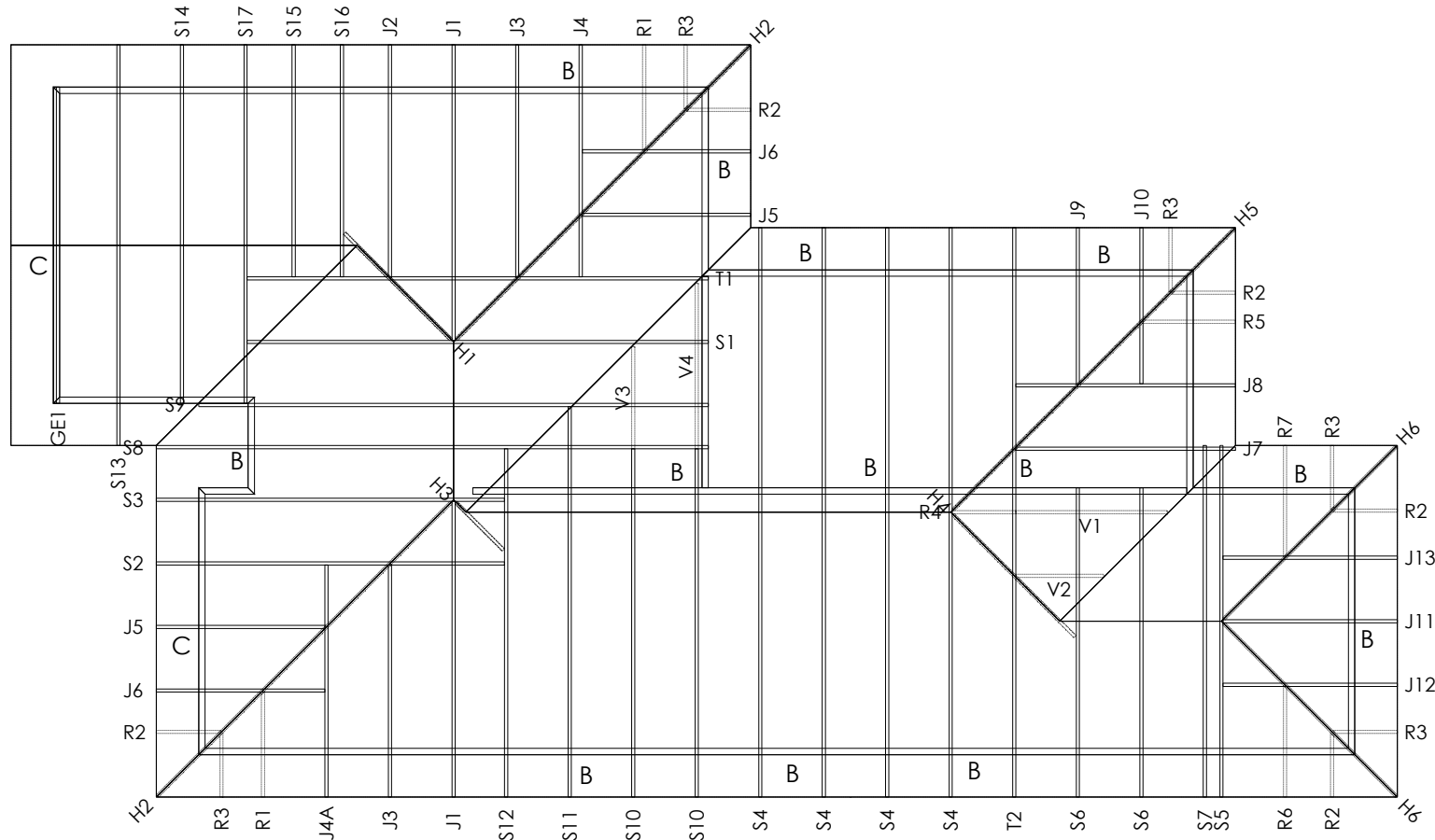
## Roof Bracing Details



### NOTES:

Refer to:  
Lumberlok roof bracing brochure  
07/2006

All internal wall shown on this layout are considered to be Load Bearing (loads not exceeding 10 kN)  
No slab thickening required



WAIMAKARIRI DISTRICT COUNCIL  
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200 Maces Road  
PO Box 35-193 Christchurch

Ph (03) 389 8200

JOB No **80445**

Client: Tara Homes

Job Name: New House

Address: Lot 1460 - 24 Awatere Street  
Pegasus

Pitch: 25.000  
Roof Material: Galv Iron .5mm  
Soffit Overhang: 600  
Wind Area: High  
Snow Load: 0.441

Trusses And Rafter At 900 Centres  
Unless Stated Otherwise

DRAWN BY Anton Musson

DATE 3 Mar,2020 PAGE 1 of

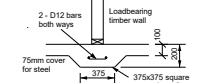
These lintels have been sized as per  
the GANGLAM and FLITCH BEAM  
selection manuals as provided by  
MiTek NZ Ltd.

HYSPAN lintels have been sized as per  
the HYSPLAN selection charts.

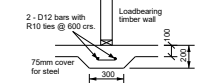
Unless otherwise stated all lintels are  
as per NZS3604 2011

LINTEL	SIZE	
A	2/90x45	MSG8
B	2/140x45	MSG8
C	2/190x45	MSG8
D	2/240x45	MSG8
E	2/290x45	MSG8
F		

#### Slab Thickening Details



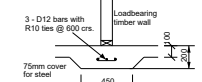
TYPE FP1 - 375x375mm Pad



TYPE FS1 - 300mm Strip footing



TYPE FP2 - 450x450mm Pad



TYPE FS2 - 450mm Strip footing

## Demand Calculation Sheet

### Job Details

Name: New House  
 Street and Number: 24 Awatere Street Pegasus  
 Lot and DP Number: Lot 1460 DP 479470  
 City/Town/District: Pegasus  
 Designer: Karen  
 Company: Karen van der Mespel Architectural Drafting  
 Date: Wednesday, 11 March 2020

### 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) 2.2  
 Building Height to Apex (m) 4.5  
 Ground to Lower Floor (m) 0.2

WAIMAKARIRI DISTRICT COUNCIL  
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 200253 1/04/2020 ChrisK

Average Stud Height (m) 2.4  
 Building Length (m) 18.68  
 Building Width (m) 9.7  
 Building Plan Area (m<sup>2</sup>) 139.15

### 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	465	841

### Bracing Units required for Earthquake

	Along & Across
Single Level	829

## Single Level Along Resistance Sheet

Job Name: New House

									Wind	EQ
									Demand	
									465	829
									Achieved	
Line	Element	Length (m)	Angle (degrees)	Stud Ht. (m)	Type	Supplier	Wind (BUs)	EQ (BUs)	1039 223%	1130 136%
a	1	1.20		2.4	EP1/EPB1-1200 Ply & EP Barrier		144	162		
	2	1.20		2.4	EP1/EPB1-1200 Ply & EP Barrier		144	162		
	External Length = 9.28								288 OK	324 OK
b	1	0.60		2.4	EP1/EPB1-0600 Ply & EP Barrier		57	63		
	2	0.60		2.4	EP1/EPB1-0600 Ply & EP Barrier		57	63		
	External Length = 6.87								114 OK	126 OK
c	1	0.70		2.4	EP1/EPB1-0600 Ply & EP Barrier		67	74		
	2	2.00		2.4	GS1-N	GIB®	138	120		
	External Length = 5.75								205 OK	194 OK
d	1	1.20		2.4	EP1/EPB1-1200 Ply & EP Barrier		144	162		
	2	1.20		2.4	EP1/EPB1-1200 Ply & EP Barrier		144	162		
	3	1.20		2.4	EP1/EPB1-1200 Ply & EP Barrier		144	162		
	External Length = 16.38								432 OK	486 OK

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## Single Level Across Resistance Sheet

Job Name: New House

									Wind	EQ
									Demand	
									841	829
									Achieved	
Line	Element	Length (m)	Angle (degrees)	Stud Ht. (m)	Type	Supplier	Wind (BUs)	EQ (BUs)	1171 139%	1158 140%
m	1	0.90		2.4	EP1/EPB1-0.6 EcoPly & EP Barrier	GIB®	86	95		
	2	0.90		2.4	EP1/EPB1-0.6 EcoPly & EP Barrier	GIB®	86	95		
	3	0.40		2.4	EP1/EPB1-0.6 EcoPly & EP Barrier	GIB®	32	38		
	4	0.40		2.4	EP1/EPB1-0.6 EcoPly & EP Barrier	GIB®	32	38		
External Length = 9.46									235 OK	265 OK
n	1	0.80		2.4	BLG-H	GIB®	110	104		
									110 OK	104 OK
o	1	0.70		2.4	EP1/EPB1-0.6 EcoPly & EP Barrier	GIB®	67	74		
	2	0.70		2.4	EP1/EPB1-0.6 EcoPly & EP Barrier	GIB®	67	74		
	3	2.50		2.4	GS1-N	GIB®	173	150		
	External Length = 2.59								306 OK	297 OK
p	1	1.40		2.4	GS1-N	GIB®	97	84		
	2	1.00		2.4	GS1-N	GIB®	65	60		
									162 OK	144 OK
q	1	3.00		2.4	GS1-N	GIB®	207	180		
	External Length = 1.32								207 OK	180 OK
r	1	0.80		2.4	EP1/EPB1-0.6 EcoPly & EP Barrier	GIB®	76	84		
	2	0.80		2.4	EP1/EPB1-0.6 EcoPly & EP Barrier	GIB®	76	84		
									152 OK	168 OK

WAIMAKARIRI DISTRICT COUNCIL  
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200253 1/04/2020 Chris

## Custom Wall Elements

Supplier	System	Min. Length m	Wind BUs/m	EQ BUs/m
EcoPly & EP Barrier	EP1/EPB1-0.4	0.4	80	95
EcoPly & EP Barrier	EP1/EPB1-0.6	0.6	95	105
EcoPly & EP Barrier	EP1/EPB1-1.2	1.2	120	135
EP Barrier	EPBS-0.4	0.4	60	60
EP Barrier	EPBS-0.6	0.6	60	65
EP Barrier	EPBS-1.2	1.2	65	70
EP Barrier	EPBS-2.4	2.4	80	90
EcoPly & EP Barrier	EPG/EPBG-0.4	0.4	100	115
EcoPly & EP Barrier	EPG/EPBG-1.2	1.2	150	150
EcoPly & EP Barrier	EP2/EPB2-0.6	0.6	105	115

**EP1** 7mm H3.2 ply one side,  
with Gib Handibrac hold  
downs

## Bracing Plan

## Consent

New House

Tara Homes

24 Awatere Street  
**Pegasus**

DATE:  
30/03/2020

FILE No: 20008

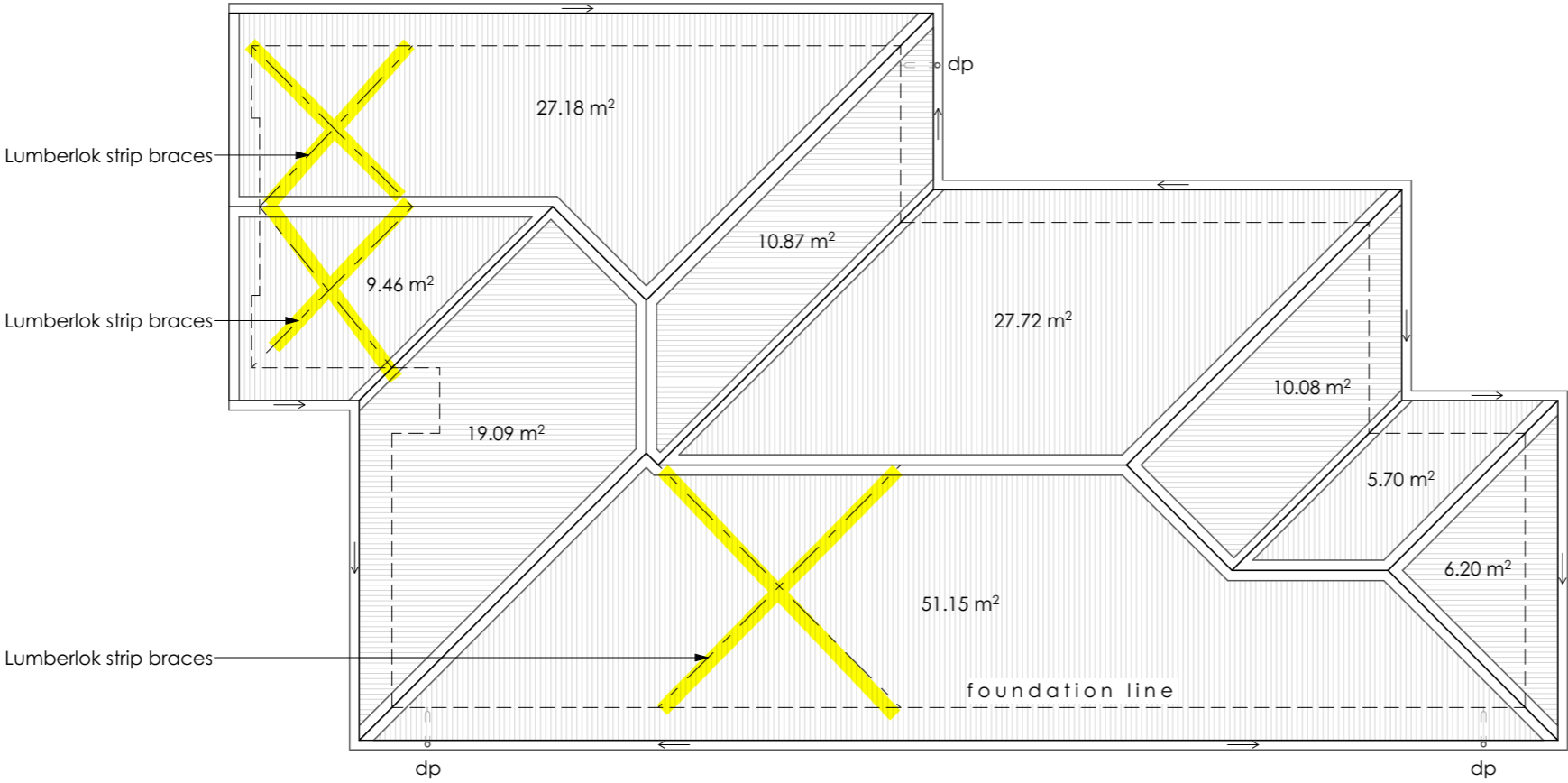
DRAWN:  
KVDM

CHECKED:

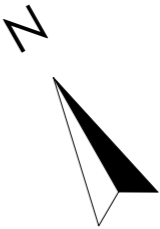
SHEET No:

A.07


**SCALE : 1:100 @ A3**



ROOF PLAN  
 1:100



WAIMAKARIRI DISTRICT COUNCIL  
 Plans and specifications APPROVED in accordance  
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 Regulations 1992, Clause 3  
 200253 1/04/2020 Chrisk



KAREN VAN DER MESPEL  
 ARCHITECTURAL DRAFTING  
 022 082 7730  
 karenvandermespel@gmail.com

**Roof:**

0.4mm BMT corrugated  
Colorsteel roofing

pitch - 25°

Colorsteel gutter and fascia

8000mm<sup>2</sup> min cross sectional  
area of gutter

80Ø colorsteel downpipes  
from 70m<sup>2</sup> max roof area

Roofing to be fixed through  
crests with min 12 gauge  
roofing screws with  
neoprene washers with C2  
fixing pattern (Hit 1, miss 1,  
hit 1, miss 2...)

DRAWING TITLE:		Roof Plan
DRAWING ISSUE:		Consent
PROJECT:		New House
CLIENT:		Tara Homes
ADDRESS:		24 Awatere Street <b>Pegasus</b>
DATE: 30/03/2020	<div>SHEET No:</div> <div>A.08</div>	
FILE No: 20008		
DRAWN: KVDM		
CHECKED:		
SCALE : 1:100 @ A3		

### 3.3 ECOPLY® BRACING SPECIFICATION - EPI

**Table 10: Singled Sided Structural Plywood Brace**

Specification No.	Minimum Wall Length	Lining Requirements	BU's/m Wind	BU's/m Earthquake
<b>EPI_0.4</b>	0.4 m	Ecoply one side	80	95
<b>EPI_0.6</b>	0.6 m	Ecoply one side	95	105
<b>EPI_1.2</b>	1.2 m	Ecoply one side	120	135

#### Framing

Wall framing must comply with:

- NZBC B1 - Structure: ASI Clause 3 Timber (NZS 3604)
- NZBC B2 - Durability: ASI Clause 3.2 Timber (NZS 3602)

Framing dimensions and height are as determined by the NZS 3604 stud and top plate tables for load bearing and non load bearing walls. Kiln dried verified structural grade timber must be used. Machine stress graded timber, such as Laserframe® of SG8 stress grade minimum, is recommended.

#### Bottom plate fixing

Use GIB Handibrac® hold-down connections at each end of the bracing element. Refer to manufacturer installation instructions supplied with the connectors for correct installation instructions and bolt types to be used for either concrete or timber floors. Within the length of the bracing element, bottom plates are fixed in accordance with the requirements of NZS 3604.

#### Lining

One layer of 7 mm, 9 mm or 12 mm Ecoply plywood fixed directly to framing or over cavity battens. If part sheets are used, ensure nailing at required centres is carried out around the perimeter of each sheet or part sheet. A 2-3 mm expansion gap should be left between sheets.

#### Fastening the Ecoply® panels

Fasten with 50 x 2.8 mm hot dipped galvanised or stainless steel flat head nails for direct fix, or 60 x 2.8 mm over cavity battens. Place fasteners no less than 7 mm or 3 fastener diameters from sheet edges. Screws cannot be used. Power driven nails are suitable. Do not overdrive, nails must be full round head.

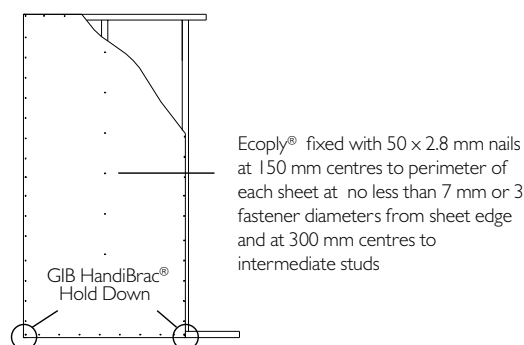
#### Fasteners for H3.2 CCA treated Ecoply® panels

Where fasteners are in contact with H3.2 CCA treated timber or plywood, fasteners shall be a minimum of hot dip galvanised.

In certain circumstances stainless steel fasteners may be required. Refer to Table 8 of the Ecoply Specification and Installation Guide for these circumstances and further fastener selection advice. Where stainless steel nails are required, annular grooved nails must be used.

#### Fastening centres

Fasteners are placed at 150 mm centres around the perimeter of each sheet and 300 mm centres to intermediate studs. Where more than one sheet forms the brace element each sheet must be nailed off independently.



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Ecoply® Bracing Systems are designed to meet the requirements of the NZBC and have been tested and analysed using the P21 method referenced in NZS 3604:2011 listed as an acceptable solution B1/AS1 Structure. Testing was carried out using Ecoply manufactured by Carter

Holt Harvey and SG8 timber framing, and GIB® products manufactured by Winstone Wallboards Ltd. Substituting materials may compromise performance of the system. GIB® and GIB Handibrac® are registered trade marks of Fletcher Building Holdings Ltd.

SEPTEMBER 2015



# GIB EzyBrace® Systems specification BLG-H

Specification code	Minimum length (m)	Lining requirement	Other requirements
BLG-H	0.4	10mm or 13mm GIB Braceline® to one side of the frame plus any 10mm or 13mm GIB® plasterboard 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 2011 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® to one side of the wall plus any 10mm or 13mm GIB® plasterboard lining to the other side.
- 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

GIB Braceline® side: 32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. Other side: 32mm x 6g GIB® Grabber® High Thread Screws, 30mm GIB Nails 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.

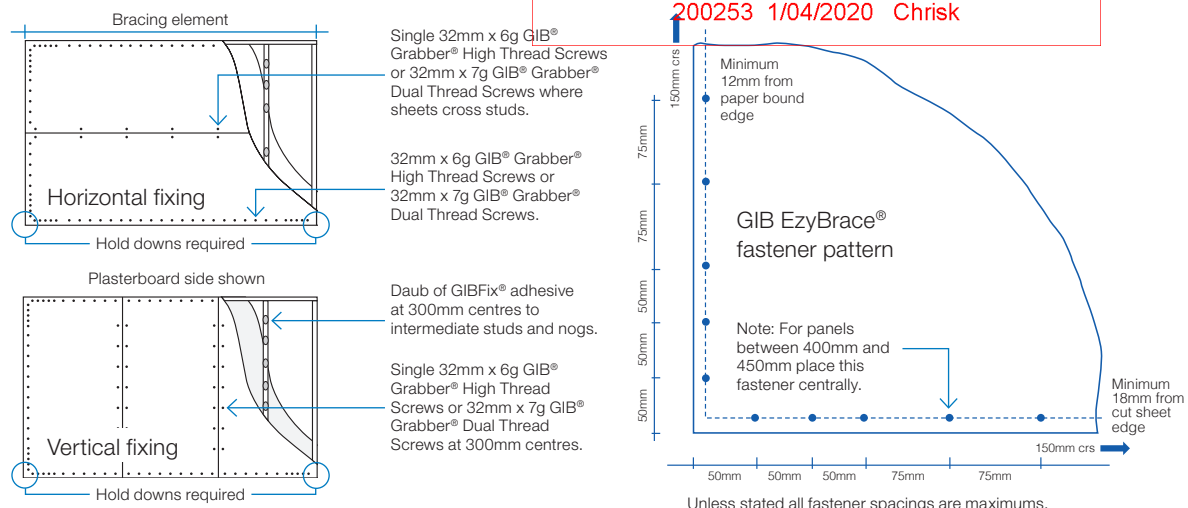
### Fastener centres

50,100,150, 225, 300mm maximum from each corner and then 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm maximum 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 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.

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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



# 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

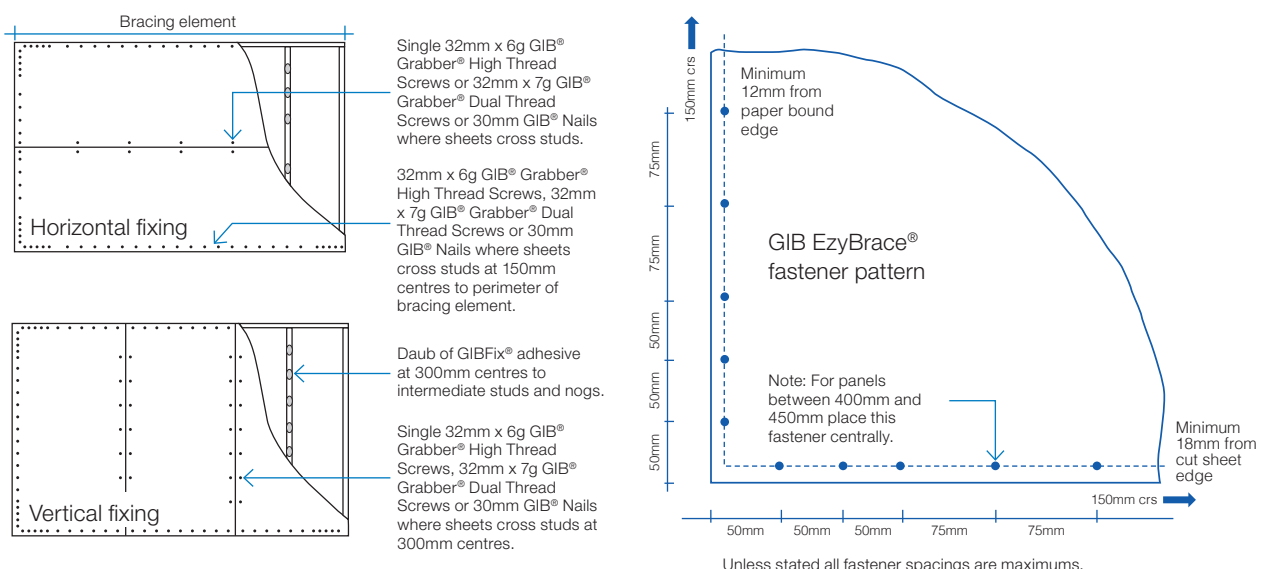
32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

### 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.



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 **on page 3**

BRANZ NZS 4218:2009 CALCULATION METHOD TOOL

PROJECT SUMMARY

Project name	New House
Address	24 Awatere Street, Pegasus
Designer	Karen van der Mespel
Address	
Phone	64220827730
Date	12.03.20
Reference number	

Climate zone	3: South Island, Taupo and Ruapehu Districts, northern part of Rangitikei District, Stewart Island, Chatham Islands		
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 ( $R_{\text{Wall}}$ ) and one door ( $R_{\text{Door}}$ ) construction R-value (but different to the walls) for the building?			no

Summary of calculation method heat loss

Element	Area (m <sup>2</sup> )	Proposed building heat loss (W/°C)	Reference building heat loss (W/°C)
Roofs/ceilings	107.5	31.9	32.6
Walls	112.0	50.2	56.0
Floors	107.5	76.8	82.7
Vertical glazing	25.5	97.9	158.5
Skylights	0.0	0.0	-
Doors (Attributable)	0.0	0.0	-
Total		256.8	329.8

Glazing percentage: 19%

Glazing <50%: Yes

Minimum R-values OK: Yes

Issues to check:

PASS/FAIL

PASS

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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 (m <sup>2</sup> )	Construction R-value	Heat loss
1	corrugated colorsteel roof, R3.6 insulation	107.5	3.37	31.9
2				
3				
4				
5				

Total area 107.5 m<sup>2</sup>

Total roofs/ceilings heat loss 31.9 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 (m <sup>2</sup> )	Construction R-value	Heat loss
1				
2				
3				
4				
	From Skylight Schedule	0.0		0.0

Total area 0.0 m<sup>2</sup>

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 (m <sup>2</sup> )	Construction R-value	Heat loss
1	Brick veneer, R2.6 insulation	108.8	2.23	48.8
2	Linea, R2.6 insulation	3.1	2.24	1.4
3				
4				
5				
6				
7				
8				
9				
10				

Total area 112.0 m<sup>2</sup>

Total wall heat loss 50.2 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 (m <sup>2</sup> )	Construction R-value	Heat loss
1	ribraft floor	107.5	1.40	76.8
2				
3				
4				
5				

Total area 107.5 m<sup>2</sup>

Floor heat loss 76.8 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 (m <sup>2</sup> )	Construction R-value	Heat loss
1	al. framed double glazing	25.5	0.26	97.9
2				
3				
4				
5				
6				
7				
8				
9				
10				
	From Glazing Schedule	0.0		0.0

Total area 25.5 m<sup>2</sup>

Total vertical glazing heat loss 97.9 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 ≤ 6m<sup>2</sup> or 6% of the total wall area.

If the area of doors are above 6m<sup>2</sup> 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 (m <sup>2</sup> )	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 m<sup>2</sup>

Attributable 0.0

0.0 W/°C

8.244



## 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](mailto:designnavigator@gmail.com) with a description and a detail drawing (pdf) of it or use the new [Design Navigator message board](#).

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

Floors ☐

Walls ☐

Roofs ☒

Element Name (optional)

3.37 m<sup>2</sup>C/W

Type: Roof: Timber framed Roof, direct fixed or battened flat Ceiling

Timber framed Roof, direct fixed or battened flat Ceiling [view detail](#)

external surface 0.03

Roofing : Corrugate iron with building paper

R-value: 0.01

Insulation :

Timber Frame & Cavity : 90mm rafters or joists @ 900mm, battens covered with insulation

Roof Frame Area: 5.0% Cavity Area: 95.0%

Roof space (still air) 0.11 Roof space (still air) 0.11

Framing : R-value: 0.75

Insulation : 3.6

Roof Lining : Gypsum plasterboard 13mm

R-value: 0.06

internal surface 0.09

Non-IC-rated recessed downlights

Ceiling Area [m<sup>2</sup>]: Number of downlights: Clearance from lamp holder side [m]: [i](#)

[Print Page](#)

Current NZS4218:2009 Schedule Method minimum R-value Targets (non-solid construction) [i](#):

	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 [i](#):

	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](mailto:designnavigator@gmail.com) with a description and a detail drawing (pdf) of it or use the new [Design Navigator message board](#).

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

- Floors ☐
- Walls ☒
- Roofs ☐

Element Name (optional)

2.23 m<sup>2</sup>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

Insulation : 2.6

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 construction) [i](#):

	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 [i](#):

	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](mailto:designnavigator@gmail.com) with a description and a detail drawing (pdf) of it or use the [Design Navigator message board](#).

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

- Floors ☐
- Walls ☒
- Roofs ☐

Element Name (optional)

2.24 m<sup>2</sup>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 @ 800mm ▼  

Wall Frame Area: 14.4%

Cavity Area: 85.6%

15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08

15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08

Framing :  
R-value: 0.75

Insulation : 2.6

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 construction) [i](#):

	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 [i](#):

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3
Wall	R-2.9	R-3.8



# **SECTION 5**

# **Specifications**

Karen van der Mespel

## SPECIFICATION

of work to be done and materials to be used in carrying out the works shown on the accompanying drawings

# 24 Awatere Street

## Project Specification

24 Awatere Street, Pegasus, New Zealand

Project Ref: 20008

Printed: 12 March 2020

WAIMAKARIRI DISTRICT COUNCIL  
Plans and specifications APPROVED in accordance  
with the Building Act 2004, clause 49 and the Building  
Regulations 1992, Clause 3  
200253 1/04/2020 Chrisk

**masterspec**

Specification built using Masterspec software  
Project ID: 194527 - 164011

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**masterspec**

Verified spec ID: **202081-164011**

This specification has been produced using Masterspec software and completed on 12/03/2020.

Scan to verify or go to [masterspec.co.nz/verify](https://masterspec.co.nz/verify)

# 1220 PROJECT

## 1 GENERAL

This general section describes the project including:

- A description of the work
- Design construction safety
- Principal's Health & Safety matters
- Site description, features and restrictions
- Design parameters for design by contractor
- Archaeological discovery

### 1.1 READ ALL SECTIONS TOGETHER

Read all general sections together with all other sections.

### 1.2 DESCRIPTION OF THE WORK

Single storey three bedroom dwelling with single garage.

### 1.3 RESTRICTED BUILDING WORK

This project includes Restricted Building Work.

### 1.4 DESIGN CONSTRUCTION SAFETY

The project designers are unaware of unusual or atypical features, which a reasonably experienced contractor may not be aware of, that may present a hazard or risk during a typical construction process. The Contractor is still required to undertake its own assessment, to determine if they consider there are any further safety matters and provide for these in carrying out the construction of the work.

#### **Principal's Health & Safety Matters**

### 1.5 PRINCIPAL'S SITE HEALTH AND SAFETY PLAN

Obtain a copy of the principal's site health and safety plan.

#### **Site**

### 1.6 SITE

The site consists of: flat site with simple boundaries  
As shown on drawing: A.01

### 1.7 LEGAL DESCRIPTION

The site of the works, the street address and the legal description are shown on the drawings.

#### **Site environment - Durability**

### 1.8 EXPOSURE ZONE

The exposure zone is to [NZS 3604](#), Section 4 Durability, 4.2 Exposure zones and [NZBC E2/AS1](#).  
The site zone is: C

#### **Site environment - Wind**

### 1.9 WIND DESIGN PARAMETERS - NON SPECIFIC DESIGN

The design wind pressures are to [NZS 3604](#), Table 5.4 Determination of wind zone, up to and including Extra High Wind Zone.  
Building wind zone High/1.20kPa 44m/s (refer to [NZS 3604](#), table 5.4)

#### **Site environment - Seismic**

### 1.10 EARTHQUAKE ZONE - NON SPECIFIC DESIGN

The zone is to [NZS 3604](#), Section 5 Bracing design, 5.3 Earthquake bracing demand.  
The earthquake zone 2 is:

### Archaeological discovery

#### 1.11 REPORT FINDING ANY ANTIQUITIES AND ITEMS OF VALUE

Report the finding of any fossils, antiquities and other items of value, to the Contract Administrator. All to remain undisturbed until approval is given for removal.

Pre-1900, items or evidence of human activity on the site, come under the [Heritage New Zealand Pouhere Taonga Act 2014](#). If such items or evidence is discovered work must stop immediately and the Contract Administrator must be notified immediately. The site may be classified as an Archaeological Site under the Act, and the Contract Administrator or Owner must contact the Heritage New Zealand for authority to proceed.

Post-1900 items remain the property of the owner, pre-1900 items may remain the property of the owner or the Crown subject to what is found.

# 1238 AS BUILT DOCUMENTATION

## 1 GENERAL

This general section relates to common requirements for the preparation, submission and review of as built documentation referred to within this specification and referred to within separate specifications/documents relating to this project. Detailed requirements for as built documentation for particular parts of the work may be included in specific work sections.

### 1.1 SCHEDULE SECTION

Refer to 1238S1 SCHEDULE OF AS BUILT DOCUMENTATION for work sections contained in this specification that have requirements for as built documentation.

### 1.2 AS BUILT DOCUMENT REQUIREMENTS

Where requirements for the as built documents and records are not stated in a specific section, they shall include:

As built drawings recording:

- The actual positions as constructed of all sewer, stormwater, sanitary plumbing, piped and ducted services, electrical and mechanical services.
- Inverts and locations of services at key points within the building and at the property lines.
- Dimension services in relation to the structure and building grid lines.
- Ductwork, piping, conduit and equipment, including such items provided for future use.
- Depth of various elements of foundations in relationship to the ground floor level
- Field changes of dimensions
- Other significant deviations and changes which are concealed in construction and cannot be identified by visual inspection
- Access doors and panels

Records of:

- Products and materials selected for alternatives specified
- Approved substitutions and accepted alternatives
- Other approved changes and deviations to items specified.

### 1.3 PROVISIONAL AS BUILT DOCUMENTS

Prior to practical completion provide provisional/draft as built documents in sufficient detail to allow the principal to operate, maintain, adjust and re-assemble the contract works and to allow for review by the reviewer. Where no named reviewer has been nominated, submit the as built documentation to the contract administrator. Submit in hard copy and electronic form.

### 1.4 AS BUILT DOCUMENT REVIEW

As built document review indicates only that the reviewer is satisfied that the documents are legible. The review is not a check of the accuracy or completeness of the documents, however the reviewer may comment on any aspect of the documentation and require the documents to be revised and resubmitted. Review of as built documents does not relieve the contractor of responsibility for their correctness.

Where no time is stated in a specific section, allow 10 working days for review by the reviewer.

Where a large amount of documentation is involved more time will be necessary.

### 1.5 COMPLETE AS BUILT DOCUMENTS

Prior to the end of the defects notification/liability period, provide complete as built documents reflecting any review requirements, with all Information of good quality and properly titled, numbered, cross-referenced and dated. Provide documents in sufficient detail to allow the principal to operate, maintain, adjust and re-assemble the contract works. Submit in hard copy and electronic form to the contract administrator.

### 1.6 AS BUILT DOCUMENTS - ELECTRONIC COPY

Provide an electronic copy of the as built documents in the following format:

Drawings: PDF format (in addition provide DWG files if available)  
Other documents: PDF format

# 1240 ESTABLISHMENT

## 1 GENERAL

This general section relates to site establishment including:

- Notices and approvals
- Inspections
- Site preparation
- Temporary construction

### Notices and approvals

#### 1.1 STATUTORY OBLIGATIONS

Comply with all statutory obligations and regulations of regulatory bodies controlling the execution of the works.

#### 1.2 BUILDING CONSENT AUTHORITY AND NETWORK UTILITY APPROVALS

Attend on building consent authority officers, statutory and network utility inspectors, as necessary to obtain approvals, including those required for the completion of the works.

#### 1.3 NOTIFY NETWORK UTILITY OPERATORS

Notify all network utility operators of proposed works before commencing site operations. Ascertain location of services or confirm that none exist in the vicinity of the works. Take all necessary precautions to avoid damage to existing services.

### Inspections

### Site preparation

#### 1.4 WORKING AREA

Limited to the site.

#### 1.5 SITE AND SOIL SURVEYS

Carry out all investigations necessary and peruse all information available to determine ground conditions and likely ground performance both on the site and adjacent to it. Also refer to the territorial authority project information memorandum (PIM).

#### 1.6 GROUND CONDITIONS

Refer to the geotechnical / soils report included with this specification.

### Temporary construction

#### 1.7 TEMPORARY BUILDINGS

Provide as necessary temporary sheds, offices, lunch rooms, sanitary accommodation and other temporary buildings required for storage, management of the works, for the use of workers while on site and as required by Acts and Regulations.

#### 1.8 TEMPORARY SITE FENCING

Provide and maintain a temporary site fence, 2 metres high from ground level on the side accessible to the public. Construct to comply with [NZBC F5/AS1](#) Construction and demolition hazards.

#### 1.9 SITE - SAFETY SIGNAGE

Provide hazard board and other safety signage as required.

#### 1.10 SITE - PROJECT SIGN

Obtain approval for, provide and erect a timber framed sign board fully painted and displaying:

- Title of contract
- Principal's name
- Contractor's name
- Consultants as listed in general section 1222 PROJECT PERSONNEL
- If the contractor wishes, names of subcontractors.

**First aid**

- 1.11 FIRST AID EQUIPMENT  
Provide first aid equipment.

# 1250 TEMPORARY WORKS & SERVICES

## 1 GENERAL

This general section relates to temporary works and services required for the construction of the contract works. It includes

- Temporary works and services including temporary fencing and hoardings
- Scaffolding
- General care and protection
- Rubbish removal

### Temporary works

#### 1.1 COSTS RELATING TO TEMPORARY WORKS

Pay all rates/fees in respect of temporary works.

#### 1.2 MAINTENANCE OF TEMPORARY WORKS

Maintain alter, adapt and move temporary works and services as necessary. Clear away when no longer required and make good.

#### 1.3 SAFEGUARD THE SITE, THE WORKS AND MATERIALS

Take reasonable precautions to prevent unauthorised access, including access outside working hours, to the site, the works and adjoining property. Safeguard the site, the works, materials and plant from damage and theft.

#### 1.4 SITE FENCING

Provide and maintain a site fence, 2 metres high from ground level on the side accessible to the public. Construct to comply with [NZBC F5/AS1](#) Construction and demolition hazards. Construct as required for public areas and as shown on the drawings.

Construct the fence with:

- galvanized chain link netting with a 50mm x 50mm maximum grid size
- posts at 2.5 metre centres maximum
- gap at the bottom of the fence no greater than 100mm

#### 1.5 SITE FENCING - NON-PUBLIC AREAS

Provide and maintain a 1 metre high site fence to non-public areas. Construct using:

- warratah stakes at 1.5 metre centres fitted with safety caps
- plastic safety mesh

#### 1.6 PROVIDE SEDIMENT AND SILT RUN OFF PROTECTION

Provide appropriate measures to prevent or minimise sediment generation and silt run off. Comply with territorial and other authority requirements relating to carrying out earthworks.

Prevent silt run off by:

- exposing only as much ground as required at any time
- providing run off channels, contour drains or earth bunds to divert clean water away from the site on to stable sealed or grassed ground
- capture silt by the use of silt fences, vegetation buffer strips, sediment ponds or earth bunds.

Provide sediment control by:

- earth bunds constructed across the slope to control and detain run off
- silt fences constructed using filter fabric stretched between posts at a maximum of 1 metre spacing.

Pump water from trenches and other areas of the site using methods to prevent sediment entering any drain or watercourse. Filter dirty water before discharging into drainage system.

## 1.7 PROVIDE CONCRETE WASHWATER RUN OFF PROTECTION

Provide appropriate measures to prevent cement/concrete washwater or slurry run off to; drains or waterways, landscaped areas new or remaining and adjoining public or private properties. Comply with territorial and other authority requirements relating to cement/concrete washwater.

Control run off from:

- Cement/concrete based material production, placing and finishing.
- Hosing down and cleaning of, tools and equipment, fresh material, and spilt or surplus material, pumps and mixers etc.
- Wet cutting or grinding.
- Slab watering etc.
- Water cleaning of new concrete elements, fresh used formwork etc.

Small project with relatively large exposed ground areas - prevent run off by:

- directing small amounts of washwater onto the area of ground closest to the work.
- for larger amounts provide run off channels, and small soak pits
- very small amounts of washwater with no aggregate and only a small amount of sand may be spread over existing lawns.

Large project and those without suitable ground area - prevent run off by:

- plan and implement washwater control measures based on the expected volumes, allow for the timely removal and safe disposal of liquids and solids.
- Limit the volume of water used for washing down to the extent required.
- Control the flow of washwater so that it is directed to proper catchments.
- providing watertight bunds, pits or tanks, filtered washwater is not to be discharged to drains.

Spilt or surplus material:

- if possible allow to set and either use or dispose of as hardfill.
- pre-made concrete items, either use or dispose of as hardfill.

Pump washwater away from drains, waterways and adjoining property.

## 1.8 EXCAVATION SAFETY

To the [Health and Safety at Work Act 2015](#).

Carry out excavation to [WorkSafe NZ, Good Practice Guidelines - Excavation Safety](#). This may include deep excavation, trenching, and areas behind unfilled retaining walls.

Carry out excavation using plant and equipment suitable for the purpose.

### Temporary services

## 1.9 WATER

Provide clean, fresh water for the works and make arrangements for distributing about the site.

## 1.10 ELECTRICITY

To AS/NZS 3012.

Nominate the person to install and be responsible for the complete temporary electrical installation.

The name and designation of the person responsible is to be displayed prominently and close to the main switch or circuit breaker.

Inspect and overhaul the installation at such intervals as are prescribed by the network utility operator but not more than three monthly intervals.

## 1.11 IMAGING

Keep available devices able to take and send quality printable digital photographs.

### Care and protection - Site

## 1.12 LOCATE AND PROTECT SURVEY MARKS

Review information provided relating to survey marks. Physically locate and protect survey marks.

Where required use a licensed cadastral surveyor to reinstate survey marks disturbed during construction.

#### 1.13 LOCATE EXISTING SERVICES

Review information provided relating to underground and above ground services. Physically locate the position of all such services. Arrange with the network utility operator for all necessary exploratory work, location, protection, isolation, off-setting, reinstatement or alterations required. Record any alterations made to such utilities.

#### 1.14 PROTECT EXISTING SERVICES

Protect existing services and parts of service systems, whether indicated or not, that are to remain in place during the execution of the works. Provide temporary caps or covers to prevent the ingress of dust and other contaminants into the systems, ducts, pipes etc. Reinstatement where required and repair any damage resulting from carrying out the contract works.

#### 1.15 PROTECT EXISTING LANDSCAPE ELEMENTS

Protect existing trees, fences, gates, walls, gardens and other designated landscape features which are to remain in position during the execution of the works. Construct a temporary fence at the outer edge of the drip line of trees to be protected. Comply with territorial authority requirements.

#### 1.16 MAKE GOOD - SITE

Make good all damage to existing roads, footpaths, grounds, services, landscape elements and site features caused in carrying out the contract works.

#### **Care and protection - Project**

#### 1.17 TEMPORARY PROTECTION

Provide and maintain temporary protection as required to protect products during transport, storage and handling. Provide temporary protection as required to protect the work in progress and the finished work. Refer to 1270 CONSTRUCTION for removal of protection.

#### 1.18 SPECIAL PROTECTION GENERAL

Refer to individual work sections for any special protection requirements.

#### **Care and protection - miscellaneous**

#### 1.19 CONSTRUCTION KEYING AND SECURITY

Provide locksets with temporary keying, or install with the cylinders removed.

#### 1.20 TEMPORARY STORAGE

Provide temporary storage areas and protective covers and screens to meet the requirements of the products to be stored.

#### **Rubbish removal**

#### 1.21 PERIODIC RUBBISH REMOVAL

Maintain on site appropriate means for the storage and removal of construction waste material. Where required or appropriate provide for the separate storage of recyclable waste and other materials requiring special disposal.

# 2210 PREPARATION & GROUNDWORK

## 1 GENERAL

This section relates to the clearance, excavation and backfilling of the site area in preparation for:

- footings and floor slabs
- backfilling behind basement retaining walls

### Documents

#### 1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

[NZS 3604](#) Timber-framed buildings  
WorkSafe NZ [Good Practice Guidelines - Excavation Safety](#)

#### 1.2 SITE SAFETY

Provide adequate support for all excavations. Cover holes and fence off open trenches and banks.

#### 1.3 ARCHAEOLOGICAL DISCOVERY

If fossils, antiquities and other items of value are found refer to the general section 1220 PROJECT for actions to be taken with archaeological discovery.

## 2 PRODUCTS

#### 2.1 EXCAVATED CLEAN FILL

Clean, free of contamination, mineral soil from other formations in the excavation which may be selected and approved as suitable for filling by having grading and moisture content properties that will allow recompaction to 95% of maximum density.

#### 2.2 SAND FILL

Clean sand of such grading in particle size to achieve mechanical compaction to 90% maximum density.

#### 2.3 HARD FILL

Scoria or crushed rock to GAP (General All Passing) 40 grading.

## 3 EXECUTION

#### 3.1 WASHOUT BAY FOR TRUCK

Provide a designated area for trucks to be washed down to avoid mud and dirt being carried off site.

#### 3.2 EXCAVATION GENERALLY

Carry out excavation, using plant suitable for the purpose, to the guidelines set by the WorkSafe NZ, [Good Practice Guidelines - Excavation Safety](#).

#### 3.3 BURNING OF MATERIALS

Burning of materials is not permitted on site.

#### 3.4 PROTECT EXISTING WORK

Protect from damage existing buildings, structures, roads, paving and services nominated on the drawings as being retained.

#### 3.5 EROSION CONTROL

Ensure measures are in place to contain silt dislodged as a result of water infiltration and to prevent it being carried off site with stormwater.

#### 3.6 SURFACE PREPARATION

Comply with [NZS 3604](#), section 3.5, **Site preparation**. Remove all turf, vegetation, trees, topsoil, stumps, uncontrolled fill and rubbish from the area to be built on.

### 3.7 STOCKPILE TOPSOIL

Stockpile excavated topsoil on site where directed. Keep separate from other excavated materials. Spread and level where directed before completion of the works.

### 3.8 GENERAL EXCAVATION

Trim ground to required profiles, batters, falls and levels. Remove loose material. Protect cut faces from collapse. Keep excavations free from water.

### 3.9 ROCK EXCAVATION

If rock is found at any level above the underside of the structural foundations, or above required base levels for site service trenches, immediately notify the owner. Obtain written instructions from the owner on the proposed approach to rock excavation, or consequent alterations to subgrade construction. Confirm any changes with the territorial authority.

### 3.10 FOUNDATION EXCAVATION

Take foundation excavations to depths shown. Keep trenches plumb and straight, bottoms level and free of soft spots, stepped as detailed and clean and free of water.

### 3.11 INADEQUATE BEARING

If bearing is not to [NZS 3604](#), 3.1.2 **Foundations** and 3.1.3 **Determination of good ground**, then excavate further and backfill with material as follows. Confirm any changes with the territorial authority.

Below slabs on grade: Hardfill compacted in 150mm layers

Below footings: 10 MPa concrete

Service trenches: Hardfill compacted in 150mm layers

If excavation exceeds the required depths, backfill and compact to the correct level with material as listed.

### 3.12 STANDARD OF COMPACTION

Place fill in layers of not more than 150mm and compact to achieve 95% of maximum dry density. For granular fill material, the fill shall be compacted to 80% of saturated dry density.

### 3.13 GRANULAR BASE FOR SLABS

To conform to [NZS 3604](#), section 7.5.3, **Granular base**. Consolidate with a vibrating roller. Blind the surface with 20mm of coarse sand or sand/cement and roll ready to receive a damp-proof membrane.

### 3.14 GENERAL BACKFILLING

Obtain written confirmation from the owner before using any excavated material. Compact approved backfilling in 150mm layers with the last 200mm in clean topsoil, lightly compacted and neatly finished off.

### 3.15 SURPLUS MATERIAL

Remove surplus and excavated material from the site.

# 3155AS ALLIED READY SUPERSLAB FLOOR SYSTEM

## 1 GENERAL

This section relates to the **Allied READY Superslab** an engineered designed, reinforced concrete floor system incorporating polystyrene pods or QPOD moulded plastic pods.

It includes:

- Standard engineered design in accordance with Codemark Certificate of Conformity
- Specific engineered design

### 1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following definitions apply specifically to this section:

**ACRS** Australian Certification Authority for Reinforcing Steels - An independent certification scheme for reinforcing steel and structural steel, by product and manufacturer/processor. Certifies compliance with Australia/New Zealand Standards.  
ACRS Web site - [www.steelcertification.com](http://www.steelcertification.com)

### Documents

### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

**AS 1366.3** Rigid cellular plastics sheets for thermal insulation - Rigid cellular polystyrene - Moulded (RC/PS - M)  
**NZS 3104** Specification for concrete production  
**NZS 3109** Concrete construction  
**NZS 3114** Specification for concrete surface finishes  
**NZS 3604** Timber-framed buildings  
**NZS 3631** New Zealand timber grading rules  
**NZS 4229** Concrete masonry buildings not requiring specific engineering design  
**AS/NZS 4671** Steel reinforcing materials  
CodeMark **GM-CM30086**-RevD - Allied Superslab Concrete Floors

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work.

Allied READY Superslab Technical Manual

Allied READY Superslab Brochure

**BRANZ Appraisal 964** - Allied Superslab Concrete Floors

Manufacturer/supplier contact details:

Company: **Allied Concrete Limited**

Web: [www.alliedconcrete.co.nz](http://www.alliedconcrete.co.nz)

Email: [sales@alliedconcrete.co.nz](mailto:sales@alliedconcrete.co.nz)

Telephone: 0800 4 255433

### Requirements

### 1.4 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Allied READY Superslab floor system product or component, or associated Allied Concrete products.

### 1.5 QUALIFICATIONS

Tradespeople to be competent, experienced and familiar with the Allied READY Superslab floor system materials and techniques specified.

## 1.6 STEEL REINFORCING COMPLIANCE

Steel reinforcing materials for concrete to [AS/NZS 4671](#). Steel to be manufactured in New Zealand, or by an overseas manufacturer holding a current valid (or equivalent) NZS Mark or ACRS certificate for that type of steel. Confirm compliance and provide evidence if requested.

## 1.7 QUALITY RECORDS

Keep accurate records relating to strength and quality of materials used during construction. Include records of workmanship during construction and photographs of as-built details. Make the information available to the Building Consent Authority inspector on request.

### Compliance information

## 1.8 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

- Producer Statement - Construction PS3 from the installer
- Producer Statement - Construction Review PS4 from;
- Waikato/Auckland/Northland: HFC: Foundations Ltd
- Christchurch: HFC: Civil and Structural (South) Ltd
- or from a relevant approved structural engineer

### Performance

## 1.9 SPECIFIC ENGINEERED DESIGN

Allied READY Superslab floor system does not meet the the requirements of the CodeMark® certificate CodeMark™ GM-CM0086-RevD and has specific engineered design.

# 2 PRODUCTS

### System components

## 2.1 POLYSTYRENE PODS

Allied READY Superslab proprietary purpose made moulded expanded polystyrene pods manufactured to AS 1366.3. Sizes 1200mm x 1200mm x 200mm (North Island only), 1100mm x 1100mm x 220mm (North Island & South Island) or 1100mm x 1100mm x 300mm (South Island only).

## 2.2 SPACERS

Allied READY Superslab proprietary or QPOD plastic spacers.

### Materials

## 2.3 BLINDING

20 mm minimum compacted GAP 7 or sand blinding.

## 2.4 TIMBER FORMWORK

No. 2 framing and dressing or merchantable grade radiata pine boards to [NZS 3631](#).

## 2.5 DAMP-PROOF MEMBRANE

0.25mm minimum polyethylene to [NZS 3604](#): clause 7.5.4, Damp-proof membrane (DPM). Refer to SELECTIONS.

### Reinforcement - concrete

## 2.6 REINFORCEMENT

Bars to [AS/NZS 4671](#). Grade 500E deformed, other than for ties, stirrups and spirals, unless shown otherwise on the drawings.

## 2.7 INTERNAL CORNER REINFORCEMENT

Minimum 2 x HD12 bars Grade 500E to [AS/NZS 4671](#).

## 2.8 MESH

As specified in the design documentation.

## 2.9 TYING WIRE

Mild drawn steel wire not less than 1.2mm diameter.

## 2.10 CONCRETE - ALLIED SUPERSLAB APPLICATIONS - SPECIFIC DESIGN

20 or 25MPa 100mm slump mix in either 13mm or 19mm nominal aggregate size, for direct placement and for pump applications. Mix code as per Engineer's design specification or Allied Superslab Technical Manual.

# 3 EXECUTION

## Conditions

### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.

### 3.2 ROUTINE MATTERS

Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements. Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.

### 3.3 STORAGE

Take delivery of and accept all materials and accessories dry and undamaged. Store on timber fillets on hard ground protected from weather, contamination and damage in a secure area clear of any building operation.

Handle and store reinforcing steel and accessories without damage or contamination. Ensure reinforcement is clean and remains clean so that at the time of placing concrete it is free of all loose mill scale, loose rust and any other contamination that may reduce bonding capacity. Store steel fabric flat.

### 3.4 HANDLING

Avoid distribution and contact with damaging substances. Do not drag sheets across each other and other materials. Protect edges and surface finishes from damage.

## Site preparation

### 3.5 SITE CLEARANCE

Clear the slab area of any vegetation and topsoil down to the subgrade level.

### 3.6 BUILDING PLATFORM

Create a building platform to a level surface approximately 300mm minimum below finished floor level, i.e. Slab thickness + 20mm blinding. Cut and/or fill sloping sites. Confirm finished floor level. The prepared platform should be to a tolerance of +0 to -10mm.

### 3.7 POST-CUT INSPECTION

Inspect and confirm that the soil conditions are as anticipated by the geotechnical investigation and report and conform to the requirements of the Allied READY Superslab Technical Manual.

### 3.8 TEMPORARY BUILDING PLATFORM DRAINAGE

Construct suitable drainage to keep excessive ground water off the building platform during and after construction as required, and to ensure run off onto adjoining properties is avoided.

### 3.9 HARDFILL

Place hardfill in layers not exceeding 150mm thick. Consolidate hardfill by suitable mechanical equipment to provide a dense stable surface capable of 100kPa safe bearing pressure.

## Application - pre-installation

### 3.10 UNDERGROUND SERVICES

Ensure underfloor services are installed in the subsoil or hardfill in locations as shown on the drawings and according to Allied READY Superslab floor system requirements, or within the slab depth where applicable.

### 3.11 BLINDING LAYER

Spread GAP 7 blinding layer to a minimum 200mm past the outside edge of the slab, compact to a level layer no greater than 50mm thick. Refer to BUILDING PLATFORM for tolerances.

### 3.12 FORMWORK

Construct formwork as required, well braced and tied to remain in position, straight and plumb during construction. Ensure formwork will provide for the topping depth, including rebates and the required concrete finish.

### 3.13 INSTALL DAMP-PROOF MEMBRANE

Apply DPM to the prepared basecourse extending to the outside of all edge beams or fold and staple up the inside of the formwork. Overlap all joints in the DPM sheets a minimum 150mm. Tape laps and penetrations with 50mm wide pressure sensitive plastic tape. Ensure DPM is not damaged during the construction process. Repair all damage to DPM before proceeding with following procedures.

#### **Application - Allied READY Superslab floor system**

### 3.14 PLACE POLYSTYRENE PODS

Place polystyrene pods in a regular waffle pattern using the spacers in the specified grid pattern to fit the floor plan. Cut pods on site with a saw or suitable hot wire as required. Cut holes for services and trim around piles as required on site.

### 3.15 INSTALL SPACERS

Install spacers and locations to the Allied READY Superslab floor system requirements.

Form standard ribs between pods using Allied READY Superslab 100mm spacers. Place the spacers at a minimum of one spacer along each edge of each pod or part pod. The ribs in both directions form a waffle pattern throughout the slab.

Form the edge beam using Allied READY Superslab 300mm spacers. Place the spacers at 1200mm centres maximum along the perimeter of the slab at least and one spacer per pod or part pod.

Form ribs to support load-bearing walls using Allied READY Superslab 300mm spacers. Place the spacers at a minimum of one spacer along the edge of each pod or part pod.

### 3.16 PLACE REINFORCING: GENERAL

Install specified reinforcing to Allied READY Superslab Technical Manual. Ensure specified minimum cover requirements are maintained.

### 3.17 PLACE REINFORCING STEEL TO INTERNAL RIBS

Place rib reinforcing bars in the bottom of the internal ribs and supported in the correct position by the Allied READY Superslab spacers. Lap XD 12 bars 600mm minimum. At the junction with the edge beam, each rib bar to sit on top of the edge beam bars and extend to the outermost bar. Allow for 40mm side cover within the rib. Place 1 x XD12 bar in each 100mm wide rib and 2 x XD12 bars in each 300mm wide rib. Allow 50mm bottom cover to bars where DPM is used.

### 3.18 PLACE REINFORCING STEEL TO EDGE BEAM

Place the two edge beam reinforcing bars in the bottom of the edge beam and supported in the correct position by the Allied READY Superslab spacers. Tie one top edge beam bar below the mesh at the perimeter of the area covered by the polystyrene pods. Lap XD 12 bars 600mm minimum. At corners, the inner bottom bars and the top bars cross each other and extend to 50 mm from the outside face of the edge beam. Tie these bars together where they cross. Tying of edge beam steel is only required at corners.

### 3.19 PLACE REINFORCING FOR RE-ENTRANT CORNER STEEL

Place two XD12 bars, 1200mm in length across the corner. Tie to the top of the mesh at re-entrant corners at 200mm centres with 50mm side cover from the internal corner.

### 3.20 PLACE REINFORCING MESH AND CHAIRS

Place reinforcing mesh over the pods and support on the mesh chairs spaced at 1200mm centres minimum, with at least two transverse bars of adjacent mesh minimum placed per pod and with one mesh chair minimum per part pod. Lap mesh 225mm minimum or to suit mesh suppliers details and tied at all laps.

### 3.21 FORM SLAB AND OPENING REBATES

Form rebates, as detailed on drawings. Form a rebate in slab for masonry veneer construction with a width dependent on the veneer width, cavity width and overhang. Waterproof the rebate with a bituminous sealer on both the vertical and horizontal faces.

### 3.22 TOPPING SLAB DEPTH

Concrete slab thickness 85mm minimum. Refer to Allied READY Superslab details.

### 3.23 PRE-PLACEMENT INSPECTION

Arrange for excavations, formwork and reinforcement to be inspected and passed by the Building Consent Authority.

### 3.24 CONCRETE PLACEMENT AND COMPACTION

Ensure the rib and edge beam canals are clean, free of debris. Pour the floor in a single pour using only Allied Superslab Mix concrete and ensuring that the pods remain in position during placing.

Pour concrete onto the top of each pod prior to filling the ribs around the pod to help prevent them from floating and lifting.

Use Allied Superslab Mix for placement in the floor directly from the concrete truck chute or Allied Superslab Mix concrete for placement in the floor by concrete pump.

Compact concrete using a suitable poker vibrator for the ribs and ground beams and into all corners of the formwork. Screed as required. Confirm levels with a laser level and ensure minimum specified topping thickness is achieved.

### 3.25 CONCRETE FINISHING

Float and trowel to provide a U3 finish to [NZS 3114](#): table 2, Classes of floor, exterior pavement and invert finishes. Exposed edges of foundation to F5 finish.

### 3.26 CONCRETE CURING

Curing of the concrete slab must take place immediately after finishing the concrete to [NZS 3109](#) by one of the following curing methods:

- ponding or continuous sprinkling of water
- placing a wet covering or plastic membrane over the slab
- the use of liquid membrane curing compounds

### 3.27 SHRINKAGE CONTROL JOINTS

Cut shrinkage control joints as shown on the plans after hardening to a depth of 25mm within 24 hours.

Where shrinkage control joints have not been shown on the plans, position the shrinkage control joints to coincide with major changes in the floor plan. Agree position of shrinkage control joints with the engineer.

Bay dimensions formed by the shrinkage control joints to be limited to a maximum ratio of length to width of 2 to 1 with a maximum dimension of 6 metres. Where a shrinkage control joint runs along the line of a 300mm wide loadbearing rib, locate the cut directly above one edge of the 300mm rib.

Do not place supplementary reinforcing bars (including re-entrant corner steel) across any shrinkage control joints.

### 3.28 CLEAN OUT SHRINKAGE CONTROL JOINTS

Clean out control joints. If required fill with suitable flexible sealant.

## Finishing

### 3.29 STRIKE FORMWORK

Strike formwork after at least 12 hours after the slab has been finished without damaging or overloading structure.

### 3.30 SURFACE DEFECTS

Make good surface defects immediately after forms are stripped. Make good hollows or bony areas with suitable patching mortar, finished to the same tolerances as the parent concrete. Fill any tie rod holes with 1:2 mortar.

## Completion

### 3.31 COMPLETION MATTERS

Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements.

### 3.32 CLEAN UP

Clean up surrounding areas following completion of the concrete placement.

## 4 SELECTIONS

For further details on selections go to [www.alliedconcrete.co.nz](http://www.alliedconcrete.co.nz)

Substitutions are not permitted to the following, unless stated otherwise.

### 4.1 DAMP-PROOF MEMBRANE

Type: Thermathene Black 250um

### 4.2 ALLIED READY SUPERSLAB POLYSTYRENE POD SYSTEM

Brand: Allied READY Superslab

Pod size: 1100x1100x220mm moulded polystyrene

Plastic spacers: as required

Chairs: as required

### 4.3 CONCRETE SURFACE FINISH

Location: floor slab

Finish class: U3 (interior)

### 4.4 ALLIED READY SUPERSLAB APPLICATIONS - SPECIFIC DESIGN

Concrete strength: 25MPa

Mix Code: 252RSS

# 3820 CARPENTRY

## 1 GENERAL

This section relates to the supply and erection of timber framing, as a framed structure, or as partitioning. It includes prefabricated timber and engineered wood.

### 1.1 RELATED WORK

Refer to 4161 UNDERLAYS, FOIL AND DPC for underlays, foils and DPC.

### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B2/AS1	Durability
AS/NZS 1328.1	Glued laminated structural timber - Performance requirements and minimum production requirements
AS/NZS 1604.4	Specification for preservative treatment - Laminated veneer lumber (LVL)
AS/NZS 1604.5	Specification for preservative treatment - Glue laminated timber products
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3604	Timber-framed buildings
NZS 3622	Verification of timber properties
NZS 3640	Chemical preservation of round and sawn timber
AS/NZS 4357.0	Structural laminated veneer lumber - Specification
FTMA CoP	Frame and Truss Manufacturers Association Code of Practice
<b>*A copy of NZS 3604 Timber-framed buildings, must be held on site.</b>	

### 1.3 QUALIFICATIONS

Workers to be experienced, competent trades people familiar with the materials and techniques specified.

### 1.4 DIMENSIONS

All timber sizes except for battens are actual minimum dried sizes.

## 2 PRODUCTS

### 2.1 TIMBER FRAMING, TREATED

Species, grade and in service moisture content to NZS 3602, NZBC B2/AS1 and treatment to NZS 3640, NZBC B2/AS1. Structural grade (SG) to NZS 3604, NZS 3622 with properties to NZS 3603.

### 2.2 TIMBER TRUSSES

To FTMA CoP. Moisture content 16% at supply.

### 2.3 EXTERIOR CAVITY WALL BATTENS - TIMBER - NON-STRUCTURAL

H3.1 or H3.2 Radiata pine battens, minimum 20mm thickness, width and height to match timber framing studs. Temporary fix battens before being fixed into the framing with the cladding fixings. To NZS 3602, table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.

### 2.4 EXTERIOR CAVITY WALL BATTENS - PROPRIETARY - NON-STRUCTURAL

Extruded polypropylene battens, size approximately 45mm wide x 18mm thickness. Temporary fix battens before being fixed into the framing with the cladding fixings. To the scope limitations of NZBC E2/AS1, and NZS 3604 Building Wind Zones up to, and including "Extra High".

### Components

### 2.5 NAILS

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 6-10.

## 2.6 BOLTS AND SCREWS

Bolts and screws of engineering and/or coach type complete with washers, to the requirements of [NZS 3604](#), section 4, **Durability**, and of the number and form required for each particular junction to [NZS 3604](#), sections 6-10.

## 2.7 NAIL PLATES

Comply with the requirements of [NZS 3604](#), section 4, **Durability**, and of the number and form required for each particular junction to [NZS 3604](#), sections 6-10. Plates to the plate manufacturer's design for the particular locations as shown on the drawings.

## 2.8 CONNECTORS

Comply with the requirements of [NZS 3604](#), section 4, **Durability**, and of the number and form required for each particular junction to [NZS 3604](#), sections 6-10. Connectors and structural brackets to the connector manufacturer's design for particular locations shown on drawings.

## 2.9 CORROSION RISKS

For interior timber, treated with copper-based timber preservatives (H3.2 or higher), use a minimum of hot-dipped galvanized steel fixings and fasteners.

For exterior timber, timber in damp areas and timber subject to occasional wetting, use only stainless steel (or equivalent) fixings and connectors, when the timber is treated with; Copper Azole (CuAz, Preservative code 58), Alkaline Copper Quaternary (ACQ, Preservative code 90), Micronise Copper Azole (code 88) or Micronised Copper Quaternary (code 89).

## 2.10 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

# 3 EXECUTION

## 3.1 EXECUTION GENERALLY

To [NZS 3604](#) except as varied in this specification. Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

## 3.2 SEPARATION

Separate all timber framing timbers from concrete, masonry and brick by: -

- a full length bituminous damp-proof membrane overlapping timber by at least 6mm; or
- a 12mm minimum free draining air space

## 3.3 ATTENDANCE

Provide and fix blocks, nogs, openings and other items as required by other trades.

## 3.4 MOISTURE CONTENT

Maximum allowable equilibrium moisture content (EMC) for non air-conditioned or centrally heated buildings for framing to which linings are attached.

Framing at erection: 24% maximum

Framing at enclosure: 20% maximum

Framing at lining: 16% maximum

## 3.5 SET-OUT

Set out framing in accordance with the requirements of [NZS 3604](#) and as required to support sheet linings and claddings. When necessary provide framing to suit any required cladding/lining control joints and sheet joints.

## 3.6 FRAMING WALLS

Frame to required loading and bracing complete with lintels, sills and nogs, all fabricated and fastened to [NZS 3604](#), section 8, **Walls**.

## 3.7 FRAMING ROOFS

Frame to required loading and bracing complete with valley boards, ridge boards and purlins.

Design and fit roof trusses complete with anchorage. All fabricated and fastened to [NZS 3604](#), section 9, **Posts** and 10, **Roof framing**.

### 3.8 FRAMING CEILINGS

Frame to required loading and bracing complete with runners and battens set out to support ceiling lining. All fabricated and fastened to [NZS 3604](#), section 13, **Ceilings**. Trim for openings in ceilings and hatches to [NZS 3604](#) section 13.3, **Openings in ceilings**. Provide blocking for water tanks located in the ceiling space to [NZS 3604](#), section 13.4, **Water tanks in roof space**.

### 3.9 INSTALLING WALL UNDERLAYS

Refer to 4161 UNDERLAYS, FOIL AND DPC section

### 3.10 FIT CAVITY BATTENS

Fit and fix 20mm cavity battens over wall underlay or rigid air barrier, fully nail to timber studs to the requirements of the manufacturer or to [NZS 3604](#). Fit and fix related flashings. Make allowance for cladding control joints where required. Fit and fix cavity closers to base of walls, open horizontal (or raking) junctions and over openings (windows, meters etc.).

### 3.11 DPC TO LOSP TREATED TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section.

### 3.12 DPC TO TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section.

## 4 SELECTIONS

### 4.1 EXTERIOR WALL FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Exterior walls:	Radiata pine	SG8	H1.2
Wall battens (not cavity):	Radiata pine	Merch	H1.2
Jamb battens:	Radiata Pine	Merch	H3.1

### 4.2 CAVITY BATTENS

Cavity battens	Species	Grade	Treatment
Timber - Non Structural:	Radiata pine	Merchantable	H3.1
Cavity closer:	BGC	PVC	cavity vent strip

### 4.3 ROOF FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Trusses:	Radiata pine	SG8	H1.2
Purlins:	Radiata pine	SG8	H1.2
Ceiling joists and battens:	Radiata pine	SG8	H1.2
Valley boards:	Radiata pine	Merchantable	H1.2

### 4.4 INTERIOR FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Non structural walls:	Radiata pine	SG8	H1.2
Structural and braced walls:	Radiata pine	SG8	H1.2

# 3827E ECOPLY® PLYWOOD BRACING SYSTEM

## 1 GENERAL

This section relates to the use of **Ecoply®** sheets for structural wall bracing:

### 1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

FSC®	Forest Stewardship Council®
COC	Chain of Custody

### Documents

### 1.2 DOCUMENTS

Documents referred to in this section are:

NZBC B1/AS1	Structure
NZBC E2/AS1	External moisture
AS/NZS 1170.2	Structural design actions - Wind actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 1604.3	Specification for preservative treatment - Plywood
AS/NZS 2269.0	Plywood - structural - specifications
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber Structures Standard
NZS 3604	Timber-framed buildings
BRANZ Technical Paper P21	BRANZ Technical Paper P21: A wall bracing test and evaluation procedure (2010)

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

### 1.3 MANUFACTURER'S DOCUMENTS

CHH Woodproducts documents relating to work in this section are:

**Ecoply®** Specifications and Installation Guide

**Ecoply®** Technical Notes.

FSC Certificates on request for W8.1 Plywood FSC Mix

Carter Holt Harvey Tokoroa FSC-C012019 SCS-COC-001316 Controlled Wood SCS-CW-001316 (expires 5 Jun 2023)

Copies of the current product literature are available from Carter Holt Harvey Woodproducts Ltd

Web: [www.chhwoodproducts.co.nz](http://www.chhwoodproducts.co.nz)

Telephone: 0800 326 759

### 1.4 NO SUBSTITUTIONS

Substitutions are not permitted to any specified system, or associated components and products.

## 1.5 FSC CERTIFIED RESPONSIBLY SOURCED TIMBER

Abbreviations and definitions:

FSC 100%

- FSC-certified material originating in FSC-certified forests or plantations that has not been mixed with material from another category throughout the supply chain. FSC 100% products can be used in FSC Mix product group.

FSC Mix % or FSC Mix Credit

- A mixture of the following - FSC 100%, FSC recycled timber, FSC Controlled Wood - and supplied with a percentage claim or Credit claim.

FSC Controlled Wood

- Forest of origin risk-assessed against FSC Controlled Wood standards and deemed low risk of being: illegally logged, violating traditional/civil/conservation rights, change of use or GM planting. All non-FSC certified timber plantations in NZ have been assessed and deemed low risk by FSC.

FSC Forest Management (FM) Certification

- A forest management unit independently FSC inspected and certified that it complies with the internationally-agreed FSC Principles.

FSC Chain of Custody (COC) Certification

- COC certification applies to those who process, transform or trade forest products, providing a guarantee about the production and source of FSC-certified products and tracking the production and distribution of the products.

Organisation website details

Forest Stewardship Council website:- <https://nz.fsc.org/en-nz>

### Performance

## 1.6 STRUCTURAL FIXINGS, WIND

Design and use the fixings appropriate for the wind zone (R) and topographical classification (T) of this site and building height; as required by [NZS 3604](#) and the wind loads on various wall areas as given by [AS/NZS 1170.2](#).

## 1.7 STRUCTURAL FIXINGS, EARTHQUAKE

Use fixings and methods capable of sustaining the loads appropriate to the area as set out in [NZS 3604](#) and as required by [NZS 1170.5](#).

## 1.8 BRACING SYSTEM

The Ecoply® bracing system provides bracing resistance for walls and subfloor foundations for light timber framed buildings under wind and earthquake loading to [NZBC B1](#) Structure, and to [NZS 3603](#) Timber Structures Standard. Refer to table for summary of P21 Ratings for 2.4m high **Ecoply®** wall element:

Provide braced wall systems using GIB® Ezybrace Systems to meet the requirements of [NZS 3604](#) when tested to BRANZ Technical Paper P21. Refer to drawings for location and type.

Brace No.	Minimum wall length	Lining Requirements	Bus/m Wind	Bus/m Earthquake
EP1	0.4m	7-12mm Ecoply® one side	80	95
EP1	0.6m	7-12mm Ecoply® one side	95	105
EP1	1.2m	7-12mm Ecoply® one side	120	135
EPG	0.4m	7-12mm Ecoply® one side and 10mm Gib® Standard plasterboard other side	100	115
EPG	1.2m	7-12mm Ecoply® one side and 10mm Gib® Standard plasterboard other side	150	150

Note:

- Plywood must be at least taken up to within 300mm of top plate.
- Hold down connections required each end of bracing element.
- Maximum 120 Bus/m for any bracing element on timber framed floor ([NZS 3604](#))

## 2 PRODUCTS

### Materials

## 2.1 FSC CERTIFIED TIMBER

Refer to SELECTIONS for details of amount, type, suppliers.  
Certified responsibly sourced FSC-COC Certified timber from forest to installation. Contractor to obtain timber supplier's FSC-COC certificate, delivery notes and/or invoices showing FSC-COC code and FSC Claim identified against product item(s). Also include signed FSC outsourcing agreements between parties (eg FSC timber broker and non-FSC door joiner) if applicable.

## 2.2 ECOPLY® STRUCTURAL PLYWOOD

Radiata pine veneer ply to [AS/NZS 2269.0](#), DD face grade or better, 7mm minimum thick, H3.2 CCA treated to [AS/NZS 1604.3](#).

### Components

## 2.3 NAILS

Nail fixing for **Ecoply®** used as a structural bracing

Fixing type	Minimum nail length
Direct Fixed	50 x 2.8mm flat head hot dipped galvanized or stainless steel annular grooved nails
Cavity Fixed	60 x 2.8mm flat head hot dipped galvanized or stainless steel annular grooved nails

# 3 EXECUTION

### Conditions

## 3.1 HANDLE

Handle sheets carefully and reject those with damaged faces or edges.

## 3.2 STORE

Store sheets in stacks clear of the ground, supported without sagging on evenly spaced horizontal bearers. Protect from damage and weather.

## 3.3 WALL FRAMING

Kiln dried timber framing sizes and set outs to [NZS 3604](#) with stud and nog centres and timber widths to **Ecoply®** Specification and Installation Guide. Treatment to [NZS 3602](#).

### Application

## 3.4 BOTTOM PLATE FIXING

Use Gib HandiBrac® hold-down connections at each end of bracing element. Refer to the installation instructions supplied with connectors for correct bolt types to be used for either concrete or timber floors. Within the length the bracing element, bottom plates are fixed to the requirements of [NZS 3604](#).

## 3.5 CAVITY BATTENS

The bracing element may be fixed over cavity battens.

Fix 40 x 20mm minimum cavity battens, staggered nailed at 150mm centres to studs around the perimeter of the bracing element and nailed to the intermediate studs within the bracing element at 300mm centres with 50mm x 2.8mm flat head galvanized or stainless steel annular grooved nails.

## 3.6 SUPPORT EDGES AND JOINTS

Fully support edges and joints. Studs maximum 600mm centres and nogs maximum 800mm centres with the framing width of 45mm at each **Ecoply®** sheet joint.

## 3.7 NAIL FASTENERS TO BRACING ELEMENT

Place nail fasteners at 150mm centres around perimeter, 7mm from edge of the **Ecoply®** sheet and 300mm centres on intermediate supports of each **Ecoply®** sheet.

### 3.8 FIXING ECOPLY® STRUCTURAL PLYWOOD SHEETS

Fit and fix to [NZS 3604](#), [NZBC E2/AS1](#), 9.8 **Plywood sheet** and the manufacturer's bracing requirement with sheets and trim all in plumb, true alignment and face.

Fix **Ecoply®** sheets vertically. Allow 2-3mm expansion gap between sheets. Cut edges of sheet to be placed to the top. For EPGs bracing system the **Ecoply®** may terminate within a maximum of 300mm below the top plate, e.g. at soffit line, where solid nogging must be provided for the full length of the bracing element to provide fixing of the **Ecoply®**.

### 3.9 FIXING GIB® PLASTERBOARD SHEETS

Fix Gib® plasterboard sheets to Gib® Ezybrace system. Refer to the appropriate Gib® Plasterboard section.

#### Completion

### 3.10 PROTECTION

Protect work from the weather until it is covered, coated or sealed.

### 3.11 REPLACE

Replace damaged or marked elements.

### 3.12 LEAVE

Leave work to the standard required by following procedures.

### 3.13 REMOVE

Remove all debris, unused materials and elements from the site.

## 4 SELECTIONS

### 4.1 ECOPLY® STRUCTURAL PLYWOOD

Location:	Refer to drawings and bracing calculations
Manufacturer:	CHH Woodproducts
Brand/grade:	Ecoply® DD or better A BOND
Stress grade:	F8
Thickness:	7mm
Treatment:	H3.2 CCA

### 4.2 FASTENERS

Type/size/material:	60x2.8mm flat head hot dipped galvanised or stainless steel annular grooved nails
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### 4.3 BRACING SYSTEMS

Refer to Ecoply® Specification and Installation Guide for specific bracing details, and to Gib® Ezybrace system for bracing element fixing details. For location refer to drawn documentation and bracing calculations.

# 4161MP MASONS UNDERLAYS, DPM & DPC

## 1 GENERAL

This section relates to the application of:

- Masons Dry-Fix DPC
- Masons Hydro™ Window Tape
- Masons Air Tight P.E.F Backing Rod
- Masons Barricade™ FR Building Wrap
- Masons Wrapstrap™
- Masons Penetration Seals

### 1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following definitions apply specifically to this section:

Wall underlay the same meaning as defined in [NZBC E2/AS1](#), covering kraft based and synthetic wall underlays, sometimes called, wall wraps, building wraps or building papers.

### Documents

### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">NZS 3604</a>	Timber-framed buildings
<a href="#">AS/NZS 1301.421s</a>	Methods of test for pulp & paper – Determination of the pH value of aqueous extracts of paper, board & pulp – cold extraction method
<a href="#">AS/NZS 4200.1</a>	Pliable building membranes and underlays - Materials
<a href="#">AS/NZS 4201.3</a>	Pliable building membranes and underlays - Methods of test - Shrinkage
<a href="#">AS/NZS 4201.4</a>	Pliable building membranes and underlays - Methods of test - Resistance to water penetration
<a href="#">AS/NZS 4201.6</a>	Pliable building membranes and underlays - Methods of test - Surface water absorbency
<a href="#">AS/NZS 4284</a>	Testing of building facades

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this part of the work:

Masons Plastabrick Exterior Plaster Systems and Building Products Manual  
Masons HT Green product literature  
CodeMark Certificate of Conformity for Masons Dry-Fix DPC Cert No. [CMA-CM40072](#)  
Hydro™ Window Tape leaflet  
CodeMark Certificate of Conformity for Masons Hydro window tape [CMA-CM40125](#)  
Masons 40 Below™ window flashing tape brochure & installation instructions  
CodeMark Certificate of Conformity for Masons 40 Below™ window tape [CMA-CM40098](#)  
Masons P.E.F Backing Rod leaflet  
Masons Barricade™ FR Building Wrap technical literature  
CodeMark Certificate of Conformity for Masons Barricade FR Building Wrap [CMA-CM40134-I02-R00](#) & Cert Mark Assessment Brief  
Masons Uni® Flexible Air Barrier brochure & installation instructions  
CodeMark Certificate of Conformity for Masons Uni FAB [CMA-CM40179-I01-R01](#)  
Masons Uni® Flexible Air Barrier On-Site Checklist  
Masons WrapStrap™ House Wrap Strapping flyer  
Masons Penetration Seals brochure

Manufacturer/supplier contact details

Company: Masons Plastabrick Limited  
Web: [www.mpb.co.nz](http://www.mpb.co.nz) or [www.masons.nz](http://www.masons.nz)  
Telephone: 0800 522 533

## Warranty

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER - BARRICADE™ FR

Provide a material manufacturer/supplier warranty:

50 years For Masons Barricade™ FR Building Wrap

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of purchase.

Refer to the general section 1237 WARRANTIES for additional requirements.

## Requirements

### 1.5 QUALIFICATIONS - GENERAL

Installers to be experienced, competent trades people familiar with the materials and techniques specified.

### 1.6 QUALIFICATIONS - BARRICADE™ FR & UNI® FAB

Installers of Masons Barricade™ FR Building Wrap and Masons Uni® Flexible Air Barrier are to be experienced, competent trades people familiar with the materials and techniques specified.

Installation to be in accordance with relevant Masons technical literature and in accordance with relevant CodeMark Certificate.

## 2 PRODUCTS

### Masons Poly Dry-Fix DPC

#### 2.1 MASONS POLY DRY-FIX DPC

Polyethylene embossed dampcourse and concealed flashing barrier. Includes a waterproof strip barrier around openings in a wall, door or roof junction. CodeMark certified. Beal type tested.

Type:	Size:
DPC 50	50mm x 30m
DPC 75	75mm x 30m
DPC 90	90mm x 30m
DPC 100	100mm x 30m
DPC 140	140mm x 30mm
DPC 150	150mm x 30m
DPC 200	200mm x 30m
DPC 250	250mm x 30m
DPC 300	300mm x 30m

### Masons Hydro™ Window Tape & Corner Guards

#### 2.2 MASONS HYDRO™ WINDOW TAPE & CORNER GUARDS

Modified bituminous tape 1mm thick x 75mm - 200mm wide, for sealing around window and other joinery openings in timber and steel framed buildings. To [NZS 3604](#) Building Wind Zones up to and including Very High. To [NZBC E2/AS1](#), 4.3.11.

Masons Hydro flashing tape	Roll sizes	Masons Code
Hydro flashing tape 75mm	75mm x 25m long	HYDRO75x25
Hydro flashing tape 100mm	100mm x 25m long	HYDRO100x25
Hydro flashing tape 150mm	150mm x 25m long	HYDRO150x25
Hydro flashing tape 150mm	150mm x 10m long	HYDRO150x10
Hydro flashing tape 200mm	200mm x 25m long	HYDRO200x25

Masons Hydro corner guards	Pack size	Masons Code
Hydro corner guards	50	HYDROCG50
Hydro corner guards	10	HYDRO10CNRGUARD

### Masons P.E.F Backing Rod

## 2.3 MASONS P.E.F BACKING ROD

Air tight P.E.F backing rod made from closed cell polyethylene foam to [NZBC E2/AS1](#), 9.1.6. Available in sizes as shown in the table below.

Diameter	Roll length
6mm	20m, 50m
8mm	20m, 50m
10mm	20m, 50m
13mm	20m, 50m
15mm	20m, 50m
20mm	20m
25mm	10m
30mm	10m
40mm	5m
50mm	5m

## Masons Barricade™ FR Building Wrap

### 2.4 MASONS BARRICADE™ FR BUILDING WRAP - GENERALLY

A 100gsm fire retardant, non-woven, water resistant, breathable composite building wrap, tested to [NZBC E2/AS1](#), 1.1. Suitable for wind zones up to and including Very High, as outlined in [NZS 3604](#). The following tests have been carried out to [NZBC E2/AS1](#) Table 23.

- Tensile strength, edge tear resistance and resistance to water vapour transmission to [AS/NZS 4200.1](#).
- Shrinkage to [AS/NZS 4201.3](#).
- Resistant to water penetration to [AS/NZS 4201.4](#).
- Surface water absorbency to [AS/NZS 4201.6](#).
- Air resistance to [NZBC E2/AS1](#).
- Fire retardant to AS 1530.2 Flammability

### 2.5 MASONS BARRICADE™ FR BUILDING WRAP - TIMBER FRAMED BUILDINGS

Use as a flexible wall underlay on timber framed buildings as follows;

- The scope limitations of [NZBC E2/AS1](#), 1.1, with regards to building height and floor plan area.
- With absorbent wall claddings directly fixed to the frame.
- With Absorbent and non-absorbent wall claddings installed over an 18mm minimum drained cavity.
- With masonry veneer to [NZBC E2/AS1](#).
- Situated in [NZS 3604](#) Wind Zones up to and including Very High.

## Accessories

### 2.6 MASONS WRAPSTRAP™ STUD STRAPS

19mm or 25mm wide polythene embossed straps, for cavity construction with framing centres greater than 450mm.

Sizes: 19mm x 300m, 25mm x 250m.

### 2.7 MASONS PENETRATION SEALS

Flexible EPDM synthetic rubber nozzle with a thin, less than 1mm thick, flexible woven waterproof synthetic flashing material coated with a pressure sensitive adhesive. Available in two sizes 1-75mm and 85-170mm.

## 3 EXECUTION

### Conditions

#### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.

Store wall underlays, flexible air barriers and accessory materials, under conditions that ensure no deterioration or damage. Store rolls in an upright position in a clean, dry area, on a smooth floor and protected from sunlight, UV radiation and moisture.

### 3.2 ROUTINE MATTERS

Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.  
Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.

### 3.3 GENERAL REQUIREMENTS

To [NZBC E2/AS1](#) Table 23 Properties of Roof Underlays and Wall Underlays; and manufacturers technical literature.

### 3.4 INSPECTION

Before starting work, check that the framing will allow work of the required standard. Carry out remedial work identified before laying underlay.

#### **Application - Masons Dry-Fix DPC**

### 3.5 MASONS DRY-FIX DPC TO TIMBER

Lay Masons Dry-Fix polyethylene DPC under treated and untreated timber, including LOSP treated timber, of all timber framed walls on concrete and concrete masonry, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

### 3.6 MASONS DRY-FIX DPC TO MASONRY AND BRICK VENEER

Lay Masons Dry-Fix polyethylene DPC along base of cavity and fix top edge to studs with galvanized clouts. Turn DPC out over concrete rebate under bottom course of veneer.

### 3.7 MASONS DRY-FIX DPC BETWEEN DISSIMILAR MATERIALS

Lay Masons Dry-Fix polyethylene DPC between dissimilar materials where required.

#### **Application - Masons Flashing Tape & Corner Guards**

### 3.8 FIXING OVER LOSP TIMBER

When applying Mason flashing tapes over LOSP (Light Organic Solvent Preservative) treated timber, ensure the solvent has been allowed to flash off for a minimum of 1 week prior to the installation.

### 3.9 FIX MASONS HYDRO™ WINDOW TAPE & CORNER GUARDS

Install Masons Hydro™ Window Tape and Corner Guards to [NZBC E2/AS1](#), 9.1.5 and in accordance with Masons instructions.

#### **Application - Masons P.E.F Backing Rod**

### 3.10 FIX MASONS P.E.F BACKING ROD

Install Masons P.E.F backing rod to [NZBC E2/AS1](#), 9.1.6 and in accordance with Masons instructions. Ensure the width of the backing rod is always 25% - 30% larger than the width of the gap requiring filling.

#### **Application - Masons Wall Underlay**

### 3.11 FIX MASONS BARRICADE™ FR BUILDING WRAP

Fix horizontally to outside face of substrate in true alignment, with succeeding sheets overlapping 150mm to [NZBC E2/AS1](#), 9.1.7, **Wall underlay** and in accordance with Masons instructions.

Run the underlay horizontally and extend it from the upper side of the top plate to the under-side of the bearers or wall plates supporting ground floor joists, or below bottom plates on concrete slabs. Horizontal laps must be minimum 75mm wide, with the direction of the lap ensuring that the water is shed to the outer face of the membrane. End laps must be made over framing and be minimum 150mm wide.

Pull the underlay taut over the framing before fixing.

The underlay must be fixed to all framing members at maximum 300mm centres with 20mm long large-head clout nails, 6mm-8mm staples, self drilling screws or proprietary underlay fixings.

Restrain from bulging into the drained cavity to [NZBC E2/AS1](#), 9.1.8.5.

### 3.12 OPENINGS

Run the underlay over openings and leave covered until windows and doors are ready to be installed. Form openings in the membrane by cutting a 45° diagonal from each corner of the penetration. Fold back the flaps inside the opening and staple to the penetration framing. Cut off excess underlay flush with the internal face of the wall frame.

### 3.13 HEAD FLASHINGS

Selected wall underlay can be added as a second layer over head flashings to [NZBC E2/AS1](#), 9.1.10.3.

### 3.14 WINDY CONDITIONS

When fixing the underlay in windy conditions, take care due to the large sail area created by wide roll widths.

### 3.15 REPAIR DAMAGE

Repair any damaged areas of the underlay, such as tears, holes or gaps around service penetrations. Repair damaged areas by covering with new material lapping the damaged area by at least 150mm and taping, or by taping small tears using Mason 40 below flashing tape or Masons Wrap Repair and Seam Tape..

### 3.16 INSTALL PENETRATION SEALS

Install, in accordance with Mason installation instructions, appropriately sized Mason Penetration seal to pipe or wires penetrating wall underlay.

### 3.17 EXPOSURE - MASONS BARRICADE™ FR BUILDING WRAP

Install exterior cladding over Barricade™ FR Building Wrap as soon as practicable. Expose underlay to the weather & ultra-violet light for a total of no more than 60 days.

#### **Masons Wrapstrap™ Stud Straps**

### 3.18 INSTALL MASONS WRAPSTRAP™ STUD STRAPS

Over underlay, install 19mm or 25mm wide polythene embossed straps horizontally at 300mm centres, draw taut and fix to studs with stainless steel staples.

#### **Completion**

### 3.19 COMPLETION MATTERS

Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements.

## **4 SELECTIONS**

For further details on selections go to [www.mpb.co.nz](http://www.mpb.co.nz)  
Substitutions are not permitted to the following.

### 4.1 MASONS POLY DRY-FIX DPC

Location:	Under bottom plates, brick flashing as per drawings
Brand:	Masons Poly Dry Fix
Type:	DPC 90, DPC 200
Roll length:	30.0m
Width:	90mm, 200mm

### 4.2 MASONS HYDRO™ WINDOW TAPE & CORNER GUARDS

Location:	All window and door openings
Brand:	Masons Hydro™ Window Tape
Width:	150mm
Code:	HYDRO150x10
Corner Guards:	Hydro corner guards HYDROCG50

#### 4.3 MASONS P.E.F BACKING ROD

Location: all window and door openings as detailed  
 Brand: Masons P.E.F Backing Rod  
 Type: P.E.F Backing Rod  
 Size - diameter: 8mm  
 Roll length: 50m

#### 4.4 MASONS BARRICADE™ FR BUILDING WRAP

Location: All exterior walls  
 Brand / type: Masons Barricade™ FR Building Wrap

#### **Accessories**

#### 4.5 MASONS WRAPSTRAP™ STUD STRAPS

Location: All insulated exterior walls  
 Width: 25mm

#### 4.6 MASONS PENETRATION SEALS

Location: pipes through walls  
 Size: 1-75mm diameter

# 4231BS BGC SHEET LINING & FACADE SYSTEMS

## 1 GENERAL

This section relates to the supply and fixing of **BGC Fibre Cement (NZ)** sheet lining and facade systems, for interior and exterior use fixed directly or with a cavity to timber or steel framing. It includes:

- BGC Duragroove™ Facade System (Cavity)

### Documents

#### 1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">NZBC E2/VM1</a>	Weathertightness
<a href="#">AS/NZS 1170.2</a>	Structural design actions - Wind actions
<a href="#">AS/NZS 2908.2</a>	Cellulose-cement products - Flat sheet
<a href="#">NZS 3602</a>	Timber and wood-based products for use in building
<a href="#">NZS 3604</a>	Timber-framed buildings

#### 1.2 MANUFACTURER/SUPPLIER DOCUMENTS

BGC Fibre Cement documents relating to this part of the work:

- BGC Duragroove™ Facade System Cavity and Direct Fixed Brochure
- BGC Duragroove™ Facade System Architectural Details
- [BRANZ Appraisal 799](#) - BGC Duragroove™ and Durascape™ Facade Systems (Cavity

Manufacturer/supplier contact details

Company: **BGC Fibre Cement (Australia) Pty Ltd**  
 Web: [www.bgcinnovadesign.co.nz](http://www.bgcinnovadesign.co.nz)  
 Email: [nz@bgc.com.au](mailto:nz@bgc.com.au)  
 Telephone: 09 273 1457, 0800 424 234

### Warranties

#### 1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years:	For BGC Duragroove™ Facade product (refer to BGC Fibre Cement product warranty)
15 years:	For accessories supplied by BCG (refer to BGC Fibre Cement product warranty)
	Commence the warranty from the date of purchase

Provide this warranty on the manufacturer's standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

#### 1.4 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

2 years	For installation
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Provide this warranty on the installer's standard form

Refer to the general section 1237 WARRANTIES for additional requirements.

### Requirements

#### 1.5 QUALIFICATIONS

Installers to be experienced, competent trades people familiar with the materials and techniques specified.

- 1.6 NO SUBSTITUTIONS  
Substitutions are not permitted to any specified system, or associated components and products.
- 1.7 INFORMATION FOR OPERATION AND MAINTENANCE  
Provide relevant BGC Fibre Cement maintenance requirements at completion of the work.
- Performance - wind**
- 1.8 PERFORMANCE, WIND  
The design wind pressures are to [NZS 3604](#), up to and including Extra High Wind Zone. BGC Fibre Cement Brochure details are suitable for these conditions.

### Performance

- 1.9 BGC DURAGROOVE™ PANELS - CAVITY CONSTRUCTION  
BGC Duragroove™ and Durascape™ Facade Systems (Cavity) to [BRANZ Appraisal 799](#), with the following conditions:
- with a risk score of 0-20, to [NZBC E2/AS1](#) Table 2, and,
  - situated in [NZS 3604](#) Wind Zones up to, and including 'Extra High'
  - situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5kPa.

## 2 PRODUCTS

### Materials

- 2.1 WALL UNDERLAY  
For flexible wall underlays and rigid wall underlays, refer to the appropriate separate section(s).
- 2.2 EXTERIOR CAVITY BATTENS  
Radiata pine battens, minimum 45mm wide x 18mm thick, H3.1 treated, height to match timber framing studs. To [NZS 3602](#), Table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.
- 2.3 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING  
Perforated uPVC, with upstands.
- 2.4 BGC DURAGROOVE™ PANELS  
BGC Duragroove™ panel, acrylic sealed, 9mm thick, with a shiplap horizontal jointing system and vertical grooves, manufactured from Portland cement, finely ground silica, cellulose fibres and water, cured by high pressure autoclaving.  
Manufactured to [AS/NZS 2908.2](#), tested to [NZBC E2/VM1](#) for weathertightness and complying with the NZBC. Panel supplied with a smooth or wood grain finish and 4 profiles. Available in 1200mm wide panels x 2450mm, 2750mm or 3000mm long. Refer to SELECTIONS for options.

### Components - general

- 2.5 FASTENER TYPE  
Fasteners to minimum durability requirements of the NZBC. Refer to [NZS 3604](#), section 4, **Durability**, for requirements for fixing's material to be used in relation to the exposure conditions.
- Refer to [NZBC E2/AS1](#), Table 20, Material selection, and [NZBC E2/AS1](#), Table 21, Compatibility of materials in contact, for selection of suitable fixing materials and their compatibility with other materials.

Zone	Fixings Material
Zone D, Zone E / Microclimates (incl. Geothermal)	Grade 316 Stainless
Zone B, Zone C	Hot-dipped galvanized
Bracing - All zones	Grade 316 Stainless

Check against SED (specific engineering design) requirements for microclimate conditions.

### Components - Innova™ Duragroove™ Facade System

## 2.6 NAILS / SCREWS - CAVITY FIXED

Fixing batten to framing:

- 65mm x 2.87mm Round Drive Ring Shank Nail, or
- 60mm x 2.8mm Jolt Head Galvanized Nail

Fixing Duragroove™ to batten:

- C25 304 stainless steel brads,
- 30mm x 2.8mm Fibre Cement Nail galvanized or stainless steel, or
- 25mm x 10g class 4 or stainless steel countersunk wood screws

## 2.7 ADHESIVE FIXING

Bostik Seal'n'Flex FC, for fixing to cavity battens.

### **Accessories - Innova™ Duragroove™ Facade System**

## 2.8 INTERNAL ALUMINIUM CORNER

BGC Internal Aluminium Corner, 3000mm long.

## 2.9 EXTERNAL ALUMINIUM CORNER

BGC External Aluminium Corner, 2450mm, 2750mm or 3000mm long.

## 2.10 HORIZONTAL FLASHING

BGC Aluminium Horizontal Flashing, 3000mm long.

## 2.11 CAVITY VENT STRIP

BGC Cavity Vent Strip, 19mm x 2700mm.

## 2.12 EDGE SEALER

BGC Edge Sealer.

### **Accessories - supplied by contractor**

## 2.13 SEALANT / GAP FILLER

Bostik Safetech Safe Seal sealant or BRANZ appraised paintable sealant, in accordance with BGC Fibre Cement application requirements.

### **Finishing**

## 2.14 PAINT FINISHING SYSTEM

Refer to relevant painting section(s) for the painting systems required for the product as recommended by BGC Fibre Cement.

# 3 EXECUTION

### **Conditions**

## 3.1 STORAGE

Take delivery of products and stack flat, up off the ground and supported on equally spaced (maximum of 400mm) level gluts. Protect edges and corners from damage and covered to keep dry until fixed.

## 3.2 HANDLING

Avoid distortion and contact with potentially damaging surfaces. Carry sheets / panels in vertical position. Do not drag sheets / panels across each other, or across other materials. Protect edges, corner and surface finish from damage.

## 3.3 SUBSTRATE

Do not commence work until the substrate is of the standard required by BGC Fibre Cement for the specified finish; plumb, level and in true alignment. Moisture content of timber framing must not exceed the requirements specified by [NZS 3602](#) to minimise shrinkage and movement after sheets are fixed.

### **Application - generally**

### 3.4 INSTALL WALL UNDERLAY

Install flexible wall underlays and rigid wall underlays in accordance with the appropriate separate section(s).

### 3.5 INSTALL CAVITY BATTENS

Install 18mm minimum thick cavity battens to [NZBC E2/AS1: 9.0 Wall claddings](#), where required. Fix vertical cavity battens to wall framing studs. The battens are fixed by the cladding fixings which will penetrate the wall framing studs under the wall underlay. Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc). Do not use horizontal cavity battens. Use cavity spacers where fixing is required between cavity battens.

When installing Duragroove™ and Duragrid™ on a cavity, structurally fix the cavity battens a 300mm centres and offset them 12mm alternatively off the centre line.

### 3.6 PENETRATIONS AND FLASHINGS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:

- Wall underlay appropriately incorporated with penetration and junction flashings.
- Materials lapped in a way that water tracks down to the exterior face of the wall underlay.
- Wall underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- Claddings neatly finished off to all sides of openings
- Installation of flashings (those required to be installed prior to installation of penetrating elements).

### 3.7 INSTALL FLASHINGS

Install flashings at all wall openings, penetrations, junctions, connections, window sills, heads and jambs to [NZBC E2/AS1](#).

#### Installation

### 3.8 INSTALL BGC DURAGROOVE™ FACADE SYSTEM - CAVITY FIXED

Install BGC Duragroove™ panels, cavity fixed, strictly in accordance with BGC Fibre Cement requirements and product Brochure BGC Duragroove™ Facade System and Architectural Details.

#### Completion

### 3.9 REPLACE

Replace all damaged or marked elements.

### 3.10 LEAVE

Leave work to the standard required for following procedures.

### 3.11 REMOVE

Remove debris, unused materials and elements from the site.

## 4 SELECTIONS

For further details on selections go to [www.bgcinnovadesign.co.nz](http://www.bgcinnovadesign.co.nz). Substitutions are not permitted to the following, unless stated otherwise.

#### Materials

### 4.1 CAVITY BATTENS - TIMBER

Timber species: Radiata pine  
Treatment: H3.1

#### Innova™ Duragroove™ Facade System

#### 4.2 BGC DURAGROOVE™ PANELS

Location:	Gable wall as indicated on Elevations.
Manufacturer:	BGC Fibre Cement (Australia) Pty Ltd
Supplier:	BGC Fibre Cement (NZ)
Brand/type:	Innova™ Duragroove™ Pane
Thickness:	9mm
Panel width:	1200mm
Panel length:	2450mm
Profile/finish:	Duragroove Woodgrain (150mm between grooves, width of groove 4.5mm)
Construction:	Cavity fix
Nail finish:	Galvanized
Nails:	30mm x 2.8mm Fibre Cement Nail galvanised or stainless steel.
Screw fixing:	C25 304 stainless steel screws

#### **Finishing**

#### 4.3 PAINTING

Refer to painting section(s) for details.

# 4239JH JAMES HARDIE® SOFFITS

## 1 GENERAL

This section relates to the supply and fixing of **James Hardie®** products to the underside of exterior soffits, verges and eaves. It includes:

- James Hardie® HardieSoffit™ Lining

### 1.1 RELATED WORK

Refer to painting section/s for the protective coating required to meet the NZBC durability requirements.

#### Documents

### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
AS/NZS 1170.2	Structural design actions - Wind actions
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NASH Standard Part 2	May 2019 Light Steel Framed Buildings

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

James Hardie® documents relating to this part of the work:  
James Hardie® Eaves and Soffits Installation Manual  
James Hardie® Fire and Acoustic Design Manual.

Manufacturer/supplier contact details

Company: James Hardie New Zealand Limited  
Web: [www.jameshardie.co.nz](http://www.jameshardie.co.nz)  
Email: [info@jameshardie.co.nz](mailto:info@jameshardie.co.nz)  
Telephone: 0800 808 868

#### Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years: For James Hardie® HardieSoffit Lining  
(refer to James Hardie® product warranty)

15 year: For accessories supplied by James Hardie® (refer to James Hardie® product warranty)

From: Date of purchase

- Provide this warranty on the manufacturer's standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

#### Requirements

### 1.5 QUALIFICATIONS

Workers / Installers / applicators to be experienced, competent trades people familiar with the materials and techniques specified.

### 1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

## 1.7 SAFE WORKING

To James Hardie® requirements for safe working practices with James Hardie® products, particularly with regards to cutting and drilling.

## 1.8 INFORMATION FOR OPERATION AND MAINTENANCE

Provide relevant James Hardie maintenance requirements at completion of the work.

### Performance

## 1.9 PERFORMANCE - UP TO AND INCLUDING VERY HIGH WIND ZONE

The design wind speeds/zones are to [NZS 3604](#), up to and including Very High Wind Zone. James Hardie® Eaves and Soffits Installation Manual requirements are suitable for these conditions.

# 2 PRODUCTS

### Materials

## 2.1 HARDIESOFFIT™ LINING

James Hardie® HardieSoffit™ Lining, 4.5mm thick cellulose fibre reinforced cement sheet. Manufactured to [AS/NZS 2908.2](#) from Portland cement, ground sand, cellulose fibre and water.

### Components

## 2.2 FASTENER TYPE

Fasteners to minimum durability requirements of the NZBC. Refer to [NZBC E2/AS1](#), Table 20, Material selection for fixing material, and [NZBC E2/AS1](#), Table 21, Compatibility of materials in contact, for selection of suitable fixing materials and their compatibility with other materials.

Exposure	Fixing	Fixing Material	Zone
Sheltered	Nail	Hot-dip galvanized steel	B
Sheltered	Nail	Stainless steel	B, C, D, E
Sheltered	Screw	Stainless steel	B, C, D, E

Check against SED (specific engineering design) requirements for microclimate conditions. Refer to SELECTIONS for fastener type.

### Components - HardieSoffit™ Lining

## 2.3 SOFFIT JOINTERS AND MOULDS

Extruded uPVC jointer, capping and scotia mould.

## 2.4 HARDIEFLEX™ NAILS

HardieFlex™ Nail, 40 x 2.8mm stainless steel or galvanized nail, Refer to SELECTIONS.

## 2.5 FASTFIX FASTENERS

38 x 12mm, Nylon / White Fastfix Fasteners.

## 2.6 ADHESIVE

Refer to SELECTIONS.

## 2.7 INSEAL TAPE

Inseal® 3259, 1.5mm thick x 50mm wide black compressible medium density closed cell foam tape.

### Components - General

## 2.8 FLEXIBLE JOINT SEALANT

Refer to SELECTIONS.

# 3 EXECUTION

### Conditions

### 3.1 STORAGE

Take delivery of products dry and undamaged. Store on site, lay flat on a smooth level surface clear of the ground. Protect materials, finished surfaces, edges and corners from damage, water and moisture.

### 3.2 HANDLING

Move/handle goods in accordance with James Hardie® requirements. Avoid distortion and contact with potentially damaging surfaces. Do not drag sheets across each other, or across other materials. Protect edges, corner and surface finish from damage. Reject and replace goods that are damaged or will not provide the required finish. Install materials in a dry state.

### 3.3 SUBSTRATE - TIMBER FRAMING

Do not commence work until the substrate is of the standard required for the specified finish; plumb, level and in true alignment. Moisture content of timber framing must not exceed the requirements specified by [NZS 3602](#) to minimise shrinkage and movement after sheets are fixed.

### 3.4 COMMENCE WORK

Do not commence work until the roof has been installed.

#### **Application - general**

### 3.5 SHEET LAYOUT

All sheet edges must be fully supported by framing or rebates in fascia and barge boards.

### 3.6 CUTTING SOFFIT CLADDING

Cut sheets dry using score and snap method, hand guillotine method or fibreshear heavy duty method. If these methods are not feasible, use an alternative manufacturer approved method.

### 3.7 CIRCULAR HOLE FORMING

Mark the centre of the hole on the sheet, pre-drill a pilot hole. Use the pilot hole as a guide for a hole saw fitted to a heavy duty electric drill.

### 3.8 IRREGULAR HOLE FORMING

Drill a series of small holes around the perimeter of the proposed hole, tap out the waste piece from the sheet face.

### 3.9 INSTALL HARDIESOFFIT™ LINING

Install in accordance with James Hardie® installation manual requirements. Refer to SELECTIONS for fixing and jointing methods.

### 3.10 CONTROL JOINT

Install control joint to James Hardie® installation manual requirements.

### 3.11 FASTENER - SIZE AND LAYOUT

Fix sheets to framing using fasteners as nominated in SELECTIONS. Fix to James Hardie® installation manual requirements.

### 3.12 SEALANTS

Application and use of sealants to manufacturer's instructions. Check with sealant manufacturer prior to coating over sealants.

### 3.13 PAINTING

Refer to painting section/s for protective coating system.

#### **Completion**

### 3.14 COMPLETE

Ensure the work is complete with all components, accessories, trim, sealant and finishing properly installed so the soffit cladding system is completely weathertight.

### 3.15 REPLACE

Replace all damaged or marked elements.

- 3.16 CLEAN  
Clean surfaces.
- 3.17 LEAVE  
Leave work to the standard required for following procedures.
- 3.18 REMOVE  
Remove debris, unused materials and elements from the site.

#### 4 SELECTIONS

For further details on selections go to [www.jameshardie.co.nz](http://www.jameshardie.co.nz)  
Substitutions are not permitted to the following, unless stated otherwise.

##### Materials

#### 4.1 HARDIESOFFIT™ LINING

Location:	Soffits
Brand/type:	James Hardie® HardieSoffit™ Lining
Thickness:	4.5mm
Width:	450mm
Fixing Method:	HardieFlex nails
Fixing type:	Galvanized HardieFlex Nail, 40x2.8mm
Joint detail:	Hardiejointer 5mm

##### Painting

#### 4.2 PAINTING

Refer to painting section/s for details.

# 4261 BRICK VENEER CLADDING

## 1 GENERAL

This section relates to clay brickwork as a veneer cladding.  
It includes:

- Standard brick veneer cladding

### 1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following definitions apply specifically to this section:

Proprietary Two Storey Brick Veneer System	Proprietary system for two storey clay brick veneer construction as contained in <a href="#">BRANZ Appraisal 690</a> - Two Storey Brick Veneer System.
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### Documents

### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">NZBC B1/AS3</a>	Structure
<a href="#">NZS 1170.5</a>	Structural design actions - Earthquake actions - New Zealand
<a href="#">AS/NZS 2699.1</a>	Built-in components for masonry construction - Wall ties
<a href="#">AS/NZS 2699.3</a>	Built-in components for masonry construction - Lintels and shelf angles (durability requirements)
<a href="#">AS/NZS 2918:2001</a>	Domestic solid fuel burning appliances - Installation
<a href="#">NZS 3103</a>	Sands for mortars and plasters
<a href="#">NZS 3604</a>	Timber-framed buildings
<a href="#">NZS 4210</a>	Masonry construction: materials and workmanship
<a href="#">SNZ HB 4236</a>	Masonry veneer wall cladding
<a href="#">AS/NZS 4455.1</a>	Masonry units, pavers, flags and segmental retaining wall units - Masonry units
<a href="#">BRANZ Appraisal 690</a>	Two Storey Brick Veneer System
BRANZ	Good practice guide: Masonry veneer

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:  
Think Brick TB2

Manufacturer/supplier contact details	
Company	Canterbury Clay Bricks
Web:	<a href="http://clay-bricks.co.nz">clay-bricks.co.nz</a>
Email:	<a href="mailto:info@clay-bricks.co.nz">info@clay-bricks.co.nz</a>
Telephone:	03 341 5036

### Requirements

### 1.4 QUALIFICATIONS

Bricklayers to be experienced, competent and familiar with the materials and the techniques specified.

All work to be installed or supervised by a Registered Mason or licensed building practitioner (LBP):  
Licensed for Bricklaying and Blocklaying 1: Brick/masonry Veneer. RBW must be supervised by an LBP.

### 1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

## Compliance information

### 1.6 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Other information required by the BCA in the Building Consent Approval documents.

## Performance

### 1.7 DESIGN PARAMETERS - NON SPECIFIC DESIGN

Design the installation to the seismic parameters of [NZS 4210](#) Masonry construction: materials and workmanship.  
Refer to SELECTIONS for details.

### 1.8 COMPLIANCE

Brickwork to comply with [SNZ HB 4236](#) Masonry veneer wall cladding.

## 2 PRODUCTS

### Materials

#### 2.1 CLAY BRICKS

To [AS/NZS 4455.1](#).

#### 2.2 STEEL LINTELS

To [AS/NZS 2699.3](#).

#### 2.3 VERMIN STOP

Galvanized hexagon 10mm mesh of 1mm diameter steel wire 100mm wide, complete with galvanized steel staples.

#### 2.4 DAMP-PROOF MEMBRANE

Heavy kraft, strip laminates saturated and coated with bitumen, butyl rubber sheet with adhesive, or equivalent.

#### 2.5 DAMP-PROOF COURSE

Polyethylene based strip used as a damp-proof course and flashing, also for slip joints between brick courses.

### Components - standard brick veneer

#### 2.6 WALL TIES

To [AS/NZS 2699.1](#). Veneer ties screw fixed to framing.

#### 2.7 REINFORCEMENT

Galvanised wire joint reinforcement

### Accessories

#### 2.8 SAND FOR MORTAR

To [NZS 3103](#). Chloride levels to not exceed 0.04% by dry weight of sand.

#### 2.9 MORTAR

Composed of Portland cement, sand and water with an admixture to the provisions of [NZS 4210](#): 2.2 Mortar. Obtain written approval of admixture being used. Obtain written approval if intending to use hydrated lime in the mortar.

#### 2.10 ADMIXTURES

To [NZS 4210](#).

#### 2.11 WATER

Clean, fresh and free from excess alkali, salt, silt and organic materials.

## 3 EXECUTION

## Conditions

### 3.1 TOLERANCES

To [NZS 4210](#), table 2.2 Maximum tolerances.

### 3.2 HANDLING AND STORAGE OF MATERIALS

To [NZS 4210](#) for aggregates, cement, bricks and reinforcement.

### 3.3 CONCRETE BASE

Check vertical and horizontal alignment. Any discrepancies exceeding the permitted tolerances shall be corrected before units are laid.

### 3.4 TIMBER FRAMING

Check timber framing stud spacing is in accordance with [NZS 3604](#).

### 3.5 PENETRATIONS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the brick veneer. Required preparatory work includes the following:

- brick veneer wall underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- brick veneer neatly finished off to all sides of openings
- installation of flashings (those required to be installed prior to installation of penetrating elements).

### 3.6 MEASURE MATERIALS

Measure materials for mortar accurately by weight or volume using suitably calibrated equipment.

### 3.7 WET WEATHER

Keep bricks dry at all times prior to laying. Protect the top row of uncompleted brick walls. Protect freshly laid brickwork during interruption through rain and at completion of each day's work. Protect brickwork for a minimum of 6 hours.

### 3.8 COLD WEATHER CONSTRUCTION

When air temperature is below 5°C take the precautions required by [NZS 4210](#): 2.18 Cold weather construction.

### 3.9 HOT WEATHER CONSTRUCTION

When air temperature is above 25°C or there is a drying wind, or lower temperatures, take the precautions required by [NZS 4210](#): 2.19 Hot weather construction.

### 3.10 KEEP FACE WORK CLEAN

Keep clean during erection and until completion of the contract works. Turn back scaffold boards at night and during heavy rain. Do not rub face work to remove stains.

## Installation - general

### 3.11 COLOUR MIXING

Check all bricks delivered to site for colour variation, prior to commencing work. Ensure bricks are thoroughly blended from several pallets to ensure an even colour spread throughout the work.

### 3.12 UNIFORMITY

Carry up work with no portion more than 1500mm above another at any time, raking back between levels.

### 3.13 BONDING

Lay bricks to the required bonding in the various locations. Refer to SELECTIONS/drawings.

### 3.14 PROVIDE WEEPHOLES

Provide weepholes at the bottom of cavities and cells to [SNZ HB 4236](#) and [NZBC E2/AS1](#), 9.2.6, **Cavities**, and as necessary to drain moisture to the outside air. Provide vent gap at the top of the veneer.

### 3.15 INSTALL VERMIN STOP

Fold and staple one edge of the mesh to the substrate and with the mesh sloping outwards, set the other edge half the thickness of the veneer or 50mm, whichever is less, into the mortar joint.

### 3.16 CAVITY VENTILATION

Ventilate to outside air with top and bottom openings to the requirements of [SNZ HB 4236](#) and [NZBC E2/AS1, 9.2.6, Cavities](#). Seal cavity off from roof space.

### 3.17 CAVITY BRICKWORK BELOW GROUND

Fill all cavities below finished grade with concrete. Place a continuous damp-proof course within the first three mortar joints above ground. Seal the face of all brickwork below ground.

### 3.18 FORM OPENINGS

Unless detailed otherwise form openings to typical details from BRANZ Masonry veneer - Good practice guide.

### 3.19 SEPARATION JOINTS

Provide for wall movements of veneer with control joints to [NZS 4210: 2.10](#) Methods of controlling wall movements. Weatherproof as necessary.

### 3.20 FORM REVEALS

Form lintels, jambs and sills as detailed complete with flashings and all ready for following work.

### 3.21 HEAD FLASHINGS

Provide a flexible flashing extending 200mm beyond ends of the opening and sloping to weepholes over all openings in cavity walls, in accordance with E2/AS1, 9.2.4, **Flashings**.

### 3.22 JAMB FLASHINGS

Provide a flexible flashing to jambs of openings in cavity walls, fully lapped with horizontal damp-proof courses at head and sill, in accordance with E2/AS1, 9.2.4, **Flashings**.

### 3.23 SILL FLASHINGS

Provide a flexible flashing under jointed sills, turned up at back and ends, in accordance with E2/AS1, 9.2.4, **Flashings**.

### 3.24 REBATE DAMP PROOFING

Provide damp-proof course to stepped rebates supporting brick veneer in accordance with E2/AS1, 9.2.5, **Foundation support and damp-proofing**.

## Installation - standard brick veneer

### 3.25 INSTALL LINTELS

Fit angle lintels to openings, sized to [NZBC E2/AS1, 9.2.9, Openings in masonry veneer](#) Table 18E and placed to [NZBC E2/AS1, 9.2.9, Openings in masonry veneer](#).

### 3.26 CAVITY WIDTH

No cavity width less than 40mm or more than 75mm.

### 3.27 PLACE TIES

Place ties to: -

- [NZS 4210: 2.9.5](#) Tie anchorage, cover and fixing; and
- [NZS 4210: 2.9.6](#) Placing of ties
- [NZS 4210: 2.9.7](#) Tie classification and spacing
- [NZBC E2/AS1, 9.2.7, Wall ties](#), for requirements, spacing, embedment, placement and materials

At unsupported edges and at all openings through veneered walls or non-grouted cavity walls, wall ties to be provided:

At the top and bottom of the opening:

- Not more than 300mm or 2 courses, whichever is the smaller

At the sides of the opening or at an unsupported edge:

- Not more than 300mm
- Where the veneer wall continues above or is interrupted by a damp-proof course or waterproof membrane, wall ties shall be provided in each of the first two courses above the membrane.

### Installation - ancillary work

- 3.28 BUILD IN FIXINGS  
Build in necessary fixing bricks or blocks for trims.
- 3.29 BUILD IN ELEMENTS  
Build in sills, copings, lintels, steps and other elements using mortar similar to that in adjacent walls.
- 3.30 BUILD IN DOORS AND WINDOWS  
Build in door and window frames as the work proceeds and bed in mortar similar to that in adjacent work.

### Completion

- 3.31 ROUTINE CLEANING  
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.
- 3.32 EFFLORESCENCE, WATER CLEANING  
To remove deposits, brush with a stiff-bristle broom and take away brushings from the locality.  
Remove remaining deposit with a damp sponge. Wash wall thoroughly with a plentiful supply of clean water. Repeat this process every 4 weeks from appearance through to the completion of the contract works.
- 3.33 DEFECTIVE OR DAMAGED WORK  
Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures.

## 4 SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

### Performance - seismic

- 4.1 DESIGN PARAMETERS - NON SPECIFIC DESIGN  
Building seismic zone: 2 (refer to [NZS 4210](#))

### Materials - standard brick veneer

- 4.2 CLAY BRICKS FOR STANDARD BRICK VENEER SYSTEM
- |                 |  |
|-----------------|--|
| Brand:          | Canterbury Clay Bricks Standard ranges |
| Size:           | 230mm x 76mm x 70mm                    |
| Laying pattern: | stretcher bond                         |
| Pointing:       | concave                                |

### Components - general

- 4.3 STEEL LINTELS
- |           |       |
|-----------|-------|
| Material: | Steel |
|-----------|-------|
- 4.4 SILLS
- |              |                         |
|--------------|-------------------------|
| Type/colour: | standard brick to match |
|--------------|-------------------------|

### Components - standard brick veneer

- 4.5 WALL TIES
- |             |   |
|-------------|---|
| Brand/type: | Innovative building products / 85mm tie |
| Material:   | galvanised steel                        |

# 4311 PROFILED METAL ROOFING

## 1 GENERAL

This section relates to the supply and fixing of proprietary overlap rigid sheet metal profiled roofing complete with accessories.

### 1.1 RELATED WORK

Refer to 7411 RAINWATER SPOUTING SYSTEMS for rainwater disposal

### 1.2 ABBREVIATIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
MS	Modified silyl

### Documents

### 1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External Moisture
AS/NZS 1170.2	Structural design actions - Wind actions
AS/NZS 1665	Welding of aluminium structures
AS/NZS 1734	Aluminium and aluminium alloys - flat sheet, coiled sheet and plate
AS/NZS 1554.6	Welding stainless steels for structural purposes
ISO/TS 15510	Stainless steels - Chemical composition
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 3566	Self-drilling screws for the building and construction industries
NZS 3604	Timber-framed buildings
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

### Warranties

### 1.4 WARRANTY - INSTALLER/APPLICATOR

Warrant this work under normal environmental and use conditions against weatherproofing failure.

5 years:	from the date of completion of the roof
Form:	Roofing installers standard form

Include a copy of the roofing manufacturers' maintenance requirements with the warranty. Refer to the general section 1237 WARRANTIES - INSTALLER/APPLICATOR for additional requirements.

### 1.5 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this work under normal environmental and use conditions against materials failure.

15 years	For failure of coating adhesion
15 years	For weatherproofing by material penetration
Form:	Roofing manufacturers standard form

### Requirements

### 1.6 QUALIFICATIONS

Carry out work with experienced, competent installers familiar with the products being used and with appropriate qualifications such as the National Certificate in Metal Roofing and Cladding.

## Performance

### 1.7 CO-ORDINATE

Co-ordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof. Ensure that all necessary members are positioned so that flashings can be fastened at both edges through the roof profile or cladding to the primary structure.

### 1.8 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed roofing system, including penetrations through the roof and junctions with walls and parapets.

### 1.9 FIXINGS, WIND

Design and use the fixings appropriate for the design loads of this site; refer to general section 1220 PROJECT for details of wind zone. Allow for specific loadings at corners and the periphery of the roof, where localised pressure factors apply.

## Performance - Wind (design by contractor)

### 1.10 DESIGN PARAMETERS - NON SPECIFIC DESIGN

Design the installation to the wind zone parameters of [NZS 3604](#), table 5.4. Refer to general section 1220 PROJECT for details.

## 2 PRODUCTS

### 2.1 WIRE NETTING AND SAFETY MESH

Refer to 4161 UNDERLAYS, FOIL AND DPC.

### 2.2 UNDERLAY AND REFLECTIVE FOIL

Refer to 4161 UNDERLAYS, FOIL AND DPC.

### 2.3 INSULATION

Refer to appropriate insulation section.

### 2.4 PRE-FINISHED HOT-DIPPED ALUMINIUM/ZINC COATED STEEL

Formability G550 steel sheet coated to AS 1397.

### 2.5 HOT-DIPPED ALUMINIUM/ZINC/MAGNESIUM COATED STEEL, UNPAINTED

Formability steel sheet, G550 for roll forming or G300 for flashings, coated to AS 1397.

## Components

### 2.6 FLASHINGS GENERALLY

To E2/AS1, 4.0 **Flashings**.

Formable grade 0.55mm BMT for galvanized, aluminium/zinc-coated and pre-painted steel, and 0.9mm for folded aluminium (or 0.7mm for small folded aluminium flashings) to the same standards as the profiled sheets, notched where across profile or provided with a soft edge.

### 2.7 FLASHINGS TO VERGE, RIDGE AND HIP

Supplied by the roofing manufacturer to match or to suit the roofing in the same material as the roof.

### 2.8 BOOT FLASHINGS

Generally to E2/AS1, 8.4.17 **Roof penetrations** (note; E2/AS1, Figure.54 **Soaker flashing for pipe penetration**, has an error, use as guide only).

EPDM proprietary pipe flashing laid on 45° bias to roofing, with over-flashing (soaker flashing) if required.

A boot flashing should be positioned so that it dams a roofing pan no more than 50%, if this cannot be avoided use an over-flashing back to the ridge and fix the boot flashing to that.

## Fixings

### 2.9 FASTENERS GENERALLY

Minimum Class 4 and durability not less than the roofing material being fixed. Screw fasteners to be head stamped identifying the manufacturer and class.

## 2.10 FIXING SCREWS

To AS 3566. Screws appropriate to the roofing material and the supporting structure, as required by the roofing manufacturer and with a minimum Class 4 durability and not less than the material being fixed. Screws into timber to penetrate by minimum 30mm.

## 2.11 RIVETS

Sealed aluminium, minimum diameter 4mm, for use with zinc coated, zinc/aluminium coated or aluminium roofing.

### Accessories

## 2.12 SEALANT

Neutral Curing silicone or MS polymer sealant as required by the roofing manufacturer and used as directed.

## 2.13 LAP SEALING TAPE

Closed cell self adhesive nitrile tape.

# 3 EXECUTION

### Conditions

## 3.1 INSPECTION

Inspect the roof framing and supporting structure to ensure that it is complete and fully braced ready for roofing and free from any misalignments or protrusions that could adversely affect the roofing.

## 3.2 FRAMING TIMBER MOISTURE

When continuous metal cladding etc. Runs along a long continuous timber member and is directly fixed to it, the timbers equilibrium moisture content (EMC) to be 18% or less. For flashings in this situation (sometimes called transverse flashings) the framing EMC to be maximum 16%, and preferably as low as 12%. Transverse flashings can be temporarily tacked in place and final fixing done when moisture content is acceptable.

## 3.3 STORAGE

Take delivery of and accept packs of roofing undamaged on delivery. Reject all damaged material. Store on a level firm base with packs well ventilated and completely protected from weather and damage. Do not allow moisture to build up between sheets. If sheet packs become wet, fillet or cross stack to allow air movement between sheets.

## 3.4 HANDLING

Avoid distortion and contact with damaging substances, including cement. Do not drag sheets across each other and other materials. Protect edges and surface finishes from damage. Use soft, flat soled shoes when fixing and for all other work on the roof.

## 3.5 SEPARATION

Place isolators between dissimilar metals, also separate roofing from treated timber and cement based materials. Do not use unpainted lead sheet or copper in contact with or allow water run-off onto galvanized or Zinalume® materials.

### Application

## 3.6 FIX INSULATION

Refer to Thermal Insulation sections.

## 3.7 SET-OUT

Carefully set out with consideration of the position of side laps to take account of the line of sight. Ensure all sheets are square and oversailing the gutter true to line. Check during fixing to eliminate creep or spread and string lines along purlin centres to keep fastenings in line.

## 3.8 END LAPS

End laps are not permitted, except where specifically detailed.

### 3.9 MOVEMENT JOINTS

Fixing and jointing to conform with the roofing manufacturer's requirements for thermal movement. Over timber framing, transverse flashings (those running long continuous framing members) to have expansion joints at maximum 12 centres.

### 3.10 FIXING GENERALLY

Install and fix in accordance with the [NZMRM CoP](#) requirements, and to roofing manufacturer's recommendations. Paint colour matched fixings and accessories before installation.

### 3.11 MARKING AND CUTTING

Cut only by shearing tools. Do not use black lead pencils for marking aluminium/zinc coated products.

### 3.12 FIX SHEETS

Fix sheets in place using the fastening system required by the roofing manufacturer for specified profiles, making due allowance for dynamic local wind pressures on the building and thermal movement in the sheet.

### 3.13 STOP ENDS AND DOWNTURNS

Form stop-ends at the upper end of sheets. Form downturns at the gutter line where the roof pitch is less than 8 degrees. Form using purpose made tools.

### 3.14 FLASHINGS

Flash roof to parapets, walls and penetrations to detail. Where no detail is provided flash to [NZMRM CoP](#) recommendations and the roofing manufacturer's requirements. Cut accurately and fix using sealant and rivets to detail and to the roofing manufacturer's requirements to form a weatherproof cover. For highly visible flashings, plan joints/junction to take account of the aesthetic requirements.

### 3.15 USE OF SEALANTS

Select and use sealants only as recommended by the roofing manufacturer. Apply sealant in two narrow beads transversely across flashing intersections, close to the two edges. Avoid exposing sealant on outside surfaces.

### 3.16 FLASHING PENETRATIONS

Flash all penetrations through the roof. Fit pipe flashings with a proprietary collar flashing to manufacturer's requirements, with other penetrations flashed as detailed and to provide a weathertight installation. Ensure that flashings are set to avoid any ponding of water.

### 3.17 INSTALL RIDGING

Install ridging by fastening to the purlins through the leading edge of the roofing to manufacturer's requirements.

### **Completion**

### 3.18 REPLACE

Replace damaged or marked elements.

### 3.19 LEAVE

Leave this work complete with all necessary flashings, undercloaks, valleys, ridges and hips all properly installed as the work proceeds so the finished roof is completely weathertight.

### 3.20 REMOVE

Remove trade rubbish and unused materials from the roof and surrounds daily during the work. Sweep down at the end of each day, and clean out spoutings, gutters and rainwater pipes on completion of the roof. Remove debris, unused materials and elements from the site.

## 4 SELECTIONS

### **Roofing**

4.1 PROFILED METAL ROOFING PRE-FINISHED HOT-DIPPED ALUMINIUM/ZINC COATED STEEL

Brand/profile: Corrugate (brand as selected by owner)  
BMT: 0.4mm  
Coating: Colorsteel Endura  
Colour: As selected by owner.

**Accessories**

4.2 FLASHING

Material/thickness: Alum/Zinc coated steel 0.55mm

# 4521 ALUMINIUM WINDOWS AND DOORS

## 1 GENERAL

This section relates to the manufacture, supply, and installation of:

- aluminium windows
- aluminium doors and frames
- hardware and furniture
- flashings

### 1.1 RELATED WORK

Refer to glazing sections for glass types

### 1.2 ABBREVIATIONS AND TERMS

SLS	Serviceability limit state
ULS	Ultimate limit state
WGANZ	Window & Glass Association NZ
PQAS	Powder Coating Quality Assurance System

### Documents

### 1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
NZBC F4/AS1	Safety from falling
NZBC H1/VM1	Energy efficiency
NZBC H1/AS1	Energy efficiency
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 1580.108.1	Methods of test for paints and related materials - Determination of dry film thickness on metallic substrates - Non destructive methods
AS/NZS 1734	Aluminium and aluminium alloys - flat sheets, coiled sheet and plate
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
NZS 3604	Timber-framed buildings
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications
NZS 4211	Specification for performance of windows
NZS 4223.3	Glazing in buildings - Human impact safety requirements
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
AAMA 2603	Voluntary specification, performance requirements, and test procedures for pigmented organic coatings on aluminium extrusions and panels (with coil coating appendix)
AAMA 2604	Voluntary specification, performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels.
AAMA 2605	Voluntary specification, performance requirements and test procedures for superior performing organic coatings on aluminium extrusions and panels.
BS 3900	Methods of tests for paints, Part C5: Determination of film thickness
BRANZ BU 636	Protecting Glass From Damage

Window & Glass Association NZ (WGANZ) documents:

Window Installation Guide	Guide to Window Installation as described in E2/AS1 Amendment 7
PQAS	Powder Coating Quality Assurance System
SFA 3503-03	Anodic Oxide coatings on wrought aluminium for external architectural application (2005)

US Federal Specification:

TT-S-001543A	Sealing compound, silicone rubber base (for caulking, sealing and glazing in buildings and other structures)
TT-S-00230C	Sealing compound, elastomeric type, single component (for caulking, sealing and glazing in buildings and other structures)

### Warranties

#### 1.4 WARRANTY - MANUFACTURER / SUPPLIER

Provide a material manufacturer/supplier warranty:

5 years: For fabrication

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

#### 1.5 WARRANTY - INSTALLER / APPLICATOR

Provide an installer/applicator warranty:

2 years: For installation

- Provide this warranty in the installer/applicator standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

## Requirements

### 1.6 QUALIFICATIONS

Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

### 1.7 COMPLIANCE

Windows and doors to be manufactured and installed to [NZBC E2/AS1](#).

### 1.8 CERTIFICATION

Provide evidence of a certificate by a laboratory accredited by International Accreditation of New Zealand that the windows and doors offered comply with the requirements of [NZS 4211](#).

## Performance

### 1.9 PERFORMANCE - WINDOWS AND DOORS

To [NZS 4211](#), including:

- deflection, opening sashes, air infiltration, water penetration, ultimate strength, torsional strength of sashes, marking.

Refer to SELECTIONS.

### 1.10 PERFORMANCE - STRUCTURAL/WEATHER-TIGHTNESS

The structural and weather-tight performance of the completed joinery, the glazing and infill panels is the responsibility of the window manufacturer.

## Performance - Wind (design by contractor)

### 1.11 WIND - NON SPECIFIC DESIGN

Design the installation to the wind zone parameters of [NZS 3604](#), table 5.4.  
Refer to SELECTIONS for wind zone.

## Finishes

### 1.12 CERTIFY COATINGS - POWDER COATING

Certify on request, compliance with this specification and support with control and sampling records.  
Test for film thickness to BS 3900, part C5, method No. 4, using method (b) or to AS/NZ 1580.108.1 for certifying thickness and method (a) where any dispute arises as to the thickness provided.  
The coating should be applied by an applicator who can certify that the coating has been applied in accordance with the specification.

## 2 PRODUCTS

### Materials

#### 2.1 WINDOWS

Refer to SELECTIONS for type and finish.

#### 2.2 DOORS

Refer to SELECTIONS for type and finish.

#### 2.3 ALUMINIUM EXTRUSIONS

Alloy designation to comply with [AS/NZS 1866](#). Branded and extruded for anodising or powder coating.

#### 2.4 ALUMINIUM SHEET AND STRIP

Complying with [AS/NZS 1734](#) of suitable thickness. Rolled for anodising or powder coating.  
Alloy designation: 5251 - H16 or 5005 - H16

#### 2.5 STAINLESS STEEL SHEET AND STRIP

Type: 316 austenitic steel  
Finish grade: 2B (satin lustre)

## 2.6 GLASS

Refer to the glazing section for glass types and installation.

## 2.7 REVEALS - TIMBER PAINTED

Timber reveals for paint finish with all sides primed grooved for wall linings or flush finished for architraves.

## 2.8 FLASHINGS GENERALLY

To [NZBC E2/AS1](#), 9.1.10 **Windows and Doors**. 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.

### Components - for cavity systems

## 2.9 STANDARD CAVITY CLOSER

A perforated device constructed from either aluminium or PVC to close the cavity above the window or door unit, between the cladding and head flashing, to provide ventilation in accordance with [NZBC E2/AS1](#) to the spaces above the window or door.

## 2.10 SUPPORT BAR

WGANZ extruded aluminium support bar with built in drainage and ventilation to [NZBC E2/AS1](#), to provide continuous support to the window unit. Size to suit cladding type.

### Components

## 2.11 GLAZING GASKETS

Thermoplastic rubber. Do not stretch glazing gaskets during installation. Measure and cut gaskets 5-10% over length before installation.

## 2.12 HARDWARE AND FURNITURE

Hinges, stays, catches, fasteners, latches, locks and furniture as offered by the window and door manufacturer. Refer to SELECTIONS for type and finish. Key alike all lockable window hardware able to be keyed alike.

## 2.13 SAFETY STAYS

Stainless steel non releasable restrictors to limit window opening to [NZBC F4/AS1](#), Table 2, Acceptable opening sizes for barriers.

### Sealants

## 2.14 STRUCTURAL SEALANT

Silicone chemically curing sealant specifically formulated and tested or approved equivalent with not less than a  $\pm 40\%$  movement factor complying with US Federal Specification TT S 001543A.

## 2.15 WEATHERING / INSTALLATION SEALANT

Building sealant used in accordance with manufacturer's instructions for weather sealing aluminium frames to the cladding, complying with US Federal Specification TT S 0011534A, or a one-part polyurethane moisture curing, elastic joint sealant of medium modulus ( $\pm 25\%$  movement) to US Federal Specification TT S 00230C.

## 2.16 FOAM TAPE

Foam tape to [NZBC E2/AS1](#), 9.1.10.7 **Closed cell foam tape**.

### Finishes

## 2.17 POWDER COATED ALUMINIUM - EXTRA-DURABLE POLYESTER

Polyester powder organic coating in accordance with [WGANZ PQAS](#), AS 3715, and AAMA 2603

# 3 EXECUTION

### Conditions - generally

- 3.1 DO NOT DELIVER  
Do not deliver to site any elements which cannot be unloaded immediately into suitable conditions of storage.
- 3.2 UNLOAD WINDOW JOINERY  
Unload, handle and store elements in accordance with the window manufacturer's requirements.
- 3.3 AVOID DISTORTION  
Avoid distortion of elements during transit, storage and handling.
- 3.4 PREVENT DAMAGE  
Prevent prefinished surfaces rubbing together, and contact with mud, plaster and cement. Keep paper and cardboard wrappings dry.
- 3.5 PROPRIETARY ELEMENTS  
Fix in accordance with the window manufacturer's requirements.
- 3.6 PROTECTIVE COVERINGS  
Retain protective coverings and coatings to BRANZ BU 636 and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades. Remove protection on completion.
- 3.7 ADDITIONAL PROTECTION  
Supply and fix additional protection as necessary to prevent marking of surfaces which will be visible on completed work.

#### **Conditions - fixings and fastenings**

- 3.8 SUPPLY OF FIXINGS  
Use only fixings and fastenings recommended by the manufacturer of the component being fixed and to comply with the ULS wind pressure stated in SELECTIONS. Ensure fixings and fastenings exposed to the weather are of aluminium, or Type 316 stainless steel or if not exposed to the weather may they be hot-dip galvanized steel with a coating weight of 610 g/m<sup>2</sup> complying with [AS/NZS 4680](#).
- 3.9 INSTALLATION FIXING  
To [NZBC E2/AS1](#), 9.1.10.8, **Attachments for windows and doors**. Fix windows/doors through reveal to frame with a pair of 75 x 3.15mm minimum galvanised jolt head nails or a pair of 8 gauge x 65mm minimum stainless steel screws. Fix at a maximum of 450 centres along all reveals and a maximum of 150mm from reveal ends. Ensure fixings do not penetrate metal flashings. Install packers between reveals and framing at fixing points, except at the head.

#### **Assembly**

- 3.10 FABRICATION  
Fabricate frames as detailed on shop drawings. Install glazing, hinges, stays and running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.
- 3.11 TIMBER / PVC REVEALS  
Before fixing to aluminium frames, ensure that timber reveals which are being painted have been primed on all surfaces.
- 3.12 HARDWARE GENERALLY  
Factory fit all required and scheduled hardware. Account for all keys and deliver separately to the site manager.
- 3.13 SAFETY STAYS  
Factory fit safety stays to all windows scheduled for safety stays and to all windows where safety stays are required to comply with [NZBC F4/AS1](#) 4.0, Opening windows.

#### **Installation - windows and doors**

### 3.14 CORROSION PROTECTION

Before fixing, apply suitable barriers of bituminous coatings, stops or underlays between dissimilar metals in contact, or between aluminium in contact with concrete.

### 3.15 CONFIRM PREPARATION OF EXTERIOR WALL OPENINGS

Confirm that exterior 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 underlay/building wrap to openings finished and dressed off ready for the installation of window and door frames to [NZBC E2/AS1:9.1.5](#) **Wall underlays to wall openings**.
- Full height 20mm jamb battens to [NZBC E2/AS1](#) figure 72A (direct fix only)
- claddings neatly finished off to all sides of openings
- installation of flashings (those which are required to be installed prior to frames).

### 3.16 INSTALLATION

Fix to comply with the reviewed shop drawings and installation details including flashings and bedding compounds, pointing sealants and weathering sealants.

### 3.17 INSTALLATION CAVITY CONSTRUCTION

Install to [WGANZ Window Installation Guide](#) details and drawings including WGANZ sill support bars.

For thresholds with support bars fixed through membranes, pre-fill support bar screw holes with silicone sealant to [NZBC E2/AS1](#), figure 62(d).

### 3.18 INSTALL FLASHINGS

Install flashings to heads, jambs and sills of frames as supplied and required by the window manufacturer and as detailed on the drawings. Finish head flashings to match window finish.

Place all flashings so that the head flashing weathers the jamb flashings, which in turn weathers over the 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 unit by 20mm minimum plus any jamb scribe width at each end.

### 3.19 COMPLETE AIR SEAL

To [NZBC E2/AS1:9.1.6](#) Air seals. Form an air-tight seal by means of a proprietary expanding foam or sealants used with backing rods, applied between the window / door reveal and structural framing to a depth of 10 - 20mm, to provide a continuous air tight seal to the perimeter of the window or door.

### 3.20 FIX HARDWARE

Fix all sash and door hardware and furniture as scheduled.

### **Application - jointing and sealing**

### 3.21 SEAL FRAMES ON SITE

Seal frames to each other and to adjoining structure and finishes, all as required by the window manufacturer and to make the installation weathertight. In very high and extra high or greater wind zones, seal between the window head and the head flashing. Do not seal the junction between the sill member and the cladding or sill flashing which must remain open.

### 3.22 PREPARE JOINTS

Ensure joints are dry. Remove loose material, dust and grease. Prepare joints in accordance with the sealant manufacturer's requirements, using required solvents and primers where necessary. Mask adjoining surfaces which would be difficult to clean if smeared with sealant.

### 3.23 BACK UP

When using back-up materials do not reduce depth of joint for sealant to less than the minimum required by the manufacturer of the sealant. Insert polyethylene rod or tape back-up behind joints being pointed with sealant.

### 3.24 SEALANT FINISH

Tool sealant to form a smooth fillet with a profile and dimensions required by the sealant manufacturer. Remove excess sealant from adjoining surfaces, using the cleaning materials nominated by the sealant manufacturer and leave clean.

#### **Completion - cleaning**

### 3.25 REMOVE TRADE DEBRIS

Remove trade debris by appropriate means on a floor by floor basis as each floor is completed and again before any work is covered up by others. Arrange for general removal.

### 3.26 TRADE CLEAN

Trade clean window frames, operable windows and doors, glass and other related surfaces inside and out at the time of installation to remove marks, dust and dirt, to enable a visual inspection of all surfaces.

#### **Completion**

### 3.27 PROTECTIVE COVERINGS

Retain protective coverings and coatings and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades.

### 3.28 SAFETY

Indicate the presence of transparent glasses for the remainder of the contract period, with whiting, tape or signs compatible with the glass type. Indicators other than whiting must not be applied to the glass surface. Masking tape must not be used for this purpose.

### 3.29 IN SITU TOUCH-UP TO POWDER COATED ALUMINIUM

In situ touch-up of polyester or fluoropolymer coated aluminium is only permitted only to minor surface scratching. Otherwise replace all damaged material.

### 3.30 REMOVE

At the appropriate stage of the project, remove safety indicators and protective coverings and wipe down all joinery thoroughly.

### 3.31 REPLACE

Replace damaged, cracked or marked elements.

## **4 SELECTIONS**

#### **Performance**

### 4.1 THERMAL PERFORMANCE

R-value: 0.26 (as determined from [NZBC H1/VM1](#) or [H1/AS1](#))

#### **Performance - Wind (design by contractor)**

### 4.2 WIND - NON SPECIFIC DESIGN

Building wind zone High 1200Pa ULS (refer to [NZS 3604](#), table 5.4)

#### **Window and door system**

### 4.3 ALUMINIUM WINDOWS

Manufacturer: Kaiapoi Aluminium (APL)  
Type / location: powder coated

### 4.4 ALUMINIUM DOORS

Manufacturer: Kaiapoi Aluminium (APL)  
Type / location: powder coated

#### 4.5 TIMBER REVEALS

Timber species: Radiata pine  
Grade / Treatment: clears / H3.1  
Thickness: 19mm  
Reveals: grooved  
Finish: paint

#### 4.6 FLASHINGS

Material/type: powder coated aluminium  
Pattern: Formed to suit details provided

#### 4.7 STRUCTURAL SEALANT

Brand/type: Glass Tech Structural  
Colour: transparent

#### 4.8 HARDWARE

	Brand/style	Material/finish
Sash fasteners:	single tongue sub-fix fasteners	powder coat to match joinery

#### 4.9 WEATHERING SEALANT

Brand/type: MS sealant 1-part polyurethane moisture curing, elastic joint sealant  
Colour: to match windows

#### Finishes - Powder Coating

#### 4.10 POWDER COATED ALUMINIUM - EXTRA-DURABLE POLYESTER

Type: Polyester organic powder coating Extra-Durable (AAMA 2603)  
System integrity: Min 10 years film integrity, 10 years colour integrity.  
Thickness: Average of 90 microns with a minimum of 50 microns  
Colour: as selected by owner  
Finish: Matt

# 4610 GLAZING RESIDENTIAL

## 1 GENERAL

This section relates to the supply and fixing of glass products for external and internal joinery in residential type buildings and includes:

- windows and doors

### 1.1 RELATED WORK

Refer to 4521 ALUMINIUM WINDOWS AND DOORS for aluminium joinery

### 1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

PVB	Polyvinyl Butyral
CIP	Cast in place

### Documents

### 1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC F4/AS1	Safety from falling
NZBC F9/AS1	Means of restricting access to residential pools
NZBC H1/AS1	Energy Efficiency
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 3604	Timber-framed buildings
NZS 4211	Specification for performance of windows
NZS 4218	Thermal insulation - Housing and Small Buildings
NZS 4223.1	Glazing in buildings - Glass selection and glazing
NZS 4223.Supp1	Glazing in buildings - Supplement 1 to NZS 4223.1:2008 and NZS 4223.4:2008
NZS 4223.2	Glazing in buildings - Insulating glass units
NZS 4223.3	Glazing in buildings - Human impact safety requirements
NZS 4223.4	Glazing in buildings - Wind, dead, snow and live action
AS/NZS 2208	Safety glazing materials in buildings
AS/NZS 4666	Insulating glass units
BRANZ BU 636	Protecting Glass From Damage

### Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Warrant glass under normal environmental and use conditions against failure of materials.

10 years:	for insulating glass units
10 years:	for laminated glass
10 years:	for toughened glass

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

### Performance

### 1.5 ENERGY EFFICIENCY

Provide glazing to meet the energy requirements of NZS 4218 and NZBC H1/AS1 for housing small buildings.

Refer to SELECTIONS and schedules for location and type of glazing.

## 2 PRODUCTS

### Materials

#### 2.1 CLEAR FLOAT GLASS

Clear ordinary annealed transparent float glass for general window glazing. Thickness to [NZS 4223.1](#) and [NZS 4223](#). Supp 1.

#### 2.2 TEXTURED, PATTERNED OR OBSCURE GLASS

Translucent, annealed, rolled glass with a decorative pattern on one surface.

#### 2.3 LAMINATED GLASS

Grade A Safety Glass to [AS/NZS 2208](#) with PVB or CIP resin interlayer.

#### 2.4 TOUGHENED GLASS

Grade A Safety Glass to [AS/NZS 2208](#).

Heat soaked toughened glass to [NZS 4223.1](#), Appendix E required for critical areas. Refer to SELECTIONS.

#### 2.5 INSULATING GLASS UNITS (IGU'S)

To [AS/NZS 4666](#), [NZS 4223.2](#) and the IGU Manufacturers Association (IGUMA) requirements. Marking to [NZS 4223.2](#) as modified by [NZBC B2/AS1](#), 3.5.

Refer to SELECTIONS for specified surfaces of the IGU.

Surface numbering order for glass panes in an IGU are #1, #2, #3, and #4 as follows:

- Surface #1 - outer face of exterior pane
- Surface #2 - cavity face of the exterior pane
- Surface #3 - cavity face of the interior pane
- Surface #4 - outer face of the interior pane

### Materials, screens

#### 2.6 GLASS SCREENS SHOWER & BATH

Proprietary shower / bath screens, formed to shape before toughening, complete with matching hardware.

### Components, aluminium and uPVC glazing

#### 2.7 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.

#### 2.8 SETTING BLOCKS

Santoprene/Neoprene, 80-90 Shore A hardness, set at quarter points or to detail, to support the weight of glass panes.

## 3 EXECUTION

### Conditions

#### 3.1 GENERAL REQUIREMENTS

To [NZS 4223.1](#), [NZS 4223.3](#), [NZS 4223.4](#). All external glazing to be wind and watertight on completion.

#### 3.2 DELIVERY

Keep glass dry and clean during delivery and bring on to site when ready to glaze directly into place. Comply also with the storage requirements set out in BRANZ BU 636.

#### 3.3 GLASS CONDITION

All glass to have undamaged edges and surfaces.

### 3.4 GLASS THICKNESS

If not specifically stated in the glazing schedule determine the minimum thickness of glass for each sheet as required by [NZS 4223.1](#), [NZS 4223.3](#), [NZS 4223.4](#) and [NZS 4223](#). Supp 1. For windows tested to [NZS 4211](#), ensure glass meets the requirements of the window testing. Determine the final glass thickness based on whether wind loading or human impact considerations govern.

### 3.5 REBATE DIMENSIONS

Provide rebates for glazing to the widths and depths necessary for each situation including minimum glass edge cover to [NZS 4223.1](#), Section 4 Glazing.

### 3.6 JOINTING, PUTTY AND SEALING MATERIAL COMPATIBILITY

Ensure jointing, putty and sealing materials are compatible with glass substrates. Confirm compatibility with laminated glass, IGUs and coatings.

#### **Conditions - human impact safety requirements**

### 3.7 SAFETY GLAZING, GENERAL REQUIREMENTS

Glazing of doors, side panels, low level and window seat glazing, bathrooms, stairwell landings and similar locations, to [NZS 4223.3](#) for thickness and maximum areas of safety glass.

### 3.8 SAFETY GLAZING MATERIAL

Use only safety glazing materials defined in [NZS 4223.3](#), that also comply with the relevant requirements of [AS/NZS 2208](#). Ensure material is permanently marked and if cut by the distributor or installer mark each piece to [NZS 4223.3](#), 2.8 Identification.

### 3.9 CONTAINMENT

Edge cover to comply with [NZS 4223.1](#), Section 4 Glazing, table 5. Otherwise to [NZS 4223.3](#), 2.3 Edge cover.

#### **Assembly**

### 3.10 WORKING OF GLASS

All working of glass as required in [NZS 4223.1](#).

### 3.11 EDGE WORK AND BEVELLING

Edgework other than a clean cut. Refer to SELECTIONS/drawings for type.

### 3.12 SURFACE TREATMENT

Refer to SELECTIONS/drawings for finish.

### 3.13 SURFACE CUTTING

Refer to SELECTIONS/drawings for finish.

### 3.14 INSTALL SAFETY GLASS

To [NZS 4223.3](#).

#### **Application aluminium**

### 3.15 INSTALL GLASS TO ALUMINIUM FRAMES

Install glass to [NZS4223.1](#).

- Bead glaze to Section 4 Glazing.
- Channel glaze to Section 4 Glazing, and Section 5 for Framed, Unframed, Partly Framed Glass Assemblies.

#### **Application miscellaneous**

### 3.16 INSTALL GLASS SHOWER & BATH SCREENS

Install shower and bath screens and doors to manufacturer's requirements.

#### **Finishing**

### 3.17 SAFETY

Indicate the presence of transparent glass for the remainder of the construction period, with whiting, tape or signs compatible with the glass type.

#### **Completion**

### 3.18 TRADE CLEAN

Clean off or remove safety indicators at completion of the building.

### 3.19 REPLACE

Replace damaged, cracked or marked glass.

### 3.20 LEAVE

Leave work to the standard required by following procedures.

### 3.21 REMOVE

Remove debris, unused materials and elements from the site.

## **4 SELECTIONS**

#### **Performance - wind**

### 4.1 WIND ZONE - NON-SPECIFIC DESIGN

Building wind zone: High 1360 Pa ULS (as determined from [NZS 3604](#), [NZS 4223.4](#))

#### **Glass by type**

### 4.2 CLEAR FLOAT GLASS

Location: Windows unless noted as safety or obscure glazing  
Thickness: 4mm

### 4.3 TEXTURED, PATTERNED OR OBSCURE GLASS

Location: Bathroom and Ensuite windows  
Pattern: Obscure  
Thickness: 4 mm

### 4.4 TOUGHENED GLASS

Location: Doors and wet area windows  
Brand/type: Toughened Safety Glass  
Thickness: 4mm

### 4.5 INSULATING GLASS UNITS (IGU'S)

Location: All external windows and doors  
Outer glass type: clear float glass  
Coated surface: #1  
Outer glass: 4 mm  
Spacer width: 12mm  
Space gas: air  
Inner glass type: clear float glass  
Coated surface: #4  
Inner glass: 4 mm

#### **Bath and shower screens and doors**

# 4710B BRADFORD THERMAL & ACOUSTIC INSULATION

## 1 GENERAL

This section relates to **Bradford Insulation** materials installed, laid, hung or fitted as thermal and acoustic insulation:

- **Bradford™ Gold Ceiling Insulation**
- **Bradford™ Gold Wall Insulation**

### 1.1 RELATED WORK

Refer to 4161 UNDERLAYS, FOIL AND DPC for wall underlay and roofing underlays.

### 1.2 ABBREVIATIONS AND DEFINITIONS

The following abbreviations are used throughout this part of the specification:

NRC	noise reduction coefficient
IIC	impact insulation class
STC	sound transmission class
Rw	weighted sound reduction index

The following definitions apply specifically to this section:

Segments                      Term used for segments of insulation

### Documents

### 1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

<a href="#">NZBC G6/VM1</a>	Airborne and impact sound
<a href="#">NZBC H1/AS1</a>	Energy efficiency
<a href="#">AS/NZS 3000</a>	Electrical installations
<a href="#">NZS 4218</a>	Thermal insulation - Housing and small buildings
<a href="#">NZS 4246</a>	Energy efficiency - Installing bulk thermal insulation in residential buildings
<a href="#">AS/NZS 4859.1:2002</a>	Materials for the thermal insulation of buildings - General criteria and technical provisions
<a href="#">AS/NZS 60598.2.2:2001</a>	Luminaires- Particular Requirements - Recessed luminaires
<a href="#">AS/NZS 60695.11.5</a>	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance

### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

**CSR Bradford** Insulation documents related to work in this section are:

**CSR Bradford** Insulation product manual

Data sheets	<b>Bradford™ GoldGlasswool Blanket</b>
Data sheets	<b>Bradford™ Gold Ceiling Insulation</b>
Data sheets	<b>Bradford™ Gold Wall Insulation</b>
Data sheets	<b>Bradford™ Acoustic Gold™</b>
Data sheets	<b>Bradford™ Optimo™ Underfloor</b>

[BRANZ Appraisal 301](#) - Bradford™ Gold Insulation

[Environmental Choice NZ License No. 2508039](#) CSR Bradford Insulation  
Bradford Installation Guide

Manufacturer/supplier contact details

Web: [www.bradfordinsulation.co.nz](http://www.bradfordinsulation.co.nz)

Email: [bradford@csr.co.nz](mailto:bradford@csr.co.nz)

Telephone: 0800 277 123

Facsimile: 09 273 9310

### Warranties

## 1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a manufacturer/supplier warranty:

- For Bradford thermal insulation products.
- Provide this warranty on the **Lifetime Warranty Certificate**, when installed by Bradford preferred installer.

### Requirements

## 1.6 QUALIFICATIONS

Work to be carried out by trades people experienced, competent and familiar with the Bradford materials and techniques specified.

## 1.7 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Bradford systems, or associated components and products.

# 2 PRODUCTS

### Materials

## 2.1 GLASSWOOL CEILING INSULATION - SEGMENTS

**Bradford™ Gold Ceiling Insulation** a resilient insulation material manufactured from the controlled felting of glasswool, bonded with a thermosetting resin.

NOTE: Bradford Gold Insulation can withstand a 30s Needle Flame test to [AS/NZS 60695.11.5](#), can be safely installed abutted to downlights classified CA 80, CA 135 and over the top of (covering) downlights classified IC and IC-F.

## 2.2 GLASSWOOL WALL INSULATION- SEGMENTS

**Bradford™ Gold Wall Insulation** a resilient insulation material manufactured from the controlled felting of glasswool, bonded with a thermosetting resin, specifically stiffened for use in wall applications.

### Components

## 2.3 WIRE NETTING

Refer to 4161 UNDERLAYS, FOIL AND DPC for wire netting used to support the insulation.

## 2.4 PLASTIC STRAPPING TAPES

Proprietary plastic strapping tape, stapled over framing to retain insulation in unlined wall, ceiling and underfloor locations. For drained cavities where stud spaces are greater than 450mm and only flexible underlay is used, strapping required to [NZBC E2/AS1 9.1.8.5](#) **Wall framing behind cavities**.

# 3 EXECUTION

### Conditions

## 3.1 STORAGE

Accept materials undamaged and dry and store in a location that protects them from the weather and damage. Avoid distortion, stretching, puncturing and damage to edges of sheet materials. Do not use damaged or wet insulation material.

## 3.2 HANDLING

Wear protective clothing as necessary and when handling, avoid delamination or distortion of the rectangular form. Maintain full thickness unless compression is an installation system requirement.

## 3.3 INSPECTION

Before commencing installation, check that the location and framing are free from moisture, that the cavities are not interconnected and that mesh, wall and roofing underlays and vapour barriers are in place.

### Application - generally

### 3.4 INSTALL INSULATION - GENERAL

Lay, install, fit and fix to [NZBC H1/AS1](#): Energy efficiency, 2.0 Building thermal envelope, and to manufacturer's requirements. Install in housing to [NZS 4218](#) and [NZS 4246](#). Install in large buildings to [NZS 4243.1](#) and [NZS 4220](#). Allow insulation to re-loft/relax prior to installation. Do not cover vents. Allow a clear gap around metal flues as recommended by the fireplace manufacturer. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

### 3.5 RECESSED LIGHT FITTINGS - CLEARANCE

Non-residential applications;

The clearance between insulation and recessed downlights

- 100mm gap to [AS/NZS 3000](#), figure 4.9.
- Provide larger clearances where required by the light manufacturer.

Residential applications;

- Ensure new recessed downlights are one of the new classes classified in [AS/NZS 60598.2.2](#); CA 80, CA 135, IC and IC - F
- Classification type CA 80, CA 135, to [AS/NZS 60598.2.2](#); insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to [AS/NZS 60598.2.2](#); insulation can abut and cover over the top of the downlight
- Provide larger clearances where required by the light manufacturer.
- In a retrofit situation where recessed downlights are unclassified or unknown, ensure 100mm clearance from the insulation to [AS/NZS 3000](#), figure 4.9.

### 3.6 INSULATION CLEARANCES GENERALLY

Insulation may need to have a gap to some mechanical and electrical services and equipment, including ducts and chimneys. The gaps should be to the [NZS 4246](#) based tables below or to the equipment manufacturers requirements if they require larger gaps. Smaller gaps to manufacturers requirements can be used for equipment specifically manufactured with heat shielding or similar (excludes light fittings). Installed gap not to be more than 50mm bigger than the required gap. The following tables are subject to:

- The requirements of [NZS 4246](#).
- The insulation is exposed to the source of heat or equipment etc.
- Insulation, has passed the needle flame test to [AS/NZS 60695.11.5](#) and/or is non-combustible.
- Gaps to hot surfaces may have to be increased with non-compliant insulation and plastic/polymeric type insulation (EPS, XPS, PIR, etc), check with insulation manufacturer.
- Gaps to hot surfaces may be able to be reduced with non-combustible insulation, check with equipment manufacturer.
- "Secure insulation" if required means, glue, mechanical fix, or provide fixed barriers at gap edge of insulation to hold in place. Rigid or semi rigid insulation may only need a firm friction fit (secure loose pieces).
- Loose fill insulation will require fixed barriers to [NZS 4246](#) to maintain gaps.

#### LIGHT FITTINGS

Type of fitting	Minimum insulation clearance	Comments
Unmarked recessed	100mm	New or old unmarked & unknown fittings and/or insulation. Secure insulation.
CA 80, CA 90 or CA 135 recessed	Abut in residential. 100mm in others	Do NOT cover the fittings
IC, IC-F or IC-4 recessed	Abut in residential. 100mm in others	Cover in residential only. Do NOT cover in others
Independent control gear	Place on top of insulation & 50mm from fitting	If not on top allow 50mm clearance to insulation, do not cover. Includes, transformers, ballasts & drivers etc.
Surface fittings not exposed to insulation	Nil	Where surface fittings are isolated from insulation by appropriate linings. Excludes high heat fittings.
Surface fittings & exposed insulation	200mm	This is exposed insulation to any part of the exposed fitting & bulb/tube (e.g. exposed light in an unlined basement). Secure insulation.

#### INBUILT RECESSED HOT APPLIANCES

Appliance	Minimum insulation clearance	Comments
Electrical heaters	100mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Gas appliance exposed flame	200mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Excludes uncommon appliances, refer <a href="#">NZS 4246</a> .
Gas appliance flues	75mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation. Excludes uncommon appliances refer <a href="#">NZS 4246</a> .
Oil-fired appliances and flues	230mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Open fireplace opening	200mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Brick masonry chimneys	50mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Metal chimneys & flues	75mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Solid fuel appliance	600mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Solid fuel appliance flue	600mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.

#### EXTRACTS, VENTS, PIPES & ROOF UNDERLAY

Application	Minimum insulation clearance	Comments
Ducted fan motors	50mm	Includes ducted rangehoods, extractors etc. Applies to the motor unit and electrical enclosures (not the ducts)
Ducted fan ducts	Abut	Excludes motor unit and electrical enclosures.
Unducted fan motors usually discharging to ceiling space	200mm	Includes unducted, rangehoods, extractors etc, discharging into roof space. To prevent debris falling into motor. Clearance may be able to be reduced, by providing a fixed barrier around the vent.
Passive vents (still in use)	200mm	To prevent debris falling through. Clearance may be able to be reduced, with more cohesive insulation, like some of the rigid plastic types or providing a fixed barrier around the vent.
Plumbing penetrations through floors	100mm	Keep gap between pipe penetration and floor insulation in case of leaks.
Roofing material/underlay	25mm	From underside of roofing or flexible roofing underlay, to prevent wicking

#### 3.7 CHECK WALL UNDERLAY AND ROOF UNDERLAYS

Ensure these are dry, clean, undamaged and free of debris before being covered.

#### 3.8 LAY WIRE NETTING - UNDER JOISTS / PURLINS

Lay at right angles across the rafters/roof joists (under purlins). Pull tight and fix.

#### 3.9 LAY PLASTIC STRAPPING TAPE

Lay at right angles across the framing at a minimum of 300mm centres, staple tape to each framing member with stainless steel staples.

## Application - Bradford™ Gold insulation

### 3.10 FIT GLASSWOOL THERMAL INSULATION - WALL/CEILING

Friction fit **Bradford™ Gold** insulating segments in place. Carefully scribe cut insulation slightly oversize to maintain friction fit to each other, to smaller spaces and around penetrations. Leave no gaps between, and maintain full thickness of the insulation over the whole of the installation. Do not cover vents and cut around metal flues to the safety requirements of the fireplace manufacturer. Lift up electrical wires and lay the insulation underneath.

### Completion

#### 3.11 CLEAN UP

Clean up as the work proceeds, so no spare off cuts or any other matter or item remain behind claddings or linings.

#### 3.12 LEAVE

Leave work to the standard required by following procedures.

#### 3.13 REMOVE

Remove debris, unused materials and elements from the site.

## 4 SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

### 4.1 BRADFORD™ GOLD CEILING INSULATION - SEGMENTS

Location:	Ceiling
Brand:	<b>Bradford™ Gold Ceiling Insulation</b>
R Value:	R3.6
Thickness	185mm

### 4.2 BRADFORD™ GOLD WALL INSULATION - SEGMENTS

Location:	Walls
Brand:	<b>Bradford™ Gold Wall Insulation</b>
R Value:	R2.6
Thickness:	90mm
NRC:	1.10

# 5113G GIB® PLASTERBOARD LININGS

## 1 GENERAL

This section relates to the supply, fixing and jointing of GIB® plasterboard linings and accessories to timber and steel framed walls and ceilings to form:

- standard systems
- bracing systems
- wet area systems

### 1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

AWCINZ Association of Wall and Ceiling Industries New Zealand

#### Documents

### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC C/AS2	Protection from fire
NZBC E2/AS1	External moisture
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 3604	Timber-framed buildings
AS/NZS 4600:2005	Cold-formed steel structures
ISO 5660.1	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method)
ISO 5660.2	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 2: Smoke production rate (dynamic measurement)
BRANZ Technical Paper P21	BRANZ Technical Paper P21: A wall bracing test and evaluation procedure (2010)
NASH Standard Part 2	May 2019 Light Steel Framed Buildings

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and Supplier documents relating to this part of the work.

- GIB® Site Guide (September 2018)
- GIB® Noise Control Systems (September 2017)
- GIB® Fire Rated Systems (October 2018)
- GIB Aqualine® Wet Area Systems (March 2007)
- GIB Toughline® Aqua (July 2018)
- GIB Ezybrace® Systems (2016)
- GIB Ezybrace® Bracing Software (2016)
- GIB Ezybrace® Systems (June 2011), with amendments (December 2014)
- GIB Ezybrace® for Steel Frame Housing (NASH) software (2011)
- GIBFix® Framing System (2016)
- GIB Rondo® Metal Ceiling Batten Systems
- GIB-Cove®
- GIB RocTape®
- GIB Goldline™ Platinum Tape-on Trims (January 2006)
- GIB UltraFlex® high impact corner mould (September 2004)
- GIB® Tough Systems (November 2014)

BRANZ Appraisal 427 (2007)  
BRANZ Appraisal 928 (2016)

GIB Aqualine® Wet Area Systems  
GIB Ezybrace® Systems 2016

GreenTag Certification

WWL-002-V2-2018 - GreenTag™ GreenRate / Level A

- GIB® Standard (10mm & 13mm)
- GIB Fyreline® (10mm, 13mm, 16mm & 19mm)
- GIB Braceline® (10mm & 13mm)
- GIB Noiseline® (10mm & 13mm)
- GIB Toughline® (13mm)
- GIB Wideline® (10mm & 13mm)

Copies of the above literature available at:

Company: Winstone Wallboards  
Web: [www.gib.co.nz](http://www.gib.co.nz)  
Telephone: 0800 100 442

### Requirements

#### 1.4 NO SUBSTITUTIONS

Substitutions are not permitted to any specified GIB® systems, GIB® system components, GIB® plasterboard, associated GIB® products or GIB® accessories.

#### 1.5 INSTALLER WORK SKILLS AND QUALIFICATIONS

GIB® plasterboard fixers and plasterers to be experienced competent workers, familiar with GIB® plasterboard lining systems installation and finishing techniques. Submit evidence of experience on request. For example:

- National Certificate of Interior Systems; or
- Certified Business member of AWCINZ.

### Performance

#### 1.6 INSPECTIONS AND ACCEPTANCE

Allow for inspection of the finished plasterboard surface:

- before applying sealer and
- before applying finish coatings or decorative papers,

so that after assessment of the type and/or angle of illumination and its effect on the completed decorative treatment, group approval and acceptance of the surface can be given.

## 1.7 BRACING REQUIREMENTS

Braced wall systems to [NZS 3604](#) when tested to BRANZ Technical Paper P21, using:

- GIB Ezybrace® Systems (2016) and/or GIB Ezybrace® Bracing Software (2016)
- GIB Ezybrace® Systems (2011)
- GIB Ezybrace® Software for steel framing

Refer to drawings for location and type.

## 2 PRODUCTS

### Materials

### 2.1 GIB® PLASTERBOARD

Gypsum plaster core encased in a face and backing paper formed for standard and water resistance use to [AS/NZS 2588](#). Refer to SELECTIONS for location, type, thickness and finish.

GIB® Standard plasterboard

GIB Aqualine® wet area plasterboard

### 2.2 GIB® COVING

GIB-Cove® plasterboard coving. Refer to SELECTIONS for profile and size.

### Components

### 2.3 CEILING BATTENS

GIB® Rondo® metal ceiling battens, batten joiners and perimeter channel.

### 2.4 SCREWS

GIB® Grabber® drywall type screws as follows:

Grabber® type	Used for fixing:
High Thread	GIB Ezybrace® or Standard systems to timber
Self Tapping	Standard systems to light gauge steel or timber
Dual Thread Screws	GIBFix®, GIB Ezybrace®, or Standard systems, to light gauge steel or timber
Wafer Head Needle Tip	Light gauge metal to timber not directly under plasterboard
Pancake Head Drill Tip	Light gauge metal to light gauge metal directly under plasterboard

Refer to GIB® requirements for appropriate details.

### 2.5 TAPE ON TRIMS AND EDGES

GIB® Goldline™ tape-on trims

GIB® UltraFlex® high impact corner mould

GIB® Levelline® Tape on Trim

### 2.6 METAL ANGLE TRIMS

GIB® galvanized steel slim angle trims.

### 2.7 CONTROL JOINTS

GIB® Rondo® P35 control joints.

GIB® Goldline™ tape-on trims

GIB® plastic smooth control joints.

GIB® plastic W-profile control joints.

### Accessories

### 2.8 ADHESIVE

Timber frame and/or steel frame:

GIBFix® One ultra low VOC water based wallboard adhesive

GIBFix® All-Bond solvent based wallboard adhesive

## 2.9 JOINTING COMPOUND

Bedding compound:	GIB Tradeset®, GIB Lite Blue®, GIB MaxSet®, GIB ProMix® All Purpose, GIB Plus 4®
Finishing compound:	GIB ProMix® All Purpose, GIB® Trade Finish®, GIB® Trade Finish® Lite, GIB ProMix® Lite, GIB® U-Mix, GIB Plus 4®, GIB Trade Finish® Multi
Cove:	GIB-Cove® Bond

## 2.10 JOINTING TAPE

GIB® jointing tape.

## 2.11 GAP FILLER

GIB® Gap Filler ultra low VOC multi-purpose acrylic flexible filler

# 3 EXECUTION

## Conditions

### 3.1 STORAGE

Store GIB® plasterboard sheets and accessories in dry conditions stored indoors out of direct sunlight in neat flat stacks on either an impervious plastic sheet or clear of the floor with no sagging and avoiding damage to ends, edges and surfaces. Reject damaged material. Refer to GIB® Site Guide (September 2018).

### 3.2 LEVELS OF PLASTERBOARD FINISH

Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in [AS/NZS 2589](#).

### 3.3 CONFIRM LEVELS OF PLASTERBOARD FINISH ACCEPTANCE

Before commencing work, agree in writing upon the surface finish assessment procedure towards ensuring that the quality of finish expectations are reasonable and are subsequently obtained and acceptable.

**Do not apply decorative treatment until it is agreed in writing by the contractor, subcontractors and decorator that the specified plasterboard Level of Finish has been achieved.**

"Levels of plasterboard finish" is a tool for specifying the required quality of finish when installing and flush stopping GIB® plasterboard **prior** to the application of a range of decorative finishes under various lighting conditions. Refer to **AS/NZS 2589**.

### 3.4 SUBSTRATE

Do not commence work until the substrate is plumb, level and to the standard required by the sheet manufacturer requirements. Refer to GIB® Site Guide (September 2018).

### 3.5 TIMBER FRAME MOISTURE CONTENT

Maximum allowable moisture content to [AS/NZS 2589](#) for timber framing at lining: 18% or less for plasterboard linings. Refer to [NZBC E2/AS1](#) and GIB® Site Guide (Sept 2018).

### 3.6 PROTECTION

Protect surfaces; cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage. Refer to GIB® Site Guide (Sept 2018).

## Application

### 3.7 INSTALL CEILING BATTENS

Install to GIB® Rondo® Ceiling Batten Systems requirements.

### 3.8 LINING WALLS AND CEILINGS GENERALLY

Form to GIB® Site Guide (September 2018). Ensure bulk insulation thickness shall not exceed that of the wall framing.

### 3.9 BOARD ORIENTATION

Minimise joints by careful sheet layout using the largest sheet sizes possible, and generally fixing horizontally. Where part sheets are required for various stud heights they should be positioned so the cut sheet is as low as possible to keep joints below eye level.

### 3.10 FORM WET AREA SYSTEMS

Form to GIB Aqualine® Wet Area Systems requirements.

### 3.11 FORM BRACING SYSTEMS

Form bracing systems to:

- GIB Ezybrace® Systems (2016)

### 3.12 FORM CONTROL JOINTS

Form control joints to GIB® Site Guide (September 2018) requirements.

### 3.13 INSTALL COVES

Install to GIB-Cove® literature using GIB-Cove® Bond.

### 3.14 INSTALL TAPE-ON TRIMS

Install to GIB® Goldline™ Tape-on trims literature and/or GIB® Ultraflex high impact corner mould literature.

## Finishing

### 3.15 FINISHING GENERALLY

To GIB® Site Guide (September 2018) and [AS/NZS 2589](#).

## Completion

### 3.16 REPLACE

Replace damaged sheets or elements.

### 3.17 CLEAN DOWN

Clean down completed surfaces to remove irregularities and finally sand down with fine paper to the sheet manufacturer requirements, to leave completely smooth and clean.

### 3.18 REMOVE

Remove debris, unused materials and elements from the site.

### 3.19 LEAVE

Leave work to the standard required by following procedures.

## 4 SELECTIONS

### Plasterboard

#### 4.1 GIB® STANDARD SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Walls	GIB® Standard plasterboard	10mm	4

#### 4.2 GIB® WATER RESISTANT SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Bathroom walls	GIB Aqualine® plasterboard	10mm	4

#### 4.3 GIB® STANDARD SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Ceilings	GIB® Standard plasterboard	13mm	4

#### 4.4 GIB® WATER RESISTANT SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Bathroom ceilings	GIB Aqualine® plasterboard	13mm	4

#### 4.5 GIB® BRACING SYSTEMS

Refer to:

- GIB Ezybrace® Systems (2016)

For bracing element location refer to drawn documentation.

#### Accessories

#### 4.6 GIB® COVE®

Size/brand/type: 55mm GIB-Cove Classic

#### 4.7 GIB® RONDO® CEILING BATTENS

Brand/type: GIB® Rondo® Ceiling battens

# 6700R RESENE PAINTING GENERAL

## 1 GENERAL

This section relates to the general matters related to **Resene** painting work.

### 1.1 RELATED WORK

Refer to 6721R RESENE PAINTING INTERIOR  
Refer to 6711R RESENE PAINTING EXTERIOR

### 1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

MPNZA	Master Painters New Zealand Association Inc.
SIPDS	Surface Information & Preparation Data Sheets

### Documents

### 1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

<a href="#">Health and Safety at Work Act 2015</a>	
<a href="#">AS/NZS ISO 9001</a>	Quality management systems - Requirements
MPNZA	Health and Safety Programme

### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this section are:

Resene	Surface Information & Preparation Data Sheets (SIPDS) (hard copy or at <a href="http://www.resene.co.nz">www.resene.co.nz</a> )
Resene	Product Data Sheets (hard copy or at <a href="http://www.resene.co.nz">www.resene.co.nz</a> )
Resene	Putting your safety first

Copies of the above literature are available from Resene  
Telephone: 0800 RESENE (0800 737 363)

### Warranties

### 1.5 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this work under normal conditions of use against failure referring to the Resene Promise of Quality in the Resene One-Line specifications and product data manual.

### Requirements

This painting specification is written based on information available at the time of writing.

### 1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Resene coating system, or associated components and products. Do not combine paints from different manufacturers in a paint system.

If in the applicator's own expertise and judgement an amendment to this specification is required, or where a substrate preparation, or required painting system is not covered in this specification, this shall be brought to the attention of the contract administrator and any amendment agreed before work proceeds any further.

## 1.7 QUALIFICATIONS

Painters to be experienced competent workers, familiar with the materials and the techniques specified and with the Resene coating systems and be members of the Master Painters New Zealand Association Inc.

The applicator is to have the necessary skill, experience and equipment to undertake the work. The applicator remains responsible for ensuring proper completion of the work.

Painters to be selected from the Resene Eco.Decorator programme. The Resene Eco.Decorator programme is designed to recognise a nationwide network of environmentally responsible, quality focussed painting contractors.

Refer to [www.resene.co.nz/ecodecorator.htm](http://www.resene.co.nz/ecodecorator.htm) for a list of Eco.Decorators in your area.

## 1.8 PRIOR TO WORK COMMENCING

Before any work commences painters should verify, with Architects or specifying authority, that their paint matches a previously supplied standard card or panel. Differently coloured paints will vary in price, opacity and durability. Resene normally only specify two coats of colour but with certain colours, such as yellows and oranges, three coats may be needed. Refer to SELECTIONS for location and type.

## 1.9 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of the following general operation and maintenance information as electronic PDF format documents:

Maintenance guide for Resene paint finishes [www.resene.co.nz/comn/services/maintenance.htm](http://www.resene.co.nz/comn/services/maintenance.htm).

Provide this information prior to practical completion.

## 1.10 HEALTH AND SAFETY

Refer to and comply with the requirements of the [Health and Safety at Work Act 2015](#) including the obligation to:

- Eliminate hazards and if hazards cannot be eliminated or isolated, then minimise the hazards in this work by using the proper equipment and techniques as required by the MPNZA Health and Safety Programme.
- Supply protective clothing and equipment.
- Inform the contractor as well as the employees and others on site of those hazards and put in place procedures for dealing with emergencies.

## 1.11 SAFETY DATA SHEETS

Obtain from Resene (phone 0800 RESENE, or [www.resene.co.nz](http://www.resene.co.nz)) the safety data sheet for each product used and comply with the required safety procedures. Keep sheets on site.

### Performance

## 1.12 RESENE INSPECTION

Permit representatives of Resene to inspect the work in progress and to take samples of their products from site if requested. Resene will take care when inspecting the work, but does not accept any responsibility for the proper completion of the work before or after such inspection.

## 1.13 INSPECTION OF THE WORK

Inspection of the whole of the work at each of the stages set out in SELECTIONS may be made.

Agree on a programme that will facilitate such inspection, including notification when each part and stage of the work is ready for inspection.

# 2 PRODUCTS

### Materials

## 2.1 MATERIALS GENERALLY

Do not combine paints from different manufacturers in a paint system.

Use only Resene products (which are guaranteed for consistency and performance under [AS/NZS ISO 9001](#) and APAS) prepared, mixed and applied as directed in the Resene One-Line Specifications and Product Data Manual. This specification has been written using where practical and available both low/no VOC and Environmental Choice approved products.

## 2.2 DARK COLOURS

Darker colours in areas of high sun exposure place significant stress on the coating and substrate. Resene 'CoolColour' technology reduces heat absorption of a wide range of colours. Contact your local Resene Representative or visit [www.resene.co.nz](http://www.resene.co.nz) for more information or visit [www.resene.co.nz/coolcolour](http://www.resene.co.nz/coolcolour). View a list of Resene colours that can be made using Resene CoolColour technology at [www.resene.co.nz/colourlibrary](http://www.resene.co.nz/colourlibrary).

## 2.3 THINNERS/ADDITIVES

Use only if and when expressly directed by Resene for their particular product in a particular application. Always wear gloves when handling any solvents including turpentine as harmful chemicals may be absorbed into the body through the skin.

### Accessories

## 2.4 ACCESSORIES

Contact your local Resene ColorShop for a full range of accessories and usage advice.

# 3 EXECUTION

### Conditions

## 3.1 EXECUTION

To conform to required trade practice, which shall be deemed to include those methods, practices and techniques contained in the Master Painters New Zealand Association Inc. Specification manual.

## 3.2 TREATED SURFACES

Where surfaces have been treated with preservatives or fire retardants, check with the treatment manufacturer that coating materials are compatible with the treatment and do not inhibit its performance. If they are not compatible, obtain instructions before proceeding.

## 3.3 BACK PAINTING

Co-ordinate with cladding and/or lining installer as to who will do the work and timing.

### Exterior

For exterior cladding and trim that require on site finishing, paint the back and exposed bottom edges at the base of the cladding (generally, bottom plate overhang and horizontal flashings) to the manufacturer's requirements, but at least to 150mm up from base. Coating to match front finish, generally apply 2 coats or 1 coat if pre-primed.

Refer to appropriate exterior paint sections SELECTION clauses for claddings to be back painted.

### Interior

For lining and trim that require on site finishing and/or back painting (usually wet areas), paint the back and exposed bottom edges at the base of the lining, to the manufacturer's requirements, but at least to 150mm up from base. Coating to match front finish, generally apply 2 coats or 1 coat if pre-primed, or if no front finish, seal to manufacturer's requirements.

Refer to appropriate interior paint sections SELECTION clauses for linings to be back painted.

## 3.4 ANCILLARY SURFACES

The descriptions of areas in schedules and elsewhere are of necessity simplified. Coat ancillary exposed surfaces to match similar or adjacent materials or areas, except where a fair-faced natural finish is required or items are completely prefinished. In cases of doubt obtain written instructions before proceeding.

## 3.5 HARDWARE

Do not paint hinges or hardware that cannot be removed. Before commencing work carefully remove hardware, fixtures and fittings, set aside where they cannot be damaged or misplaced and replace on completion. Refer to SELECTIONS for hardware, fixtures and fittings for removal.

## 3.6 PROTECTION

Supply, lay and fix drop sheets, coverings and masking necessary to protect adjoining, fixtures, fittings and spaces from paint drops, spots, spray and damage.

### Application - preparatory work

### 3.7 SURFACE PREPARATION

Refer to the Resene Surface Information & Preparation Data Sheets (SIPDS) and product data manual for surface preparation sheets (or obtain them by phoning 0800 RESENE, or at [www.resene.co.nz](http://www.resene.co.nz)) listed in the materials systems schedule clauses. Carry out the preparatory work required by them for each of the substrates.

### 3.8 SHARP EDGES, CRACKS AND HOLES

Remove and/or repair sharp edges, cracks and holes if present, as outlined in the preamble of the Resene One-Line specifications and product data manual.

Elastomeric sealants, if used, should not be painted. The paint film will not match the flexibility of the sealant and may severely limit its effectiveness.

### 3.9 REMEDIAL WORK

If any substrate or surface, that even with the preparation work called for in this section, cannot be brought up to a standard that will allow painting or clear finishing of the required standard then do not proceed until remedial work is carried out.

### 3.10 GAP FILLING

Make good cracks, holes, indented and damaged surfaces. Use suitable gap fillers to match the surface being prepared. Any special priming requirements of the fillers must be satisfied. Allow to dry or set before sanding back level with the surface. Prime or seal timber before using putty.

Exterior and wet areas: Use only Portland cement base or water-insoluble organic base gap fillers.

### 3.11 OFF-SITE WORK

Carry out this work under cover in a suitable environment with suitable lighting. Store items, both before and after coating, in a clean, dry area protected from the weather and mechanical damage, properly stacked and spaced to allow air circulation and to prevent sticking. Specific instructions for transport to site to avoid damage to the factory applied paint system may be required particularly for metallic top coat paints.

### 3.12 PRIMING JOINERY

Pre-treat any cut surfaces of preservative treated timber before priming. Ensure L.O.S.P. treated joinery has dried sufficiently to lose solvent odour. Pre-treat bare timber with Resene TimberLock (see Data Sheet D48) to improve the durability of subsequent coats.

Liberally coat end grain, allow to soak in and then recoat.

### 3.13 CONCEALED JOINERY SURFACES

Where off-site coatings are specified they must be applied to surfaces including those concealed when incorporated into the building.

### 3.14 CONCEALED METAL SURFACES

Apply primer to suit the coating system to surfaces which will be concealed when incorporated into the building.

### 3.15 EXTERNAL DOORS

Prime or seal and paint bottom edges before hanging.

### 3.16 BEAD GLAZING

Stained, varnished, or painted joinery to have the first two coats of a suitable primer and one undercoat, applied to rebates and beads before glazing.

### 3.17 PUTTY FRONTING - LINSEED GLAZING PUTTIES

According to the putty manufacturer's instructions allow putty to set, then prime with Resene Wood Primer (see Data Sheet D40) or Resene Enamel Undercoat (see Data Sheet D44). Fully protect the putty by completing the Resene coating system as soon as it is sufficiently firm.

Glazing putties not based on linseed oil to be over coated according to the putty manufacturer's instruction.

## **Application - generally**

### 3.18 PAINTING GENERALLY

Comply with the Resene SIPDS Surface Information & Preparation Data Sheets or Resene One-Line specifications and product data manual data sheets and the additional requirements of this work section.

Ensure large wall areas that require more than one container of paint per coat, have enough paint boxed (mixed) together to complete the final coat. This will not apply if a single factory batch of paint, rather than shop tinted paint, is applied.

### 3.19 MIXING

Although generally supplied ready to use, all paints must be thoroughly mixed to lift any settled pigment and ensure the paint is homogeneous.

### 3.20 ENVIRONMENT

Defer painting of exterior surfaces until weather conditions are favourable - warm dry days without frost or heavy dews. Avoid painting in direct sunlight any surfaces that absorb heat excessively. As far as possible apply paint in the temperature range 15°C to 25°C. If temperatures fall outside the range of 10°C and 35°C do not paint unless paints with the necessary temperature tolerance have been specified. Resene Hot Weather Additive can be added to most Resene waterborne top coats to extend open time when application is undertaken at elevated temperatures or conditions that will cause rapid loss of water from the applied wet film. Do not apply solvent borne paint if moisture is present on the surface.

### 3.21 SEQUENCE OF OPERATIONS

Painting work to generally follow the following sequences:

- Back painting and pre-installation painting, then post-installation exposed-face painting
- Complete surface preparation before commencing painting.
- Apply primers, sealers, stains, undercoats, paints and clear coatings in the sequences laid down by Resene.
- Allow the full drying time between coats laid down by Resene.
- Do not expose primers, undercoats and intermediate coats beyond Resene's recommendations before applying the next coat.
- Finish broad areas before painting trim.
- Ensure batch numbers of tins are matched for whole areas.
- Internally, paint ceilings before walls and walls before joinery, trim and other items.

### 3.22 APPLICATION

Select brush, roller, or pad and apply coatings to the requirements of Resene to obtain a smooth, even coating of the specified thickness, uniform gloss and colour.

### 3.23 LIGHTLY SAND

Lightly sand primers, sealers, undercoats and intermediate coats to remove dust pick-up, protruding fibres and coarse particles. A more thorough sanding to provide a mechanical key for the new paint system may be required depending upon the condition or age of the existing paint system..

### 3.24 DEFECTIVE WORK

Correct defective work immediately and recoat as required, following precisely the Resene system being applied. The same applies to transportation damage to site of factory painted items.

### 3.25 EACH COAT

Each coat of paint and the completed paint system to have the following qualities and properties:

- Uniform finish, colour, texture, sheen and hiding power and the proper number of coats applied.
- No blemishes such as runs, sags, crinkling, fat edges, entrained paint skins, hairs, dust, bare or starved patches, cracks, significant brush marks, ladder marks and blistering.
- Proper covering of corners, crannies, thin edges, cracks, end grain and other difficult places of application.

### **Completion**

### 3.26 CLEAN

Clean adjoining surfaces, glass and fittings of any paint contamination. Clean off glass indicators at the completion of the building works. Clean glass inside and out to a shining finish. Use the Resene Washwise on site 'paint equipment clean-up water' reclamation system to minimise the environmental impact of cleaning paint application tools.

### 3.27 LEAVE

Leave the whole of this work uniform in gloss and colour, of correct thickness, free from painting defects, clean and unmarked and to the standard required by following procedures.

### 3.28 REMOVE

Remove drop sheets, coverings and masking to leave surrounding surfaces and areas clean, tidy and undamaged. Remove debris, unused materials and elements from the site.

### 3.29 REPLACE

Replace hardware without damage to it or the adjoining surface and leave hardware properly fitted and in working order.

### 3.30 DISPOSAL OF PAINTS AND THINNERS

Note: The use and disposal of paint and thinners represents a significant environmental hazard. Ensure all paint and thinners are disposed of in the following manner:

- When requested hand over part used paint containers to client for maintenance touch ups.
- Recycle leftover paint at a Resene ColorShop as part of the Resene "Paintwise programme". Contact your local Resene ColorShop for details or view information online at [www.resene.co.nz/paintwise.htm](http://www.resene.co.nz/paintwise.htm).
- Donate left over paint to local community groups.
- Solvent based paints, paint thinners, turpentine, mineral spirits and solvents require special disposal procedures. Do not pour down sewer or stormwater drains, sinks or into the ground. If they cannot be recycled they must be disposed of in a refuse dump licensed to take toxic waste.

### 3.31 MAINTENANCE

Good maintenance of coating systems involves a routine of regular cleaning as well as regular inspections. Regular inspections of the coating systems are recommended to identify breakdown, accidental damage to or undesirable deterioration of the paint. Wash down of exterior coatings should be undertaken on an annual basis using Resene Paint Prep and Housewash (see Data Sheet D812).

Refer the Resene Caring for your paint finish brochure and the Resene website, [www.resene.co.nz/comn/services/maintenance.htm](http://www.resene.co.nz/comn/services/maintenance.htm).

## 4 SELECTIONS

### 4.1 SELECTIONS

Refer to 6711R RESENE PAINTING EXTERIOR and 6721R RESENE PAINTING INTERIOR for selections.

Refer to 6711RE RESENE ENVIRONMENTAL PAINTING EXTERIOR and 6721RE RESENE ENVIRONMENTAL PAINTING INTERIOR for selections.

# 6711R RESENE PAINTING EXTERIOR

## 1 GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing exterior substrates using **Resene** architectural and decorative coating systems.

### Related work

### 1.1 RELATED WORK

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.  
Refer to 6721R RESENE PAINTING INTERIOR for interior paint systems.  
Refer to 6721RE RESENE ENVIRONMENTAL PAINTING INTERIOR for interior paint systems.

## 2 PRODUCTS

### Materials

### 2.1 PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES

Refer to 6700R RESENE PAINTING GENERAL for product clauses.

## 3 EXECUTION

### Conditions

### 3.1 EXECUTION

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

## 4 SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

### 4.1 BACK PAINTING SCHEDULE

Paint 2 coats (including any pre-prime) to match exposed face coating.

Cladding type	Extent of back painting
BGC Duragroove	to manufacturer's requirements

### Exterior fibre cement cladding - new

### 4.2 RESENE NEW EXTERIOR FIBRE CEMENT CLADDING – CLEAR COAT

Surface Prep: Resene SIPDS No3 and Spec Sheet 3: 4/C1  
Saturation coat: Resene Aquapel D65S, Solventborne Water Repellent  
1st coat: Resene Forester stain  
2nd coat: Resene Forester stain

### 4.3 RESENE NEW EXTERIOR FIBRE CEMENT SOFFITS

Surface Prep: Resene SIPDS No3 and Spec Sheet 3: 4/1  
1st coat: Resene Concrete Primer D405, Acrylic Concrete Primer  
2nd coat: Resene Sonyx 101 D30, Semi-Gloss Acrylic  
3rd coat: Resene Sonyx 101 D30, Semi-Gloss Acrylic

# 6721R RESENE PAINTING INTERIOR

## 1 GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing interior substrates using **Resene** architectural and decorative coating systems.

### Related work

### 1.1 RELATED WORK

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.  
Refer to 6711R RESENE PAINTING EXTERIOR for exterior paint systems.  
Refer to 6711RE RESENE ENVIRONMENTAL PAINTING EXTERIOR for exterior paint systems.

## 2 PRODUCTS

### Materials

### 2.1 PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES

Refer to 6700R RESENE PAINTING GENERAL for product clauses.

## 3 EXECUTION

### Conditions

### 3.1 EXECUTION

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

## 4 SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

### 4.1 BACK PAINTING SCHEDULE

Paint 2 coats (including any pre-prime) usually to match exposed face coating. If there is no coating use water resistant clear finish sealer.

Lining type	Extent of back painting
Gib Plasterboard	in wet/damp areas to manufacturer's requirements

### Plasterboard - new

### 4.2 RESENE NEW INTERIOR PLASTERBOARD, WALLS - DRY AREAS (LEVEL 4 FINISH)

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating:	Group 1-S. Test Report FH4967
1st coat:	Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen
3rd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen

### 4.3 RESENE NEW INTERIOR PLASTERBOARD, WALLS - WET AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1A: 1/1
Fire rating:	Group 1-S. Test Report 7-593235-CO
1st coat:	Resene Sureseal D42, solvent-borne Pigmented Sealer (NEC)
2nd coat:	Resene SpaceCote Low Sheen Kitchen & Bathroom D311K Waterborne Enamel
3rd coat:	Resene SpaceCote Low Sheen Kitchen & Bathroom D311K Waterborne Enamel

4.4 RESENE NEW INTERIOR PLASTERBOARD, CEILINGS - DRY AREAS (LEVEL 4 FINISH)

Surface Prep: Resene SIPDS No1 and Spec Sheet 1: 1/1  
 Fire rating: Group 1-S, Test Report FH4967  
 1st coat: Resene Broadwall D403, Waterborne Wallboard Sealer  
 2nd coat: Resene Ceiling Paint D305, Waterborne Flat  
 3rd coat: Resene Ceiling Paint D305, Waterborne Flat

Where durable easily cleaned coating is required substitute 2nd & 3rd coats with:

4.5 RESENE NEW INTERIOR PLASTERBOARD, CEILINGS - WET AREAS

Surface Prep: Resene SIPDS No1 and Spec Sheet 1A: 1/1  
 Fire rating: Group 1-S, Test Report 7-593235-CO  
 1st coat: Resene Sureseal D42, solvent-borne Pigmented Sealer (NEC)  
 2nd coat: Resene SpaceCote Flat Kitchen & Bathroom D314K, Waterborne Enamel  
 3rd coat: Resene SpaceCote Flat Kitchen & Bathroom D314K, Waterborne Enamel

**Interior timber - new**

4.6 RESENE NEW INTERIOR TIMBER DOORS, JOINERY, SKIRTING

Surface Prep: Resene SIPDS No2 and Spec Sheet 2: 9/1  
 1st coat: Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat  
 2nd coat: Resene Lustacryl D310, Waterborne Enamel  
 3rd coat: Resene Lustacryl D310, Waterborne Enamel

# 7120 HOT & COLD WATER SYSTEM

## 1 GENERAL

This section relates to piped potable water supply systems from the network utility supply authority water main to designated points and appliances, the installation of hot water heating appliances, distributing piped hot water to other appliances, and the installation of valves.

### 1.1 RELATED WORK

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures and tapware selections.

#### Documents

### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

<a href="#">NZBC B2/AS1</a>	Durability
<a href="#">NZBC C/AS1-AS2</a>	Protection from fire
<a href="#">NZBC G4/AS1</a>	Ventilation
<a href="#">NZBC G12/VM1</a>	Water supplies
<a href="#">NZBC G12/AS1</a>	Water supplies
<a href="#">NZBC H1/AS1</a>	Energy Efficiency
<a href="#">AS/NZS 2492</a>	Cross Linked Polyethylene (PE-X) pipe for pressure applications
<a href="#">AS/NZS 2537.2</a>	Mechanical joining fittings for use with crosslinked Polyethylene (PE-X) for pressure applications - Plastics piping systems for hot and cold water installations - Crosslinked Polyethylene (PE-X) - Fittings
<a href="#">AS/NZS 2642.1</a>	Polybutylene pipe systems - Polybutylene (PB) pipe extrusion compounds
<a href="#">AS/NZS 2642.2</a>	Polybutylene pipe systems - Polybutylene (PB) pipe for hot and cold water applications
<a href="#">AS/NZS 2642.3</a>	Polybutylene pipe systems - Mechanical jointing fittings for use with polybutylene (PB) pipes for hot and cold water applications
<a href="#">AS/NZS 2845.1</a>	Water supply - Backflow prevention devices - Materials, design and performance requirements
<a href="#">AS 2845.3</a>	Water supply - Backflow prevention devices - Field testing and maintenance
<a href="#">AS/NZS 3500.1</a>	Plumbing and drainage - Water services
<a href="#">AS/NZS 3500.4</a>	Plumbing and drainage - Heated water services
<a href="#">NZS 3501</a>	Specification for copper tubes for water, gas and sanitation
<a href="#">AS/NZS 4130:2009</a>	Polyethylene (PE) pipes for pressure applications
<a href="#">NZS 4305</a>	Energy efficiency domestic type hot water systems
<a href="#">NZS 4602</a>	Low pressure copper thermal storage electric water heaters
<a href="#">NZS 4607</a>	Installation of thermal storage electric water heaters: valve-vented systems
<a href="#">NZS 4617</a>	Tempering (3-port mixing) valves
<a href="#">AS/NZS 5601.1</a>	Gas installations - general installations
<a href="#">DIN 8077</a>	Polypropylene (PP) Pipes - PP-H, PP-B, PP-R, PP-RCT - Dimensions
<a href="#">DIN 8078</a>	Polypropylene (PP) Pipes - PP-H, PP-B, PP-R, PP-RCT - General quality requirements and testing.
<a href="#">Gas (Safety and Measurement) Regulations 2010</a>	
<a href="#">Plumbers, Gasfitters and Drainlayers Act 2006</a>	
<a href="#">NZ Backflow Testing Standard: NZ Backflow Testing Standard 2011, Field testing of backflow prevention devices and verification of air gaps</a>	

#### Warranties

### 1.3 WARRANTY

Provide warranty for:

2 years: For the supply and installation of the plumbing system and fixtures

- Provide the warranty in the standard form in the general section 1237WA WARRANTY AGREEMENT.
- Commence the warranty from the date of practical completion of the contract works.

#### Requirements

### 1.4 QUALIFICATIONS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a certifying plumber under the [Plumbers, Gasfitters and Drainlayers Act 2006](#).

### 1.5 HOT WATER TEMPERATURES

To [NZBC G12/AS1](#), 6.14

Storage water heaters to store water at not less than 60°C.

Hot water piping system, with temperature controls where necessary (tempering valve etc), to provide water at the outlet at the following temperatures:

For personal hygiene fixtures (showers, baths, wash hand basins etc) temperatures to be close to but not to exceed:

- 45°C - for early child hood centres, schools, elderly facilities, hospitals, psychiatric or disabled institutions.
- 55°C - for personal hygiene fixtures in all other buildings.

For non-personal hygiene fixtures (kitchen sinks and equipment, laundry tubs, cleaners sinks, industrial fixtures etc) temperatures are:

- Unrestricted - direct from water heater, approx. 60°C, must be less than 65°C (for kitchen sinks and equipment, laundry tubs, cleaners sinks etc) - in all buildings.
- Unrestricted - direct from water heater not tempered (for industrial fixtures and specific items etc) - in all buildings.

This clause excludes boiling units.

#### Performance

### 1.6 TESTING - TO NZBC G12/AS1

Test to [NZBC G12/AS1](#), 7.5, **Watertightness**, for hot and cold water.

- Test to a pressure of 1500 kpa for period not less than 15 minutes.

Confirm the timing before carrying out any tests. Supply potable water and the apparatus needed. Slowly fill service pipes with water to exclude air. Test and ensure there is no measurable loss of pressure for the minimum period. Slowly fill distribution pipes with water to exclude air. Ensure that with draw-off taps closed the system must remain water-tight.

## 2 PRODUCTS

#### Materials

### 2.1 COPPER PIPE

To [NZS 3501](#) complete with copper-alloy compression fittings or crox type joints and seal ring compression joints complete with fittings and accessories brand matched to the pipe manufacturer's requirements with durability to [NZBC B2/AS1](#), Table 1 and [NZBC G12/AS1](#), Table 1.

### 2.2 POLYBUTYLENE PIPE

Polybutylene tubing to [AS/NZS 2642.1](#), [AS/NZS 2642.2](#) and [AS/NZS 2642.3](#) complete with fittings and accessories brand-matched with durability to [NZBC B2/AS1](#) Durability, table 1 and [NZBC G12/AS1](#), table 1. Protect from sunlight.

### 2.3 POLYETHYLENE PIPE

To [AS/NZS 4130:2009](#) Series 1 complete with fittings and accessories brand matched to the pipe manufacturer's requirements with durability to [NZBC B2/AS1](#), table 1 and [NZBC G12/AS1](#), table 1. Except for solid black PE, protect from sunlight.

### 2.4 WATER METER

To the requirements of the network utility operator.

### 2.5 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](#).

### 2.6 BACKFLOW PREVENTION DEVICES

Provide backflow prevention devices to [AS/NZS 2845.1](#) where it is possible for water or contaminants to backflow into the potable water supply. Refer to [NZBC G12/AS1](#) 3.4 Backflow protection, and [NZBC G12/AS1](#), table 2, Selection of Backflow Protection.

### 2.7 TEMPERING VALVE

Tempering valve to [NZS 4617](#) to [NZBC G12/AS1](#).

### Materials - Hot water heating appliances

### 2.8 ELECTRIC HOT WATER CYLINDER, MAINS PRESSURE

To [NZS 4305](#), ceramic-coated steel thermal storage cylinder, insulated and complete with required fittings.

### Components

### 2.9 INSULATION

Pre-formed pipe sections complete with bends and fittings, with fixing tape to the manufacturer's requirements and to [NZBC H1/AS1](#).

### 2.10 PROTECTIVE TAPE

Plasticised PVC tape system with primer, mastic fixing and outer coating.

## 3 EXECUTION

### 3.1 EXECUTION GENERALLY

Generally carry out the whole of this work and tests to [NZBC G12/VM1](#) or [NZBC G12/AS1](#).

### 3.2 HANDLE AND STORE

Handle and store pipes, fittings and accessories to avoid damage. Store on site, under cover on a clean level area, stacked to eliminate movement and away from work in progress.

Store tapware in a shelved, dry and securely locked area. Retain tapware in the manufacturer's original packaging, complete with all fixings and installation instructions. Label each unit separately with its space/fixture number to match.

### 3.3 CORE HOLES AND SLEEVES

Review location and fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Strip core holes and make good after installation of pipework.

### 3.4 CONCEAL

Conceal pipework within the fabric of the building unless detailed otherwise. Satin finish chrome plate exposed work, complete with matching ferrule at the surface penetration.

### 3.5 CORROSION

Separate all metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips.

### 3.6 THERMAL MOVEMENT

Accommodate movement in pipes resulting from temperature change by the layout of the pipe runs, by expansion joints and by sleeving through penetrations.

### 3.7 PIPE SIZE

Flow rates to each outlet to be no less than those given in [NZBC G12/VM1](#) or [NZBC G12/AS1](#), table 3, Acceptable flow rates to sanitary fixtures. Pipe size as determined in [NZBC G12/AS1](#), table 4, Tempering valve and nominal pipe diameters.

### 3.8 ELECTROLYTIC ACTION

Avoid electrolytic action by eliminating contact or continuity of water between dissimilar metals.

### 3.9 EXCAVATE

Excavate for the water main to a firm, even trench base in straight runs. Allow to backfill.

#### **Application - Jointing**

### 3.10 JOINTING COPPER PIPE

Braze pipe, fit alloy compression fittings, crox type joints and seal ring compression joints to [NZBC G12/AS1](#).

### 3.11 JOINTING POLYBUTYLENE PIPE

Aluminium clamped, seal ring compression or push fit "O" ring seal jointing to pipe system manufacturer's requirements.

### 3.12 JOINTING POLYETHYLENE PIPE

Seal ring compression joints and electrofusion to [NZBC G12/AS1](#).

#### **Application - Pipework installation**

### 3.13 WATER SUPPLY CONNECTION

Arrange with the network utility operator for a connection to the water main and from there through a water meter and gate valve. Provide back flow prevention to [NZBC G12/AS1](#).

### 3.14 POTABLE WATER SUPPLY PIPEWORK INSTALLATION

From connection point, run pipes complete with all fittings, support and fixing, joins and install to manufacturers specifications. Size the pipes and branches in straight runs to deliver the acceptable flow rate to [NZBC G12/VM1](#) or [NZBC G12/AS1](#), table 3, Acceptable flow rates to sanitary fixtures at each outlet. Allow for the expected concurrent use of adjoining fixtures and size the piping layout to eliminate loss of pressure at any point by simultaneous draw-off. Pipework support spacing to be firmly fixed and buffered to eliminate noise and hammer, with preformed tee-connection take-offs and branches, with machine made 3 diameter bends, complete with necessary valves and fittings. Conceal pipework and pressure test before the wall linings are fixed.

### 3.15 HOT WATER PIPEWORK

Use a take-off spigot to give separate branches to each fitting, lay out pipes with support spacing to [NZBC G12/VM1](#) or [NZBC G12/AS1](#), table 7 Water supply pipework support spacing. Fix firmly and buffer to eliminate noise and hammer, with preformed tee-connection take-offs and branches, and preformed 3 diameter bends, complete with all necessary valves and fittings

Lag all pipes with rigid insulation to the manufacturer's requirements and [G12/VM1](#) or [G12/AS1](#).

### 3.16 EQUIPOTENTIAL BONDING

Earth metallic water supply pipe and metallic sanitary fixtures to [NZBC G12/AS1](#), 9.0.

### 3.17 IN-LINE FILTER

Install an in-line filter immediately adjacent to the main isolating valve at the point of entry to the building, in an accessible position to allow for easy cleaning.

#### **Application - Hot water systems**

### 3.18 HOT WATER CYLINDER INSTALLATION GENERALLY

Install hot water cylinders complete to the manufacturer's requirements and to [NZBC G12/AS1](#), 6.11, Water heater installation. Valve-vented systems to [NZS 4607](#).

### 3.19 SEISMIC RESTRAINTS - NON-GAS WATER HEATING APPLIANCES

Non-gas (electric, wet-back, solar etc) water heating appliances (storage water heaters) to be restrained to manufacturer's requirements and [NZBC G12/AS1](#), 6.11, Water Heater Installation.

### 3.20 INSTALLING HOT WATER PIPE INSULATION

Insulate all hot water pipes to [NZBC H1](#)/AS1 Energy Efficiency, [AS/NZS 3500.4](#), section 8.2 Thermal insulation, and to the insulation manufacturer's instructions. Cut insulation sections tight between timber framing and tight between the webs of steel studs.

### 3.21 INSTALL ELECTRIC HOT WATER CYLINDERS AND BOILING CYLINDERS

Install where shown complete with all the necessary fittings to the cylinder manufacturer's requirements and in accordance with [NZBC G12](#)/AS1: 6.11. Valve-vented systems to [NZS 4607](#).

### 3.22 INSTALL STORAGE HOT WATER CYLINDER OVERFLOW TRAY

Install drained overflow tray to storage hot water cylinder to [NZBC G12](#)/AS1.

### 3.23 INSTALL TEMPERING VALVE

Install 1 metre minimum from outlet of hot water cylinder and to manufacturer's instructions. Install copper pipework for 1 metre minimum downstream of tempering valve prior to connection of non-metallic pipework.

### 3.24 PENETRATIONS

Provide and fit collars and escutcheon plates to match the pipework at all penetrations through constructions.

#### **Installation - Valves**

### 3.25 INSTALLING BELOW GROUND ISOLATING VALVE

Install all below ground items such as main isolating valves and water meters in preformed concrete pits or approved equivalent.

### 3.26 INSTALLING APPLIANCE ISOLATING VALVES - CONCEALED

Install isolating valves for appliances in accessible positions. Locate in adjacent cupboards and position to allow for easy connection and operation.

### 3.27 INSTALLING BACKFLOW PREVENTION DEVICE

Provide and install backflow prevention device as near as practicable to the potential source of contamination, and in an accessible position for maintenance and testing to AS 2845.3 or [NZ Backflow Testing Standard](#).

#### **Completion**

### 3.28 LABEL

Label all pipework with permanent adhesive markers at 3 metre minimum intervals.

### 3.29 CLEAN IN-LINE FILTER

Clean all in-line filters on completion of works.

### 3.30 REPLACE

Replace damaged or marked elements.

### 3.31 LEAVE

Leave work to the standard required by following procedures.

### 3.32 REMOVE

Remove debris, unused materials and elements from the site.

## **4 SELECTIONS**

#### **Water main**

### 4.1 POLYETHYLENE WATER MAIN

Size: 25mm outside diameter (i.e. DN 25 in [AS/NZS 4130:2009](#))

#### **Pipework**

4.2 COPPER PIPE

Nominal bore: 20mm  
Wall thickness: 1.22mm

4.3 POLYBUTYLENE PIPE

Manufacturer: Buteline  
Brand: Buteline PB-1

4.4 RIGID INSULATION

Brand: Allproof ISOPipe  
Material: Closed Cell Elastomeric Insulation  
Wall thickness: 13

**Hot water systems**

4.5 ELECTRIC HOT WATER CYLINDER, MAINS PRESSURE

Brand: Rheem  
Model size: 250L

**Valves and accessories**

4.6 MAIN ISOLATING VALVE

Location: In garage  
Brand/type: Apex isolating non-return valve

4.7 APPLIANCE ISOLATING VALVES - CONCEALED

Appliance: HWC  
Brand/type: Apex filter, stop & non-return

4.8 APPLIANCE ISOLATING VALVES - EXPOSED

Appliance: Washing machine  
Brand/type: Refer to tapware selections

4.9 TEMPERING VALVE

Location: HWC  
Brand/type: Apex tempering valve 15/20mm

4.10 BACKFLOW PREVENTION DEVICE

Location: HWC  
Brand/type: Apex filter, stop & non return

4.11 IN-LINE FILTER

Location: HWC  
Brand/type: Apex filter, stop & non return

# 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES

## 1 GENERAL

This section relates to the supply and installation of sanitary fixtures, tapware and sanitary accessories.

### 1.1 RELATED WORK

Refer to 7120 or 7123 HOT AND COLD WATER SYSTEM for hot water cylinders.  
Refer to 7420 or 7421 SANITARY SYSTEMS for the supply and fitting of waste disposal pipework  
Refer to the electrical section/s for electrical connection of accessories.

#### Documents

### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E3/AS1	Internal moisture
NZBC F2/AS1	Hazardous building materials
NZBC G1/AS1	Personal hygiene
NZBC G12/VM1	Water supplies
NZBC G12/AS1	Water supplies
NZBC G13/AS1	Foul water
NZBC G13/AS3	Plumbing and drainage
AS/NZS 1730	Washbasins
AS/NZS 2023	Baths for ablutionary purposes
AS/NZS 3500.1	Plumbing and drainage - water services
AS/NZS 3500.2	Plumbing and drainage - sanitary plumbing and drainage
AS/NZS 3662	Performance of showers for bathing
NZS 4223.3	Glazing in buildings - Human impact safety requirements
Plumbers, Gasfitters and Drainlayers Act 2006	

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

#### Requirements

### 1.3 QUALIFICATIONS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a Certifying Plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

### 1.4 SUPPLIER

A specialist in the supply of tapware, and employing experienced architectural representatives available to assist during the course of the installation.

## 2 PRODUCTS

## 3 EXECUTION

#### Conditions - sanitary fixtures

### 3.1 DELIVERY

Only deliver to the site fixtures or fittings that can be immediately unloaded into suitable storage or be placed for direct installation.

### 3.2 STORAGE AND HANDLING

Take delivery of and store components complete with protective casings and coverings in areas that are enclosed, clean and dry and where no work is being done. Remove protection only to the extent that will allow installation.

### 3.3 QUALITY STANDARDS INCLUDING NZBC G13/AS1

Installation work to comply with [NZBC G1/AS1](#), [NZBC G12/VM1](#), [NZBC G12/AS1](#), [NZBC G13/AS1](#) and the fixture manufacturer's requirements.

### 3.4 SUBSTRATE

Ensure substrate and fixings will allow work of the specified standard.

### 3.5 CO-ORDINATION

Do not proceed if the points of supply and drainage services do not match the points of the fixtures without force or distortion.

### 3.6 INSTALLATION REQUIREMENTS INCLUDING NZBC G13/AS1

Install to [NZBC G1/AS1](#), [NZBC G12/VM1](#), [NZBC G12/AS1](#), [NZBC G13/AS1](#), [NZBC E3/AS1](#) and to the fixture manufacturer's installation requirements for each component. Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries and sealants in sequence.

Seal between all sanitary fixtures and wall linings, fixtures and the tops they are in, the tops and wall linings, to [NZBC E3/AS1](#), 3.2.2. Fixtures include baths, basins, tubs or sinks. Tops include, vanities, bath surrounds, sink benches, etc, and there upstands.

### 3.7 PROVIDE SUPPORT

Confirm fixing points needed for each unit and provide solid blocking at each fixing bracket location.

#### **Installation - sanitary fixtures**

### 3.8 INSTALLING TOILET PAN

Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries/bedding and sealants in sequence. Fit the toilet pan in position, plumb, level, flush and rigid without stressing the attachment points of the component. Fixings to be corrosive resistant. Fit seat.

### 3.9 INSTALLING CISTERNS

Fit firmly in place and connect the specified cisterns from the supply services through the flush pipes to the relative fixtures in the positions as detailed all plumb and level.

#### **Installation - Basins**

### 3.10 INSTALLING VANITIES - INTEGRAL BASINS

Install in accordance with the manufacturer's requirements. Connect to supply and drains through trap to the drainage system. Seal top and upstand to wall surface to comply with [NZBC E3/AS1](#).

#### **Installation - Showers**

### 3.11 INSTALLING SHOWER FITTINGS

Shower waste, mixer and rose to be install to [NZBC G1/AS1](#) and to [AS/NZS 3662](#).

### 3.12 INSTALLING SHOWER ENCLOSURES AND WALL LININGS

Install in accordance with [NZBC E3/AS1](#). Sit tray firmly in place as detailed, to levels shown and connect to drainage service, ready for following work. Fit screen and door unit to manufacturer's details. Lining materials and finishes to comply with [NZBC E3/AS1](#).

### 3.13 INSTALLING SHOWER DOOR AND SCREEN

To [NZS 4223.3](#) and to the product manufacturer's requirements. Set units level, plumb and true to line and required location, with moving parts and actions freely and easily operating.

#### **Installation - Baths**

### 3.14 INSTALLING BATHS

Install to [NZBC G1/AS1](#). Set firmly in cradle with required points fully supported, level and flush. Connect to supply and drainage services.

#### **Installation - Sinks**

### 3.15 INSTALLING SINK BENCHES

Install in accordance with manufacturer's/supplier's requirements. Connect to supply and drainage services.

### 3.16 INSTALLING CLEANERS SINKS AND TUB UNITS

Install in accordance with manufacturer's requirements. Connect to supply and drainage services.

#### **Installation - Miscellaneous**

### 3.17 INSTALLING STAINLESS STEEL FIXTURES

Carry out preparatory work and fit elements in position plumb, level, flush and rigid without stressing the attachment points in sequence. Connect to supply and drainage services.

#### **Completion**

### 3.18 REPLACE

Replace damaged or marked elements.

### 3.19 PROTECTIVE COVERINGS

Leave fixtures, fittings and accessories clean and unblemished with stickers and protective coverings removed, with supply and drainage connections and all parts fully operating and working. Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following work.

### 3.20 REMOVE

Remove debris, unused materials and elements from the site.

## **4 SELECTIONS**

# 7411 RAINWATER SPOUTING SYSTEMS

## 1 GENERAL

This section relates to rainwater disposal systems including spouting and downpipes in:

- metal

### 1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
Spouting	Roof gutter bracketed off the roof edge or fascia.
Gutter	Internal gutter or gutter formed as integral part of the roof fabric.

### Documents

### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E1/AS1	Surface water
AS 1273	Unplasticised PVC (uPVC) downpipe and fittings for rainwater
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

### Warranties

### 1.3 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this work under normal environmental and use conditions:

10 Years	For failure of coating adhesion
10 Years	For weatherproofing by material penetration

Form:	Manufacturer's standard warranty form
From:	Commence the warranty from the date of completion of installation

Refer to the general section 1237 WARRANTIES for details of when completed warranty must be submitted.

### 1.4 WARRANTY - INSTALLER/APPLICATOR

Warrant this work under normal environmental and use conditions against:

3 years:	For weatherproofing by substandard workmanship:
From:	Commence the warranty from the date of completion of installation
Form:	Installers standard warranty form

Refer to the general section 1237 WARRANTIES for details of when completed warranty must be submitted.

### Requirements

### 1.5 QUALIFICATIONS

Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

### Performance

### 1.6 TEST

Test the completed rainwater disposal system with water to ensure spoutings are laid to correct falls, that both spouting and downpipes are unobstructed and that no ponding occurs in spoutings.

## 2 PRODUCTS

## **Materials - metal**

### **2.1 SPOUTING**

Complete with matching brackets to suit spouting and screws. Refer to SELECTIONS for type.

### **2.2 SPOUTING BRACKETS**

All exposed brackets to be colour matched before installation. Brackets to be hot-dipped galvanised, zincalume, aluminium, stainless steel or brass as specified and to suit application. Electroplated components are not acceptable. Refer to SELECTIONS for type.

### **2.3 DOWNPIPES**

Complete with stand-off brackets, screw fixed. Refer to SELECTIONS for type.

## **Materials - fascia/barge system**

### **2.4 EXTERNAL FASCIA/BARGE SPOUTING SYSTEM**

Fascia/barge type complete with jointing, brackets, fittings and accessories, brand matched and complete to the manufacturer's requirements. Refer to SELECTIONS for type.

## **Components**

### **2.5 DROPPERS**

Metal or uPVC droppers, compatible with spouting material and sized to fit inside the downpipe.

### **2.6 FASTENERS GENERALLY**

Minimum Class 4 durability and not less than the roofing material being fixed.

### **2.7 RIVETS**

Sealed aluminium, minimum diameter 4mm.

### **2.8 SEALANT**

MS Polymer sealant.

## **3 EXECUTION**

### **Conditions**

#### **3.1 HANDLE AND STORE**

Handle and store downpipes, spouting and accessories to avoid damage. Store on site under cover, on a clean level area, stacked to eliminate movement and away from work in progress. Avoid exposure to sunlight if strippable film is still on the product.

#### **3.2 SUBSTRATE**

Check that fascias, barges or cladding are level and true to line and face and will allow work of the required standard without distortion to the product alignment. Do not proceed until they are up to standard.

#### **3.3 THERMAL MOVEMENT**

Make adequate provision in the fixing and jointing of the spouting for thermal movement in the length of the spouting. Provide an expansion joint in spouting over 18 metres in length for steel gutter.

#### **3.4 CORROSION**

Separate metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips. Do not allow copper downpipes to discharge onto lower galvanized or zinc aluminium coated steel roofs.

## **Application - metal**

### **3.5 INSTALLATION GENERALLY**

Install to [NZMRM CoP](#) recommendations where not otherwise specified.

### 3.6 INSTALL VALLEY GUTTERS

Attach valley gutters to valley boards by clips allowing for thermal movement to [NZMRM CoP](#), clause 5.6, **Valley Gutters**. Separate valley gutter from valley boards with a layer of bituminous roof underlay.

### 3.7 INSTALL SECRET GUTTERS

Install secret gutters to fall allowing for thermal movement to [NZMRM CoP](#), clause 5.5.7 **Secret Gutters**. Rivet and seal joints with MS Polymer sealant.

### 3.8 INSTALL METAL SPOUTING

Establish minimum falls necessary (minimum 1:500, 2mm in 1 metre) to outlets to prevent ponding and screw fix brackets, true to line at 750mm centres maximum for external gutters less than 175mm wide and at 600mm centres maximum for gutters 175mm to 300mm wide. In areas where snow fall is possible the centres should be reduced to 600mm maximum. Lap spouting joints a minimum of 40mm, silicone seal between surfaces and pop rivet to the manufacturer's recommendations. Ensure the joint is fixed over its full girth. Cut out neatly for and fit the pre-formed downpipe dropper and rivet and seal around the joint. All installation to [NZMRM CoP](#) recommendations.

### 3.9 INSTALL PRE-PAINTED METAL SPOUTING

Establish minimum falls necessary (minimum 1:500, 2mm in 1 metre) to outlets to prevent ponding and screw fix brackets true-to-line at 750mm centres maximum for external gutters less than 175mm wide and at 600mm centres maximum for gutters 175mm to 300mm wide. In areas where snow fall is possible the centres should be reduced to 600mm maximum. Lap spouting joints a minimum of 40mm and silicone seal and pop rivet to the manufacturer's recommendations. Cut out neatly for and fit the pre-formed downpipe dropper and silicone seal around the lap joint. All installation to [NZMRM CoP](#) recommendations.

### 3.10 INSTALL EXTERNAL FASCIA/BARGE SPOUTING SYSTEM

Install concealed fascia brackets to rafters with either screws or nails and fit fascia to a level line. Fit gutter brackets to fall to outlet. Cut and form corner junctions and barge junctions and fit spouting rigidly to brackets. Cut out neatly for and fit pre-formed downpipe droppers. Silicone seal and pop-rivet all lap joints. All installation to [NZMRM CoP](#) recommendations.

### 3.11 INSTALL DROPPERS

Install either 2 outlets or one outlet and an overflow to each spouting section. Cut out neatly for and fit the pre-formed downpipe dropper and rivet and seal around the joint. All installation to [NZMRM CoP](#) recommendations.

### 3.12 INSTALL METAL DOWNPIPES

Form downpipes complete with angle bends as needed with joints lapped and sealed. Screw fix with pipe clips to rigidly stand off the wall plumb and discharging into stormwater gully or inlet pipe. All installation to [NZMRM CoP](#) recommendations.

### 3.13 INSTALL OUTLETS AND OVERFLOWS

Install outlets and overflows where required to [NZMRM CoP](#), clauses 5.8.2, **Outlets and Overflows**.

## Completion

### 3.14 REPLACE

Replace damaged or marked elements.

### 3.15 LEAVE

Leave the whole of this work discharging completely and freely into the stormwater system and free of all debris. Leave work to the standard required by following procedures.

### 3.16 REMOVE

Remove debris, unused materials and elements from the site.

## 4 SELECTIONS

#### 4.1 SPOUTING

Brand: Metalcraft  
 Profile/size: Quadline  
 Cross section: 6200mm<sup>2</sup>  
 Material: Colorsteel  
 Thickness: 0.55mm  
 Coating system: Colorsteel Endura  
 Colour: TBC by owner

#### 4.2 SPOUTING BRACKETS

Type: external  
 Material: Colorsteel

#### 4.3 DOWNPIPES

Brand: Metalcraft  
 Profile/size: Round 80mm  
 Material: Colorsteel  
 Thickness: 0.55mm  
 Coating system: Colorsteel Endura  
 Colour: TBC by owner

#### 4.4 DOWNPIPE BRACKETS

Type: strap brackets  
 Material: Colorsteel Endura

#### **Fascia/barge spouting system**

#### 4.5 EXTERNAL FASCIA/BARGE SPOUTING SYSTEM

Brand: Metalcraft Fascia 135  
 Profile/size: 135mm  
 Material: Colorsteel  
 Thickness: 0.55mm  
 Coating system: Colorsteel Endura  
 Colour: TBC by owner

# 7420 SANITARY SYSTEMS

## 1 GENERAL

This section relates to above ground gravity flow sanitary systems;

- for foul water
- from sanitary fixtures to first underground drain connection
- including system wastes, floor wastes, floor waste gullies, traps, vents and valves
- with associated components and accessories to make the system work

### 1.1 RELATED SECTIONS

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures tapware and accessories.

Refer to 7430 DRAINAGE for underground drains.

### 1.2 DOCUMENTS

Documents referred to in this section are:

<a href="#">NZBC G1/AS1</a>	Personal hygiene
<a href="#">NZBC G13/AS1</a>	Foul water - Sanitary plumbing
<a href="#">NZBC G13/AS3</a>	Plumbing and drainage
<a href="#">AS 2887</a>	Plastic waste fittings
<a href="#">AS/NZS 1254</a>	PVC-U pipes for storm water and surface water applications
<a href="#">AS/NZS 1260</a>	PVC-U pipes and fittings for drain, waste and vent applications
<a href="#">AS/NZS 2032</a>	Installation of PVC pipe systems
<a href="#">AS/NZS 3500.2</a>	Plumbing and drainage - Sanitary plumbing and drainage
<a href="#">Plumbers, Gasfitters and Drainlayers Act 2006</a>	

### 1.3 QUALIFICATIONS

Carry out all work under the direct supervision of a certifying plumber under the [Plumbers, Gasfitters and Drainlayers Act 2006](#).

## 2 PRODUCTS

### 2.1 PVC-U WASTE, DISCHARGE AND VENT PIPES

PVC-U pipe to [AS/NZS 1260](#) complete with fittings brand-matched to the pipe manufacturer's requirements.

### 2.2 EXPOSED PIPES AND TRAPS

Chrome plate on copper pipes and associated copper and brass fittings.  
White polybutylene or PVC, including all associated fittings.

## 3 EXECUTION

### 3.1 EXECUTION GENERALLY - NZBC G13/AS1

Carry out this work to [NZBC G13/AS1](#) and [NZBC G1/AS1](#) and complete all tests to G13/AS1, 7.1 **Test Methods**.

### 3.2 ELECTROLYTIC ACTION

Avoid electrolytic action by eliminating actual contact or continuity of water between dissimilar metals.

### 3.3 INSTALL TRAPS, WASTE AND VENT PIPES - NZBC G13/AS1

Connect waste outlets to traps and run waste pipes and back vents concealed, sized and fixed to [NZBC G13/AS1](#) and [AS/NZS 2032](#). 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.

### 3.4 PENETRATIONS

At penetrations through constructions provide and fit collars and escutcheon plates to match pipework.

### 3.5 TEST

Confirm timing before carrying out any tests. Supply potable water and apparatus needed. Test to [NZBC G13/AS1](#) or [AS/NZS 3500.2](#), 15 as required. Carry out and record a visual inspection that each joint showed no evidence of leaks.

### 3.6 CLEAN UP

Remove labels and clean fittings. Remove unused materials from the site.

## 4 SELECTIONS

### 4.1 PVC-U WASTE, DISCHARGE AND VENT PIPES

Brand/type: Marley uPVC sizes as specified on drainage plan

# 7430 DRAINAGE

## 1 GENERAL

This section relates to the supply and laying of gravity foul water (sewage), stormwater and groundwater drainage.

### 1.1 DOCUMENTS REFERRED TO

Documents referred to in this section are:

<a href="#">NZBC B1/AS1</a>	Structure
<a href="#">NZBC E1/AS1</a>	Surface water
<a href="#">NZBC E1/VM1</a>	Surface water
<a href="#">NZBC G13/AS2</a>	Foul Water
<a href="#">NZBC G13/AS3</a>	Plumbing and Drainage
<a href="#">AS/NZS 1254</a>	PVC-U pipes and fittings for Stormwater and Surface Water applications
<a href="#">AS/NZS 1260</a>	PVC-U pipes and fittings for drain, waste and vent applications
<a href="#">AS/NZS 2032</a>	Installation of PVC pipe systems
<a href="#">AS/NZS 2033</a>	Installation of Polyethylene pipe systems
<a href="#">AS 2439.1</a>	Perforated Plastics Drainage and Effluent Pipes and Fittings - Perforated drainage pipe and associated fittings
<a href="#">AS/NZS 2566.1</a>	Buried Flexible Pipelines - Structural Design
<a href="#">AS/NZS 2566.2</a>	Buried Flexible Pipelines - Installation
<a href="#">NZS 3104</a>	Specification for concrete production
<a href="#">AS/NZS 3500.2</a>	Plumbing and drainage - Sanitary plumbing and drainage
<a href="#">NZS 3604</a>	Timber-framed buildings
<a href="#">NZS 4229</a>	Concrete masonry buildings not requiring specific engineering design
<a href="#">AS/NZS 4671</a>	Steel reinforcing materials
<a href="#">AS/NZS 5065</a>	Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications
<a href="#">Plumbers, Gasfitters and Drainlayers Act 2006</a>	

### 1.2 AS BUILT DOCUMENTS

Supply a 1:100 scale as-built drawing of drains and fittings to the territorial authority and to the owner on completion.

### 1.3 QUALIFICATIONS

Drainlayers to be experienced, competent and familiar with the materials and techniques specified. Carry out all work under the direct supervision of a certifying drainlayer under the [Plumbers, Gasfitters and Drainlayers Act 2006](#).

## 2 PRODUCTS

### 2.1 CONCRETE

17.5 MPa prescribed mix to [NZS 3104](#).

### 2.2 REINFORCEMENT

Plain round and/or deformed steel bars, Grade 300 to [AS/NZS 4671](#).

### 2.3 PVC-U PIPES

PVC-U pipes bends, junctions, fittings and joints to [AS/NZS 1254](#) and [AS/NZS 1260](#). Underground PVC-U pipe to be Classified as follows:

Classification:	Use:
SN4 - SN6	Domestic & light load areas
SN8 - SN10	Commercial & Industrial medium load areas
SN16	Public roads & high load areas

### 2.4 GULLY TRAPS - NZBC G13/AS2

To [NZBC G13/AS2](#): 3.3 Gully traps, complete with grating.

## 2.5 SURFACE WATER SUMP GRATINGS

Cast iron frame with lift-up grating.

## 2.6 INSPECTION COVERS

Cast iron frame with screw-down cover.

## 2.7 TRENCH BACKFILLING MATERIAL - NZBC G13/AS2 & NZBC E1/AS1

Bedding:	Clean granular non-cohesive material with a maximum particle size of 20 mm.
Bedding & surround:	Clean granular non-cohesive material with a maximum particle size of 20 mm.
Compacted selected fill:	Any Fine grain soil or granular material which is free from topsoil and rubbish and has a maximum particle size of 20 mm.
Ordinary fill:	Excavated material.
Concrete:	75 mm thick concrete pad.

# 3 EXECUTION

## 3.1 EXCAVATE

Excavate for drains to a firm even base with correct gradients set in straight runs. Trenches running parallel, below and close to foundations of buildings to [NZS 3604](#) or [NZS 4229](#) to be separated to:

- [NZBC E1/AS1](#), 3.9.7, **Proximity of Trench to Building**, for stormwater and subsoil drains.
- [NZBC G13/AS2](#), 5.6, **Proximity of Trench to Building**, for foul water drains.

## 3.2 MANUFACTURER'S REQUIREMENTS

All drainage installations to the pipe and fitting manufacturer's requirements.

## 3.3 DRAINAGE GENERALLY - NZBC G13/AS2 & NZBC E1/AS1

Carry out foul water drainage work to [NZBC G13/AS1](#) and [NZBC G1/AS1](#) and complete all tests to [NZBC G13/AS1](#), 7.1 Test Methods.

Carry out stormwater drainage work to [NZBC E1/AS1](#), and complete all tests to [NZBC E1/VM1](#), 8.0 Drain Leakage Tests.

Lay uPVC pipe systems to relevant sections of [AS/NZS 2032](#), [AS/NZS 2566.1](#) and [AS/NZS 2566.2](#). Lay polyethylene pipes and fittings to relevant sections of [AS/NZS 2033](#) and [AS/NZS 2566.1](#).

## 3.4 LAY FOUL WATER DRAINS

Lay drains in straight runs to correct gradients, to discharge into the network utility operator's sewer. Set inspection fittings on a concrete base.

## 3.5 CONSTRUCT GULLY TRAPS - NZBC G13/AS2

Set in a minimum 75mm thick concrete with top surround 25mm above paving and 100mm above other surfaces, to [NZBC G13/AS2](#), 3.3 Gully traps.

## 3.6 LAY STORMWATER DRAINS

Confirm the required location of downpipes and finished ground levels before commencing pipework. Set downpipe bends in concrete with the concrete brought up to protect the top of the bend from damage. Lay drains in straight runs to correct gradients to discharge into the network utility operator's stormwater system.

## 3.7 INSTALL SURFACE WATER SUMP

To [NZBC E1/AS1](#), complete with ceramic half-siphon pipe and cast iron frame with a lift out grating.

## 3.8 INSTALL FOUL WATER INSPECTION CHAMBERS - NZBC G13/AS2

Construct as detailed on a poured concrete footing to [NZBC G13/AS2](#), 5.7 **Access points**. Provide all necessary haunching to channels. Fit a cast iron cover and frame.

## 3.9 CONCRETE ENCASEMENT

Concrete encase shallow drains and drains under driveways, on a 100mm deep 17.5 MPa concrete bed reinforced with three 10mm mild steel bars. Surround pipes with a polythene membrane to allow movement and encase in 100mm 17.5 MPa concrete.

### 3.10 TESTING

Confirm timing before carrying out any tests. Supply potable water and apparatus needed. Test to [NZBC G13/AS1](#) or [AS/NZS 3500.2](#), 15 as required. Carry out and record a visual inspection that each joint showed no evidence of leaks. Carry out stormwater drainage work to [NZBC E1/AS1](#), and complete all tests to [NZBC E1/VM1](#), 8.0 Drain Leakage Tests.

### 3.11 PLACING & COMPACTING TRENCH BACKFILLING MATERIAL

Granular bedding and selected fill shall be placed in layers no greater than 100 mm loose thickness and compacted. Base bedding (beneath the pipe) shall be placed and compacted before pipes are laid.

Up to 300mm above the pipe, compaction shall be by tamping by hand using a rod with a pad foot (having an area of  $75 \pm 25$  mm by  $75 \pm 25$  mm) over the entire surface of each layer to produce a compact layer without obvious voids, without disturbing the drains.

More than 300 mm above the pipe, compaction shall be by at least four passes of a mechanical tamping foot compactor (whacker type) with a minimum weight of 75 kg.

## 4 SELECTIONS

### 4.1 PVC-U PIPES

Brand/type: Marley 100dia uPVC

# 7701 ELECTRICAL BASIC

## 1 GENERAL

This section relates to the wiring for domestic and small scale commercial installations, including:

- power
- lighting
- electrical automation
- security system
- complete with componentry
- electrically-powered fittings

### 1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

CFL	compact fluorescent lamp
ELV	extra low voltage
GLS	general lighting service
IP	international (ingress) protection classification
LCD	liquid crystal display
LED	light emitting diode
MCB	miniature circuit breaker
NUO	Network Utility Operator
PCB	printed circuit board
PIR	passive infrared
RCBO	residual current-operated circuit breaker with over current protection
RCCB	residual current-operated circuit breakers
RCD	residual current device
SIA	security integration architecture
TPS	tough plastic sheathed
TCF	Telecommunications Carriers' Forum

### Documents

## 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
NZBC F6/AS1	Visibility in escape routes
NZBC F7/AS1	Warning systems
NZBC G4/AS1	Ventilation
AS/NZS 1125	Conductors in insulated electric cables and flexible cord
AS/NZS 1768	Lightning protection
AS/NZS 2201.1	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
AS 2293.1:2005	Emergency escape lighting and exit signs for buildings - System design, installation and operation
AS 2293.3:2005	Emergency escape lighting and exit signs for buildings - Emergency escape luminaires and exit signs
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3008.1.2	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical New Zealand installation conditions
AS/NZS 3100	Approval and test specification-general requirements for electrical equipment
AS/NZS 3112	Approval and test specification - Plugs and socket-outlets
AS/NZS 3113	Approval and test specification - Ceiling roses
AS/NZS 3190	Approval and test specification - Residual current devices (current-operated earth-leakage devices)
AS/NZS 3439.3	Low-voltage switchgear and controlgear assemblies - Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards
AS 3786	Smoke alarms
NZS 4514	Interconnected smoke alarms for houses
AS/NZS 5000.2	Electric cables - Polymeric insulated - for working voltages up to and including 450/750v
AS/NZS 60335.1	Household and similar electrical appliances - Safety - General requirements
AS/NZS 60598.2.2:2001	Luminaires - Particular requirements - Recessed luminaires
AS/NZS 61439.3	Low-voltage switchgear and controlgear assemblies - Part 3: Distribution boards intended to be operated by ordinary persons (DBO).
IEC 61643	Components for low voltage surge protection devices
Electricity (Safety) Regulations 2010 (Reprint as at 4 April 2016)	
TCF Premises Wiring Code of Practice 2011	

### Warranties

## 1.3 WARRANTY

Warrant the complete electrical installation under normal environmental and use conditions against failure of materials and execution.

1 year: Warranty period

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

### Requirements

## 1.4 COMPLY

Comply with the Electricity (Safety) Regulations 2010, AS/NZS 3000, AS/NZS 3008.1.2 and TCF Premises Wiring Code of Practice for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection. Arrange for the required inspections of listed work. Pay all fees.

## 1.5 QUALIFICATIONS

Carry out work under the supervision of an electrical licensed supervisor.

## 1.6 QUALIFICATIONS - SECURITY SYSTEM

Installation by an installer licensed under the Private Investigators and Security Guards Act.

Installation of all security equipment to comply with [AS/NZS 2201.1](#) Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance.

## 1.7 ELECTRICAL CERTIFICATE OF COMPLIANCE

Supply a certificate of compliance (CoC) to the owner, and if required the NUO, as required by the Electricity (Safety) Regulations (2010), prior to connection.

- Arrange for the NUO to inspect before the meter installation, listed work inspection, polarity check and supply becoming live.
- Arrange for an inspector to inspect as required by regulation 70.

## 1.8 ELECTRICAL SAFETY CERTIFICATE

Provide an Electrical Safety Certificate (ESC), as required by the Electrical (Safety) Regulations 2010, to the owner and when required the BCA. To be provided no later than 20 working days after connection and prior to Practical Completion.

# 2 PRODUCTS

## 2.1 MAINS SUPPLY

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.

## 2.2 CABLES

Tough plastic sheathed copper conductors to [AS/NZS 5000.2](#), stranded above 1.0mm<sup>2</sup>, and to [AS/NZS 3008.1.2](#). Minimum sizes as below. Increase sizes if the method of installation, thermal insulation, cable length or load will reduce the cable rating below that of the MCB rating, or produce an excessive voltage drop.

Lighting circuits:	Domestic: 1.5mm <sup>2</sup> on 10 amp MCBs
Lighting circuits:	Commercial: 1.5mm <sup>2</sup> on 16 amp MCBs
Power circuits:	2.5mm <sup>2</sup> on 16 amp MCBs for domestic and unenclosed or unfilled cavity construction
	2.5mm <sup>2</sup> on 16 amp MCBs for domestic insulated construction, or filled cavity
	2.5mm <sup>2</sup> on 20 amp MCBs for unenclosed or unfilled cavity construction
	2.5mm <sup>2</sup> on 16 amp MCBs for insulated construction, or filled cavity, or lengths over 30 metres
Hot water cylinder circuits:	Single phase: 2.5mm <sup>2</sup> on 20 amp MCBs
Range/oven/hob circuits:	Single phase: 6mm <sup>2</sup> high temperature cable on 32 amp MCBs

Heat resistant cable for final connections to all heated appliances, and high temperature cable in ambient conditions that may be above 35°C (roof spaces above insulation etc).

## 2.3 METER BOX

Proprietary manufactured, zinc plated powder coated metal case, or ABS plastic, with glazed panel door, weatherproof where mounted outdoors, and complete with meter mounting, main switch and fuse.

## 2.4 DISTRIBUTION BOARD

Flush surface mount boards manufactured to [AS/NZS 3439.3](#), or AS/NZS 61439.3, and installed in accordance with [AS/NZS 3000](#). Manufactured from engineering grade resin with a glow wire rating of 850°C, complete with neutral and earth busbars, and insulated comb phase bar. Distribution boards to have 20% spare capacity for future additions and alterations.

## 2.5 CIRCUIT PROTECTION

General requirements including main switch 63A or 100A. Residual current protection 30mA, ensure RCCBs' meet Type A and comply with [AS/NZS 3190](#). MCBs to 4.5kA or 6kA rated.

## 2.6 WALL BOXES

Standard grid size or equivalent to be manufactured from plastic or metal, with 2 or more gang size to be metal with steel inserts for accessory securing screws. Screw fixed.

## 2.7 SWITCH UNITS

Single pole switches to be 16 amp minimum rated, double pole or intermediate to be 16 amp minimum rated. All switches to be 230 volt a.c. polycarbonate flushplate units. Refer to drawings/schedules for number of switches per unit, dimmer units, neon (indicator or toggle) units and 2 way units.

## 2.8 HOT WATER SYSTEM SWITCH

One way 20 amp switch complete with cable clamp for flexible PVC conduit to element enclosure.

## 2.9 SWITCHED SOCKET UNITS

10 amp, 230 volt flat 3 pin socket outlets fitted with safety shutters and manufactured to [AS/NZS 3100](#), [AS/NZS 3112](#) and [AS/NZS 3113](#), single or multi gang as detailed.

## 2.10 SMOKE ALARMS

Type 1 domestic smoke alarm to [NZBC F7/AS1](#). 1.2 **Descriptions of alarm systems.** Alarm to AS 3786. A wired 230 volt ionised smoke detector type.

## 2.11 SURGE PROTECTION

Protection for the homes appliances with IEC 61643 Class II surge protection devices fitted to the switchboard. For variable electronic equipment fit IEC 61643 Class III surge protection to switched socket outlets.

## 2.12 DOOR BELL SYSTEM

Complete with transformer for mounting on distribution board.

## 2.13 LIGHT FITTINGS

Fluorescent and High Intensity Discharge fittings with low loss control gear and power factor corrected to 0.95 minimum. Control gear suitable for dimming if this is required. All fittings complete with lamps; Incandescent GLS lamps pearl, coiled-coil 230v rated, bayonet cap; Fluorescent triphosphor 2700K; CFL; halogen ELV 12v dichroic reflector with cover glass unless detailed otherwise; integral/non-integral LEDs, reflectors, lenses, heatsinks and drivers - 3,000K to 4,000K, CRI >80, L70.

## 2.14 RESIDENTIAL RECESSED LIGHT FITTINGS

Residential recessed luminaires to [AS/NZS 60598.2.2](#), types IC-F, IC, CA-80 or CA-135 only.

## 2.15 EXHAUST FANS

Ceiling, wall or duct mounted exhaust fans for ventilation to [NZBC G4/AS1](#), and compliant with [AS/NZS 60335.1](#).

## 2.16 HEATED TOWEL RAILS

Fixed wired heated towel warmers, double insulated, IPX4 splash-proof, compliant with [AS/NZS 60335.1](#), scratch resistant powdercoated or chrome finish.

## 2.17 OUTDOOR SWITCHES & SOCKETS

Using materials with superior UV protection, impact strength, and addition chemical resistance when compared with interior polycarbonate fittings. Weather protected, switches to IP56 minimum, and sockets to IP53 minimum. Sockets fitted with safety shutters behind socket pins, and all products able to be padlocked off or on.

### **Security system**

## 2.18 CONTROL PANEL

Control panel system with a minimum of one installer code, one master code, 6 zones minimum and 6 user codes. The installer to select codes to suit installation.

## 2.19 DETECTORS

There are two main types of detectors:

- Standard passive infrared sensors: Install in stable environments with no wind flow and no direct bright sunlight.
- Passive infrared/ microwave sensors: Install in area where environmental stability is an issue.

## 2.20 AUDIBLE DEVICES

Internal sirens can be either a 12V Piezo Siren or a Horn speaker with a sound pressure level of no less than 95dB.

External siren can be either a stainless steel design or have hardened plastic casing. Both designs to be fully weatherproof but not limited to IP66 Rating. The siren box to contain a strobe diffuser in either blue or red. The siren shall contain a horn speaker, 12v speaker or an electronic siren. The external siren box to have both a cover and rear wall tamper mechanism.

## 2.21 CABLING

Security alarm wiring to NZS/AS 1125 for cables.

Security alarm wiring to be multi stranded and not single stranded, minimum 0.5mm<sup>2</sup>.

## 2.22 PERIPHERALS

Fit anti-tamper devices to detectors, control panels and equipment housings, programmed to give a tamper indication when the system is unset and a tamper alarm when the system is set.

Standard keypad manufactured of moulded hardened plastic with either a LED or LCD screen, to match the style of the wiring accessories in diameter, colour and aesthetics.

## 2.23 COMMUNICATIONS

Digital dialler to be built into the PCB of all control panels, with the options for both monitoring and remote dial in windows based software. Digital dialler to comply with all the industry standard communication formats including contact I.D and SIA, and NZ Telepermit certification.

Remote software able to upload / download programming changes and or history events and change status of the security alarm with the ability to be turned off if required.

# 3 EXECUTION

## 3.1 MAIN SUPPLY

Lay underground mains to the NUO requirements. Excavate trench, install cable and marker tape and backfill.

## 3.2 METER BOX

Fit to meter box manufacturer's and Electricity Retailer's requirements. Recess into external wall in sheltered area and flash to weatherproof to [NZBC E2/AS1 fig 69](#). Arrange for meter installation and connection.

## 3.3 DISTRIBUTION BOARD

Fit to [AS/NZS 3000](#) and board manufacturer's requirements. Recess into wall or surface mount and ensure fire containment properties of the enclosure are maintained.

## 3.4 CIRCUIT PROTECTION

Install MCBs at distribution board to AS/NZS3000 to protect each final sub circuit.

## 3.5 EARTH BONDS

Bond together and to earth all plumbing fittings not adequately isolated, to [AS/NZS 3000](#), the Electricity (Safety) Regulations 2010 and the fitting manufacturer's requirements.

## 3.6 MAIN EARTH

Provide a plastic toby box to contain and protect the earth electrode. Fix the connecting earth wiring closely and securely against wall surfaces.

## 3.7 EARTH LEAKAGE PROTECTION

Install RCD protection to [AS/NZS 3000](#).

## 3.8 RCD - DOMESTIC INSTALLATIONS

Install 30mA RCD protection at the switchboard for all final sub circuits to control outlets and lighting except for fixed or stationary cooking equipment, to [AS/NZS 3000](#).

## 3.9 RCD - SPECIFIC INSTALLATIONS

Install 30mA RCDs at the distribution board.

Install fixed wired RCD protected outlets (SRCD) in the following areas:

- Wet areas: bathrooms, laundries, kitchens.
- Near pools and water features.
- Where intended for use with cleaning equipment.
- Hand-held tools subject to movement in use, i.e. work-shops, garages.

### 3.10 SET-OUT

The position of outlets and equipment shown on drawings is indicative of requirements. Confirm documents and site conditions are not in conflict with other services or features. Resolve conflicts and discrepancies before proceeding with work affected. Confirm on site the exact location, disposition and mounting heights of all outlets, fittings, equipment, penetrations, and use of exposed wiring. Fix outlet items level, plumb and in line.

### 3.11 CABLING

Install wiring systems to [AS/NZS 3000](#). 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. In walls run cabling horizontally and vertically in straight lines. In ceilings either run cabling along ceiling framing or attached to catenary wires. Clip cabling to ceiling framing/catenary wires.

### 3.12 CABLING CIRCUITS

Install all circuits with the appropriately rated cable and circuit protection. Install with a maximum of 8 light switch units or 4 double or single switched socket units on any circuit. Minimum 2 lighting circuits per floor. Separate circuits for all electric heating appliances. Kitchen sockets to be on at least two different circuits.

### 3.13 WALL BOXES

Mount flush in cavity construction size to fit products selected. Fix vertically mounted wall boxes to studs. Screw fix horizontally mounted switched socket outlet wall boxes to solid blocking or noggs. Fix switch panel wall boxes to solid blocking.

### 3.14 SWITCH AND SOCKET UNITS

Fit all single and double switch units, all sockets to the following heights (to the centre of the unit) unless shown otherwise on the drawings.

Switch Units:	1000mm above finished floor
Socket Units:	150mm above work benches
	400mm above finished floor

Mount light switches and switch socket outlets vertically and socket units horizontally. Label all switch units that control electrical equipment or special lighting circuits by colour filled engraving on the switch. Use proprietary engraved switch mechanisms where applicable.

### 3.15 ISOLATING SWITCHES

Locate isolating switches in positions as confirmed by the owner, when not specifically shown on the drawings.

### 3.16 LIGHT FITTINGS

Install light fittings in locations and at heights specified and confirmed by the owner, in accordance with the fitting manufacturer's requirements.

### 3.17 EXTRA LOW VOLTAGE LIGHTING

Use electronic, transformers (halogen) or drivers (LED) for ELV lamps, one transformer/driver per lamp. Locate to manufacturer's requirements and as close as practicable to the lamp. Ensure transformers/drivers and rear of light fittings are adequately ventilated and appropriately clear of any building elements, to [AS/NZS 3000](#).

### 3.18 RECESSED LIGHT FITTINGS - CLEARANCE TO INSULATION

Non-residential applications;

The clearance between insulation and recessed downlights;

- Leave 100mm gap to [AS/NZS 3000](#), figure 4.9
- Provide larger gaps where required by the downlight manufacturer

Residential applications;

- Ensure new recessed downlights are one of the new classes classified in [AS/NZS 60598.2.2](#); CA 80, CA 135, IC and IC - F.
- Classification type CA 80, CA 135, to [AS/NZS 60598.2.2](#); insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to [AS/NZS 60598.2.2](#); insulation can abut and cover over the top of the downlight
- Provide larger gaps where required by the light manufacturer
- In a retrofit situation where the insulation is non-approved or unknown, ensure 100mm clearance from the insulation to [AS/NZS 3000](#), figure 4.9.

### 3.19 ELECTRIC HOT WATER SYSTEM

For storage heaters, wire as a separate circuit through a wall-mounted isolating switch, with the cable from switch to element encased in flexible PVC conduit, clamp fixed at each end. Hot water cylinders, thermostats and 3000 watt element supplied and fitted under the hot and cold water system section.

### 3.20 SMOKE ALARMS

Install Type 1 domestic smoke alarm system to [NZBC F7/AS1 3.0 Domestic smoke alarms, NZS 4514](#) and to the alarm manufacturer's requirements. Fit neatly and without damage to the surrounding finish.

### 3.21 SURGE PROTECTION

Install surge protection devices to manufacturer's requirements and in accordance with [AS/NZS 3000](#) and AS/NZS 1768. When fitting IEC 61643 Class II protection at the switchboard, protect the device by a dedicated MCB.

### 3.22 ELECTRIC POWERED FITTINGS AND EQUIPMENT

Install and wire fittings and equipment to individual fittings and equipment manufacturer's requirements. Refer to the drawings for required layouts and locations for equipment. Refer to SELECTIONS for schedules of fittings.

### 3.23 BATHROOM ELECTRICAL FIXTURES

Install all electrical fixtures. Connect the following bathroom and toilet electrical items:

- Heated towel rails: Install to manufacturers requirements and installed in accordance with [AS/NZS 3000](#)
- Mirror demisters: Locate centrally above the wash hand basin(s). Connect wiring to room lighting unless specified otherwise.
- Exhaust fans: Install exhaust fans to manufacturer requirements. Installed in accordance with [AS/NZS 3000](#) and [NZBC G4/AS1](#).

### 3.24 OUTDOOR/EXTERIOR SERVICES

Install all wiring systems in accordance with [AS/NZS 3000](#) and in accordance with the manufacturer's recommendations:

Provide circuits and connections for exterior installations, including ELV 12/24 Volt path lighting and electronic irrigation systems. Refer to drawings for connection points. Where underground, ensure appropriate protection, such as thickness of sheathing, conduit, depth of cabling, and proximity to other services.

Use the appropriate rated fittings for power control and power supply. Weather protected switches to IP56, and sockets to IP53 as a minimum. Install to manufacturer's specifications using recommended fittings and sealants to maintain the products integrity.

Earth leakage protection to be provided for in areas where there is increased risk to human safety in the form of either RCDs at the distribution board, or socket outlet. RCDs are recommended for visible awareness of protection.

### 3.25 LABELLING

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.

#### **Security system**

### 3.26 SECURITY SYSTEM

Install to the system manufacturer's requirements, control panel, detectors and associated equipment fitted neatly and without damage to surrounding finishes. Installation of security equipment to [AS/NZS 2201.1](#) Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance. All 230v mains power connections to the security panel are to be in accordance with [AS/NZS 3000](#). The 230V power is to be switched using a dedicated single gang Isolator switch or similar.

#### **Completion**

### 3.27 COMPLETION

Leave installation operating correctly, with equipment clean and operational.

## 4 SELECTIONS

## Materials

- 4.1 SELECTIONS - FITTINGS AND HARDWARE  
Confirm selections of all outlet fittings and hardware with the owner in writing before ordering.
- 4.2 METER BOX  
Location: Garage exterior as shown on floor plan  
Brand / type: Zinc plated powder coated metal box
- 4.3 DISTRIBUTION BOARD  
Location: Garage interior as shown on floor plan.  
Brand / type: DBS surface mounted
- 4.4 SECURITY SYSTEM  
**Location** TBC by owner  
**Detector** Standard passive infrared sensor.
- 4.5 SMOKE ALARMS  
Location: As shown on Floor Plan.  
Brand / type: Type 1 domestic smoke alarm with test & hush buttons.

# SECTION 6

## Technical Information

(Manufacturer's Information)

- ~~— Septic Tank & Effluent Design incl. fencing~~
- ~~— ECan Approval Documents~~
- ~~- Gas Fire~~
- ~~— Heating Unit~~
- ~~- Solar Panels~~
- ~~— Central Heating Systems~~
- A4 Details/Acceptable Solution Extract
- ~~— Well/Water Test~~



Fibre Cement

BGCINNOVADESIGN.CO.NZ



# DURAGROOVE™ DURASCAPE™ FACADE SYSTEM

WAIMAKARIRI DISTRICT COUNCIL  
Plans and specifications APPROVED in accordance  
with the Building Act 2004, clause 49 and the Building  
Regulations 1992, Clause 3  
200253 1/04/2020 Chrisk



## INTRODUCING INNOVA™

INNOVA™ IS A RANGE OF INTERIOR LINING, EXTERIOR FACADE AND FLOORING PRODUCTS WHICH GIVE A NEW DIMENSION TO THE BGC PRODUCT RANGE. THE PRODUCTS WITHIN THE INNOVA™ RANGE HAVE BEEN DESIGNED TO INSPIRE YOU TO CREATE INNOVATIVE AND DYNAMIC DESIGNS WITHIN YOUR BUILDING OR RENOVATION PROJECT.



DURAGROOVE™ AND DURASCAPE™ PROVIDE A MODERN LOOK FOR EXTERIOR OR INTERIOR INSTALLATION. AVAILABLE IN DIFFERENT PROFILES, EITHER SMOOTH OR DIFFERENT WIDTH GROOVES WHICH PROVIDES THE FLEXIBILITY TO USE THE PRODUCT THAT BEST FITS YOUR PROJECT.

DURAGROOVE™ AND DURASCAPE™ HAS A SHIPLAP JOIN WHICH MAKES IT A SIMPLE AND QUICK PRODUCT TO INSTALL, AND CAN BE USED IN SINGLE STOREY AND MEDIUM HEIGHT INSTALLATIONS.

## DURAGROOVE™ AND DURASCAPE™ FACADE SYSTEM

- / DURAGROOVE™ VERTICALLY GROOVED FOR A CONTEMPORARY ALTERNATIVE TO THE TRADITIONAL WEATHERBOARD LOOK
- / IS LIGHTWEIGHT AND DURABLE
- / PANELS ARE ACRYLIC SEALED WHICH AIDS PAINT APPLICATION
- / QUICK TO INSTALL BECAUSE IT ELIMINATES THE NEED FOR TAPED AND FILLED JOINTS
- / PANELS ARE NOT AFFECTED BY INSECTS, AIR, STEAM, SALT OR SUNLIGHT
- / BRANZ APPRIASED
- / AVAILABLE IN 4 PROFILES:
  - DURAGROOVE™ SMOOTH – EXTRA WIDE (400MM)
  - DURAGROOVE™ SMOOTH – WIDE (150MM)
  - DURAGROOVE™ SMOOTH – NARROW (100MM)
  - DURAGROOVE™ WOODGRAIN – WIDE (150MM)
- / DURASCAPE™ SMOOTH IS IDEAL FOR A VARIETY OF PAINT FINISHES, PROVIDING INDIVIDUAL DESIGN CHOICE.



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## APPLICATIONS

Duragroove™ and Durascape™ is a strong and durable cladding which has distinctive vertical grooves and is suitable for finishing with a textured paint, creating a rendered look.

Duragroove™ and Durascape™ is suitable for low to medium rise buildings and can be used on both timber and steel framed buildings. It is also ideal for renovations and alterations to existing dwellings. In smaller areas it provides a distinctive looking feature wall and can be used either in interior or exterior applications.

## ADVANTAGES

- / A choice of groove widths and finishes available
- / Has a shiplap join to ease installation
- / Is lightweight and durable
- / Quick to install because it eliminates the need for taped and filled joints
- / Panels are not affected by insects, air, steam, salt or sunlight

## ENERGY EFFICIENCY CONSIDERATIONS

Energy Efficiency requirements for both residential and commercial buildings are a requirement under clause H1 of the New Zealand Building Code (NZBC). Thermal heat transfer into and out of the building envelope will affect the running cost of the building and careful consideration of thermal heat transfer needs to be addressed by the architects, engineers and building designers. Thermal bridging through steel framing will diminish the total R-Value (thermal resistance), of the wall. Thermal breaks are required for steel framed buildings and should be installed between the steel framing and the Duragroove™ panels. Thermal breaks should have a minimum R-Value of 0.2. Guidance on insulation requirements can be found in the latest edition of BRANZ publication – ‘House Insulation Guide’.

## PRODUCT INFORMATION

Duragroove™ and Durascape™ panels are manufactured from Portland cement, finely ground silica, cellulose fibres and water. Panels are cured in a high-pressure steam autoclave to create a durable, dimensionally stable product.

Duragroove™ and Durascape™ panels are manufactured to the Australian / New Zealand Standard AS/NZS 2908.2-2000 Cellulose-Cement Products, Part 2: Flat sheets and Duragroove™ and Durascape™ is classified as Type A-Category 2.

## CONTROL OF EXTERNAL FIRE SPREAD

Duragroove™ and Durascape™ facade system have a peak heat release rate of less than 100kW/m<sup>2</sup> and a total heat released of less than 25MJ/m<sup>2</sup>. In accordance with NZBC Acceptable Solution C/AS1 Table 5.1 the system is suitable for use on buildings with a SH Risk Group classification, at any distance to the relevant boundary. Refer to NZBC Acceptable Solutions C/AS2 – C/AS6 Paragraph 5.8.1 for the specific exterior surface finishes requirements for other building Risk Groups

## PREVENTION OF FIRE OCCURRING

Separation or protection must be provided to Duragroove™ and Durascape™ facade system from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of the NZBA Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible material from heat sources.

## FIRE RATING

30 Minute FRR is achieved when Duragroove™ and Durascape™ is installed as per the below for either direct fixed or cavity construction. Fixed as per details contained within this brochure.

**Timber Framing:** Minimum 90mm x 45mm framing in accordance with NZS3604. Studs at maximum 600mm centres. Noggins at maximum 800mm centres. Double or staggered studs may be used.

**Interior lining:** 10mm or 13mm GIB® Fyrelite fixed as per Winstone Wallboards Ltd specification GBTL 30 system from GIB® Fire Rated Systems October 2012.

**Insulation:** Any R2.2 nominal 95mm thickness fibre glass insulation.

## DURABILITY

Duragroove™ and Durascape™ physical properties make it a very durable product.

- / Duragroove™ and Durascape™ panels are immune to permanent water damage in both short and long-term exposure.
- / Duragroove™ and Durascape™ panels will not rot or burn and are unaffected by insects, air, steam, salt and sunlight.
- / Duragroove™ and Durascape™ panels are not adversely affected over a temperature range of 0°C to 95°C.

## ARCHITECTURAL DETAILS

Full architectural details are available from BGC Fibre Cement, [www.bgcinnovadesign.co.nz](http://www.bgcinnovadesign.co.nz) or on Productspec and full specification is available on Smartspec.

## DESIGN CONSIDERATIONS

The designer should determine the wind pressures for the project and design accordingly. Duragroove™ and Durascape™ can be situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5kps.

The timber structure should be designed to NZS3604. Alternatively the building can be to a specific design using NZS3603 and AS/NZS1170, and the framing must be of at least equivalent stiffness to the framing provisions of NZS3604.

In areas where there is a probability of high wind loading, care should be taken in the design detailing, especially around all opening, corners and other junctions to ensure the weather resistance of the total system.

Before Duragroove™ and Durascape™ is installed, particular care should be taken to ensure that all flashings and water-proofing work is complete, including all wall underlay or BGC Durabarrier. If Duragroove™ and Durascape™ is installed onto an unlined wall ie gable end or garage walls then a rigid sheathing/air barrier must be installed – ie BGC Durabarrier.

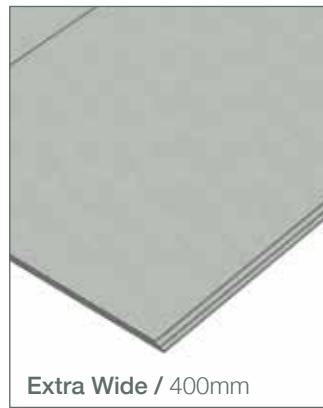
For Construction within the scope of E2/AS1, it is a requirement to have a horizontal flashing joint at the floor joist level between storeys and for construction greater than two storeys or 7 metres, an inter-storey flashing bridging the drained cavity must be installed.



Narrow / 100mm



Wide / 150mm



Extra Wide / 400mm



Woodgrain / 150mm



Durascape™

## PANEL SIZES AND MASS - TABLE 1

THICKNESS mm	FINISH	MASS KG/M <sup>2</sup>	WIDTH mm	LENGTH mm		
				2450	2750	3000
9	Smooth Narrow	12.5	1200	X	X	X
	Smooth Wide		1200	X	X	X
	Smooth Extra Wide		1200	X	X	X
	Woodgrain		1200	X	X	X
	Durascape™ Smooth		1200	X		X

## WEATHER RESISTANCE / FREEZE THAW

The Duragroove™ and Durascape™ facade system has been successfully tested for weather resistance as per NZBC Verification Method E2/VM1.

Duragroove™ and Durascape™ should not be used in situations where it will be in direct contact with snow and ice for prolonged periods.

## STRUCTURAL BRACING

Duragroove™ and Durascape™ is not recommended for structural bracing.

Bracing can be achieved with the addition of Durabarrier as a rigid sheathing/air barrier or using Duraliner™ or Plasterboard as interior linings.

### Duragroove™ Smooth Narrow

100mm between grooves. 4.5mm width of groove

### Duragroove™ Smooth Wide

150mm between grooves. 4.5mm width of groove

### Duragroove™ Smooth Extra Wide

400mm between grooves. 4.5mm width of groove

### Duragroove™ Woodgrain

150mm between grooves. 4.5mm width of groove

## SHEET TOLERANCES

- / Width +0/-1mm
- / Length +0/-2mm
- / Thickness +10%/-0%
- / Diagonals difference (max) 2mm
- / Edge straightness deviation (max) 1mm

## HANDLING AND STORAGE

Duragroove™ and Durascape™ must be stacked flat, up off the ground and supported on equally spaced (max 400mm) level gluts. Care should be taken to avoid damage to the ends, edges and surfaces.




Sheets must be kept dry. When stored outdoors it must be protected from the weather. Sheets must be dry prior to fixing, jointing or finishing.

**EXTRA CARE MUST BE TAKEN AT THE SHEET EDGES TO PREVENT CRACKING OF THE SHIPLAP JOIN.**

## ACCESSORIES AVAILABLE FROM BGC

ALUMINIUM INTERNAL CORNER	3000mm	
ALUMINIUM EXTERNAL CORNER	9mm, 2450mm, 2750mm or 3000mm 12mm, 3000mm,	
ALUMINIUM HORIZONTAL FLASHING	3000mm	
CAVITY VENT STRIP	19mm x 2700mm	
BGC EDGE SEALER		
CAVITY TIMBER BATTEN H3.2	70 x 20mm	

## ACCESSORIES SUPPLIED BY BUILDING MERCHANT

CAVITY TIMBER BATTEN H3.1	45 x 20mm	
SEALANT / ADHESIVE	Bostik Seal 'n' Flex FC	
SEALANT	Bostik Safetech Safe Seal or any BRANZ Appraised paintable sealant	

## FASTENERS

### BATTEN TO FRAMING

65 x 2.87mm RounDrive Ring Shank Nail



60 x 2.8mm Jolt Head Galvanised Nail



### DIRECT FIXED DURAGROOVE™ AND DURASCAPE™

40 x 2.8mm Fibre Cement Nail – Galvanised or Stainless Steel



ND 50 Stainless Steel Brad Nails



### CAVITY FIXED DURAGROOVE™ AND DURASCAPE™

C25 304 Stainless Steel Brads



30 x 2.8mm Fibre Cement Nail Galvanised or Stainless Steel



25mm x 10g class 4 or Stainless Steel Countersunk Wood Screws



Refer to BGC Technical Specification – Steel Framing - for fixings when using Steel Framing.

Fixings must comply with the minimum durability requirements of NZBC.

## CONSTRUCTION DETAILS

### FRAMING

Duragroove™ and Durascape™ panels can be installed vertically to both timber and lightweight steel frames.

Ensure that the frame is square and work from a central datum line. The frame must be straight and true to provide a flush face to receive the panels.

BGC recommend a maximum tolerance of 3mm-4mm in any 3000mm length of frame.

Duragroove™ and Durascape™ will not straighten excessively warped or distorted frames and any warping may still be visible after Duragroove™ and Durascape™ is applied. Warped framing will require remedial action.

### TIMBER FRAMES

Timber wall framing behind Duragroove™ and Durascape™ must be treated and have moisture contents as required by NZBC Acceptable Solution B2/AS1.

Timber framing must comply with all current NZ Standards and any specific engineering design specifications.

Duragroove™ and Durascape™ requires a minimum framing width of 45mm. Studs spacing must not be greater than 600mm centres, Nog/dwang spacing must not be greater than 800mm centres.

Timber framing must have a maximum moisture content of 20% at the time of installation of Durabarrier or wall underlay.

## CONSTRUCTION DETAILS

### CAVITY CONSTRUCTION

Duragroove™ and Durascape™ can be used as a wall cladding system in all NZS3604:2011 wind zones and situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5kPa.

### CAVITY BATTEN

Cavity battens must be either 70 x 20mm or 45 x 20mm and must be fixed to the studs.

The primary batten behind the vertical joint can be either 45 x 20mm or 70 x 20mm cavity battens - the 70 x 20mm batten provides a wider platform to fix to.

Cavity battens must be structurally fixed with 65 x 2.87mm RounDrive Ring Shank Nails or 60 x 2.8mm Jolt Head Galvanised Nails. They must be fixed at maximum 300mm centres.

Where studs are greater than 450mm centres and a wall underlay is used, a wall underlay support must be installed over the underlay at maximum 300mm centres horizontally. The vertical sheet joints must coincide with the centre line of the cavity battens. Stud centres may have to be designed to coincide with the sheet joints.

### FIXING DURAGROOVE™ AND DURASCAPE™ TO CAVITY BATTENS

Fixings	Fixing Centres	From Sheet Edge
C25 304 Stainless Steel Brad	150mm	18mm
30 x 2.8mm Fibre Cement Nail	200mm	18mm
25mm x 10g Countersunk Wood Screw	200mm	18mm

All fixing types must be used in conjunction with Bostik Seal 'n' Flex FC.

Duragroove™ and Durascape™ must be fixed to the cavity batten with a continuous 6mm bead of Bostik Seal 'n' Flex FC to all contact surfaces. The intermediate batten must have 2x6mm beads of Seal 'n' Flex FC. A 4mm bead must be applied to the ship lap joint prior to the installation of the next sheet.

**Note:** Bostik Seal 'n' Flex FC must only be applied just prior to the installation of the Duragroove™ and Durascape™ sheets as it is a fast cure adhesive.

Duragroove™ and Durascape™ sheets and cavity battens must be dry and free from dust prior to the application of Bostik Seal 'n' Flex FC. The adhesive must not be applied in temperatures below 5°.

### DIRECT FIXED CONSTRUCTION

Duragroove™ and Durascape™ can be used as a direct fixed wall cladding system in NZS3604:2011 wind zones up to and including Very High and with a risk score of 0-6.

Where studs are greater than 450mm centres and a wall underlay is used, a wall underlay support must be installed over the underlay at maximum 300mm centres horizontally. The vertical sheet joints must coincide with the centre line of the cavity battens. Stud centres may have to be designed to coincide with the sheet joints.

### DIRECT FIXING DURAGROOVE™ AND DURASCAPE™

Duragroove™ and Durascape™ can be fixed with the following fixings in the specified wind zones:

Fixings	Fixing Centres	Wind Zone
40 x 2.8 Fibre Cement Nail	200mm	Up to Very High Wind Zone
ND50 Stainless Steel Brad Nail	150mm 100mm 75mm	Low Wind Zone Medium Wind Zone High Wind Zone

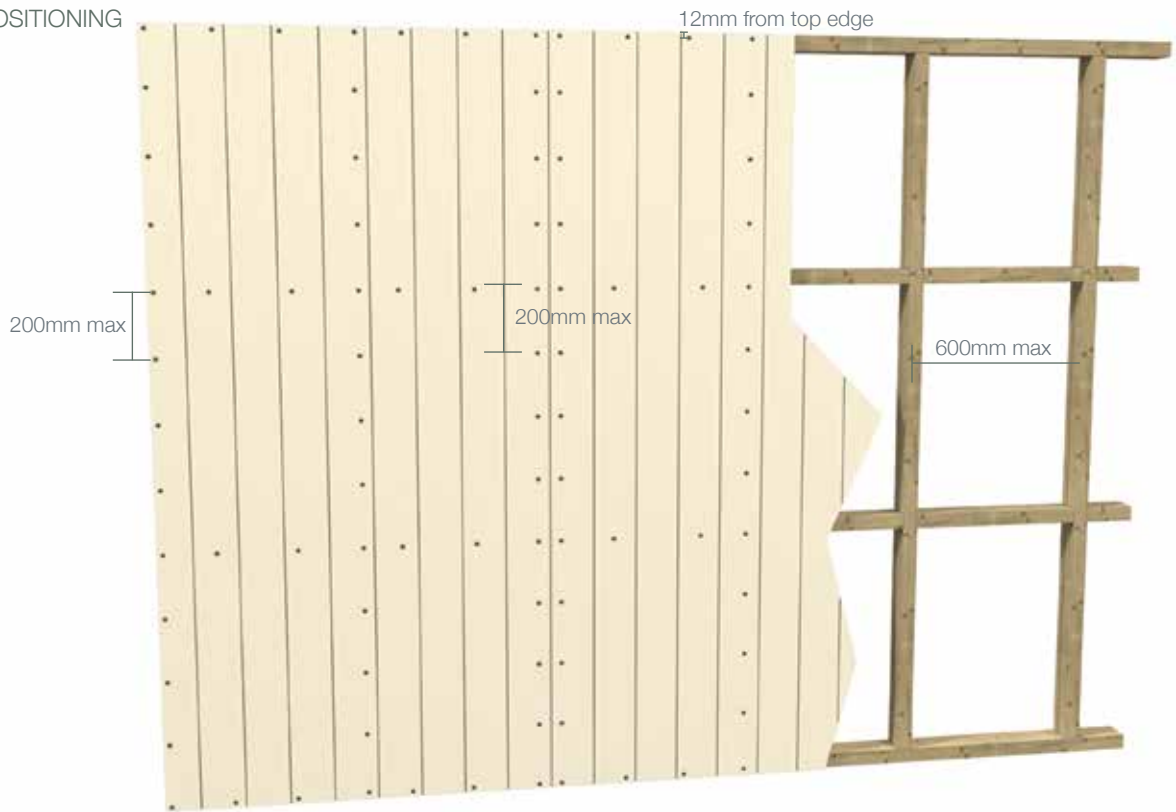
All fixings 18mm from sheet edge. Fixing at specified centres to all framing.

Position the underlap sheet on every stud 3mm past the centre of the stud to ensure the fasteners fixed to the edge of the sheet have adequate distance into the stud.

Apply a continuous 4mm bead of Bostik Seal 'n' Flex FC to the edge of the shiplap joint and install the next sheet.

## DIRECT FIXED INSTALLATION DETAILS

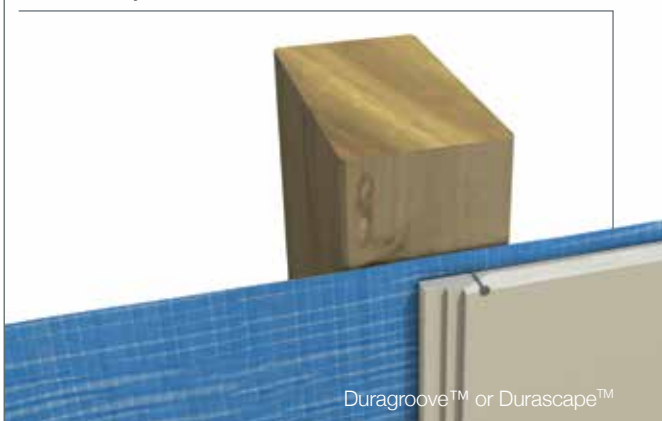
FIGURE 1  
FASTENER POSITIONING



Refer to page 9 for fixings and fixing centres for the Wind Zone.

FIGURE 2  
SHEET EDGE POSITION

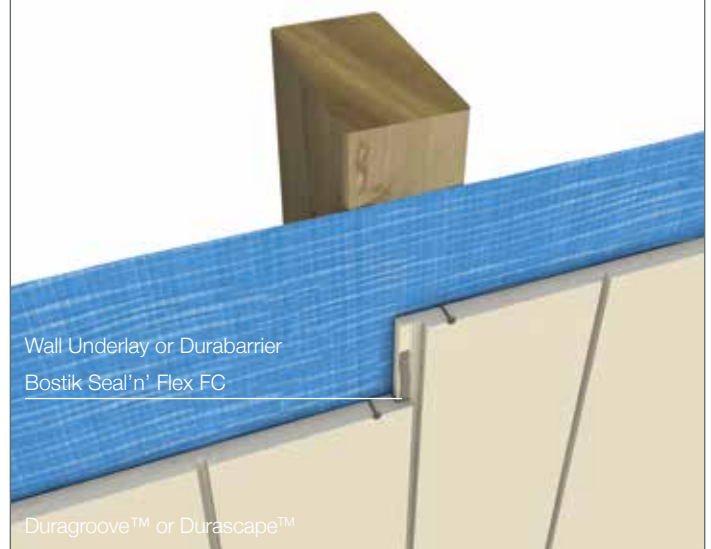
Wall Underlay or Durabarrier



Position the underlap sheet on every stud 3mm past the centre of the stud to ensure the fasteners fixed at the edge of the sheet have adequate distance into the stud.

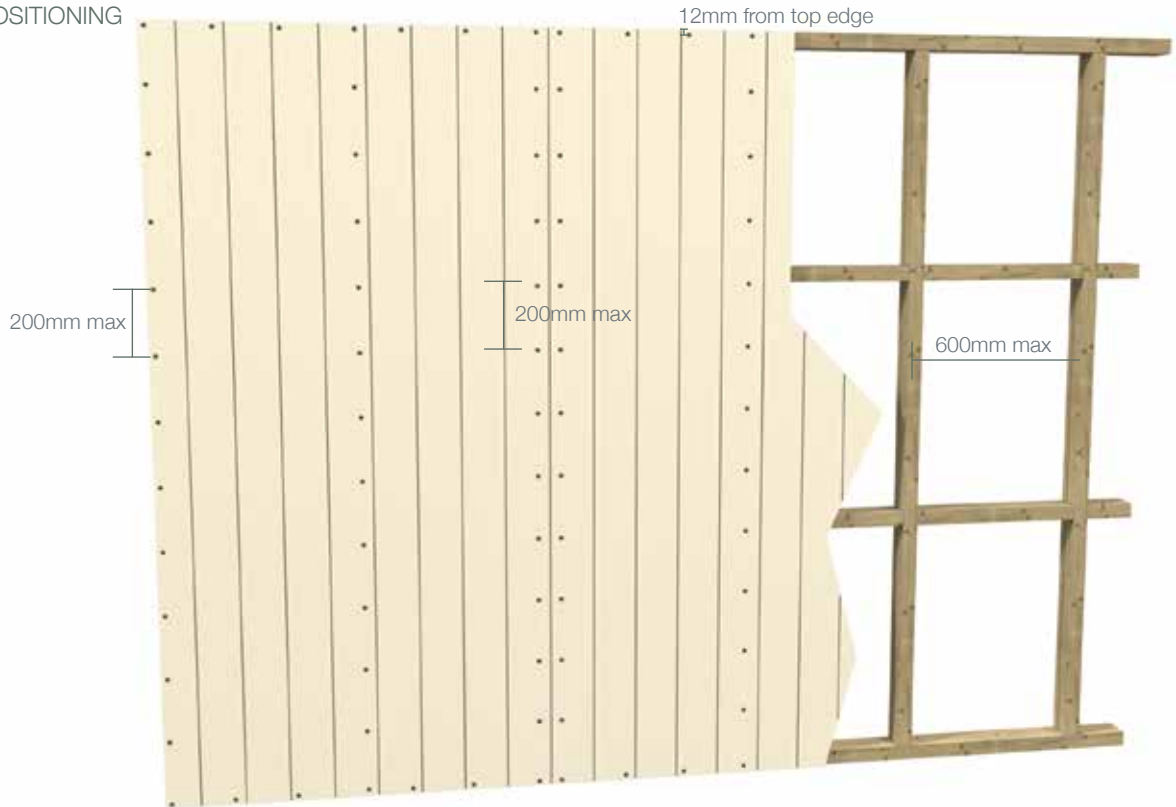
Details are for both Duragroove™ and Durascape™

FIGURE 3  
FIBRE CEMENT NAIL/BRAD FIXING – DIRECT FIX



## CAVITY INSTALLATION DETAILS

FIGURE 4  
FASTENER POSITIONING



Duragroove™ and Durascape™ panels should be installed vertically with all sheet edges fully supported. The centre joints must coincide with the centre lines of the framing member and all sheets should be installed in one direction.

As detailed on p8, there are several different fasteners that can be used to fix Duragroove™ panels.

FIGURE 5  
FIBRE CEMENT NAIL/BRAD/SCREW FIXING – CAVITY FIX

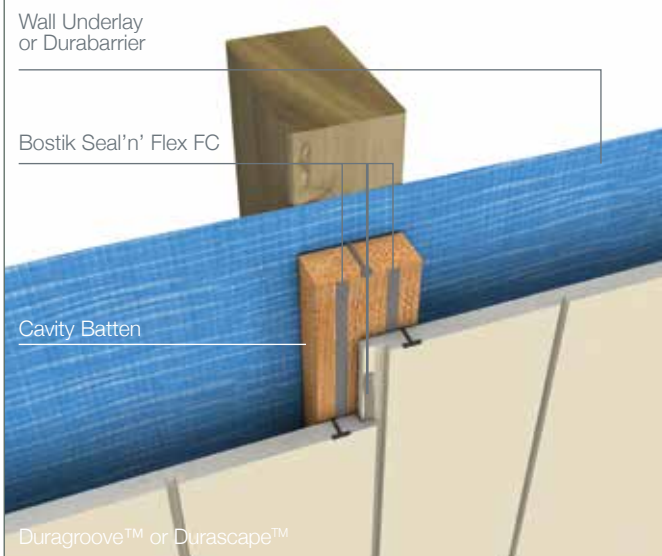
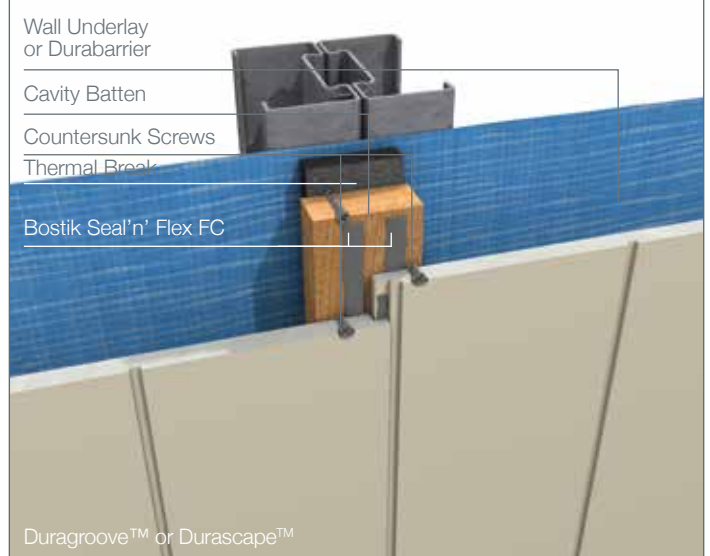


FIGURE 6  
COUNTERSUNK SCREW – LIGHTWEIGHT STEEL FRAME



Details are for both Duragroove™ and Durascape™

## INSTALLATION DETAILS

To fix the first sheet, set in place ensuring the required edge distances are maintained.

FIGURE 7  
FIX FIRST SHEET

Wall Underlay or Durabarrier

Bostik Seal'n' Flex FC

Cavity Batten



Apply a continuous 4mm bead of sealant to the edge of the shiplap joint.

FIGURE 9  
APPLY SEALANT

Wall Underlay or Durabarrier

Bostik Seal'n' Flex FC

Cavity Batten



FIGURE 8  
FIX NEXT SHEET

Wall Underlay or Durabarrier

Bostik Seal'n' Flex FC

Cavity Batten



Once both sheets are fixed, check the joint for gaps and fill with additional sealant if required.

Details are for both Duragroove™ and Durascape™

## INSTALLATION DETAILS

The architectural intent and details of buildings vary from one designer to the next and the variety of facade details would be impossible to catalogue.

The designer should not digress from the specification set out in this manual.

The detail diagrams following are intended to assist the designer in achieving a high quality weather resistant Duragroove™ and Durascape™ installation.

FIGURE 10  
SLAB EDGE DETAIL

Cavity Batten

Bostik Seal'n' Flex FC

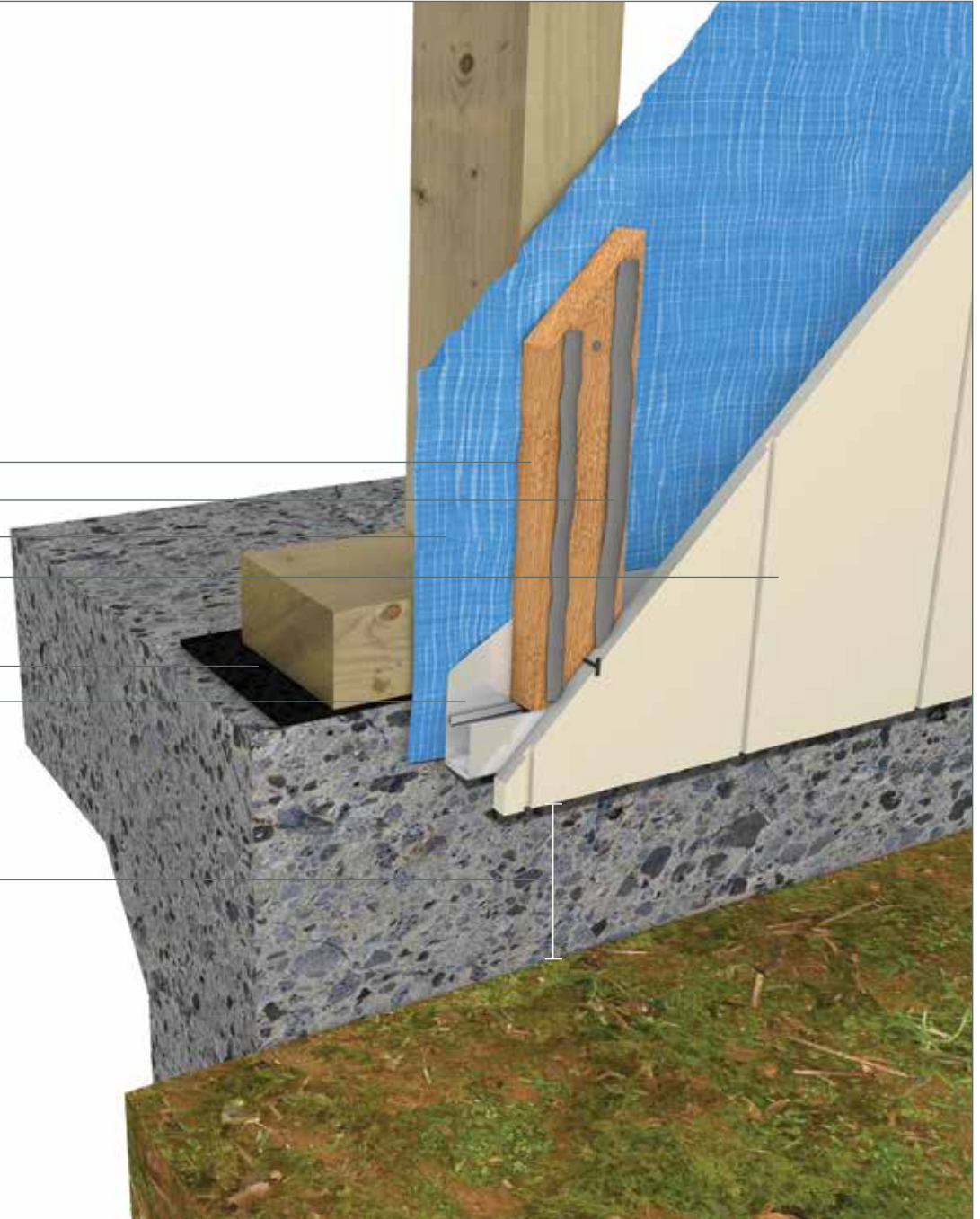
Wall Underlay or DurabARRIER

Duragroove™ or Durascape™

DPC

Cavity Vent Strip

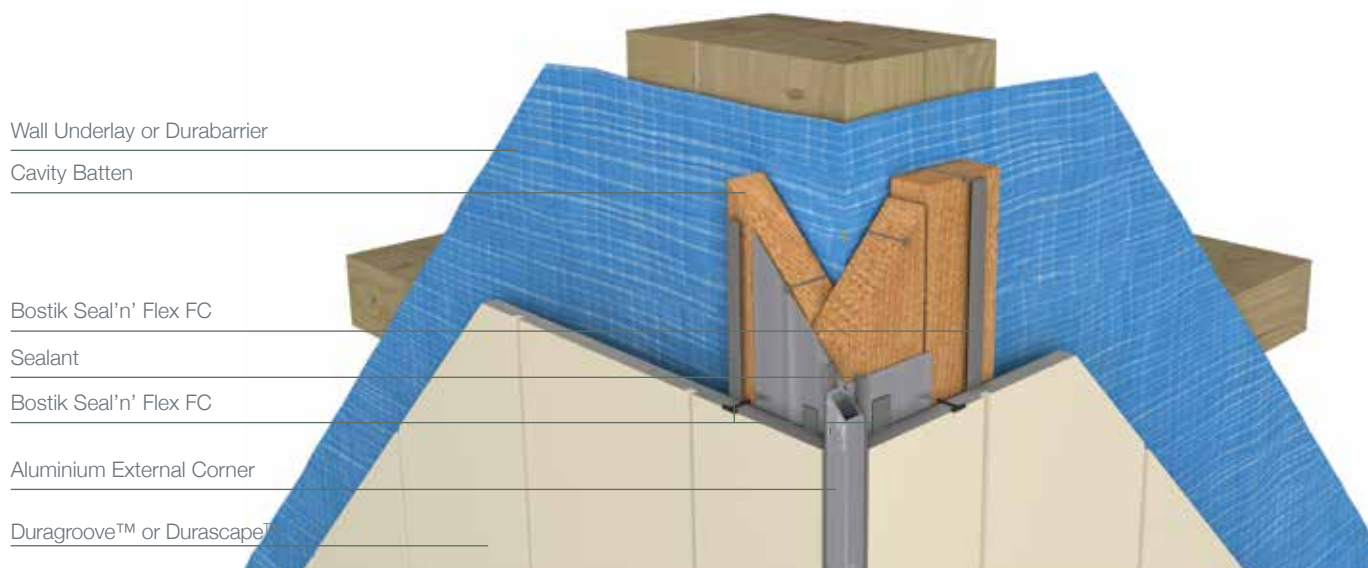
100mm min to permanent  
paving or 175mm to  
unpaved ground



Details are for both Duragroove™ and Durascape™

## INSTALLATION DETAILS

FIGURE 11  
EXTERNAL CORNER – ALUMINIUM PROFILE



Details are for both Duragroove™ and Durascape™

## INSTALLATION DETAILS

FIGURE 12  
INTERNAL CORNER – SEALANT OPTION

Wall Underlay or Durabarrier

Cavity Batten

Bostik Seal'n' Flex FC

Flashing Tape  
Continuous  
Around Corner  
(100mm Wide  
each Side)

Sealant

Duragroove™ or Durascape™

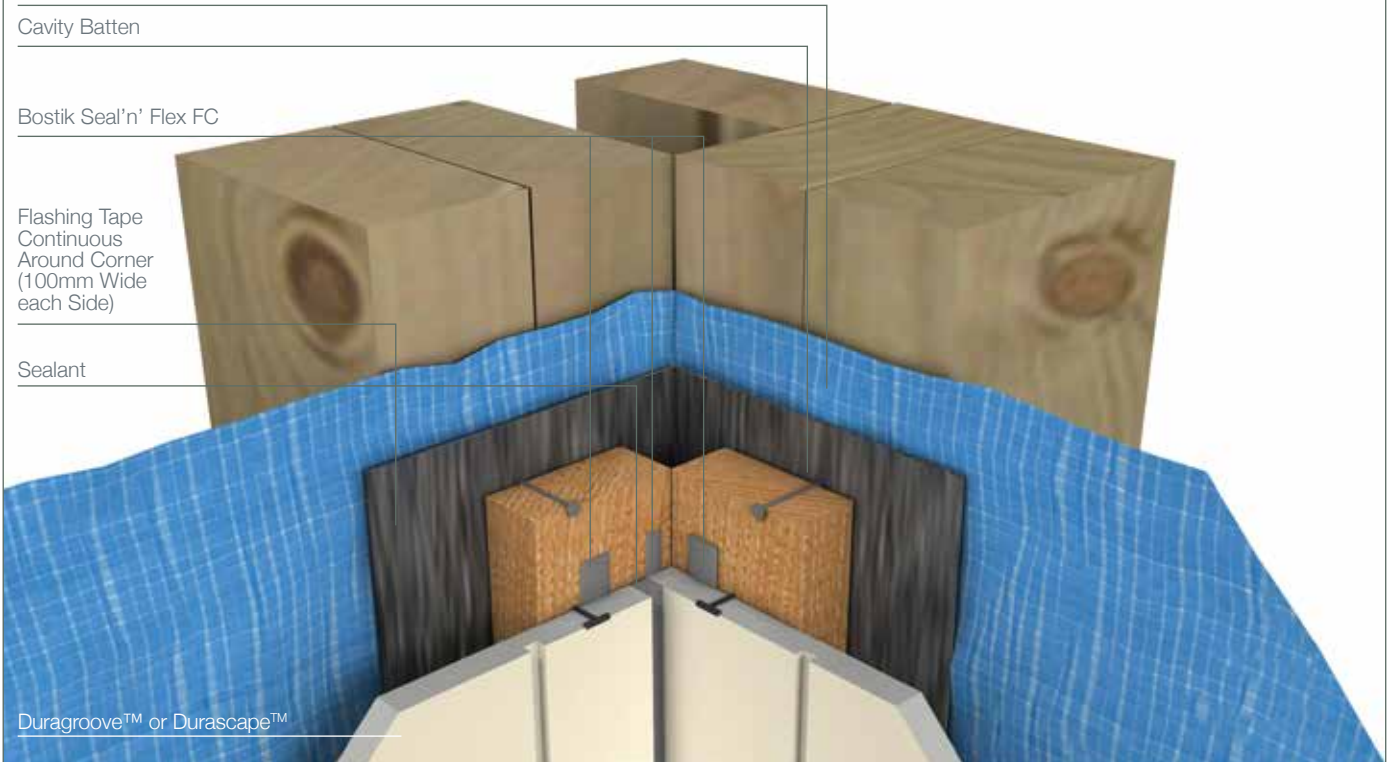


FIGURE 13  
INTERNAL CORNER – ALUMINIUM PROFILE

Wall Underlay or Durabarrier

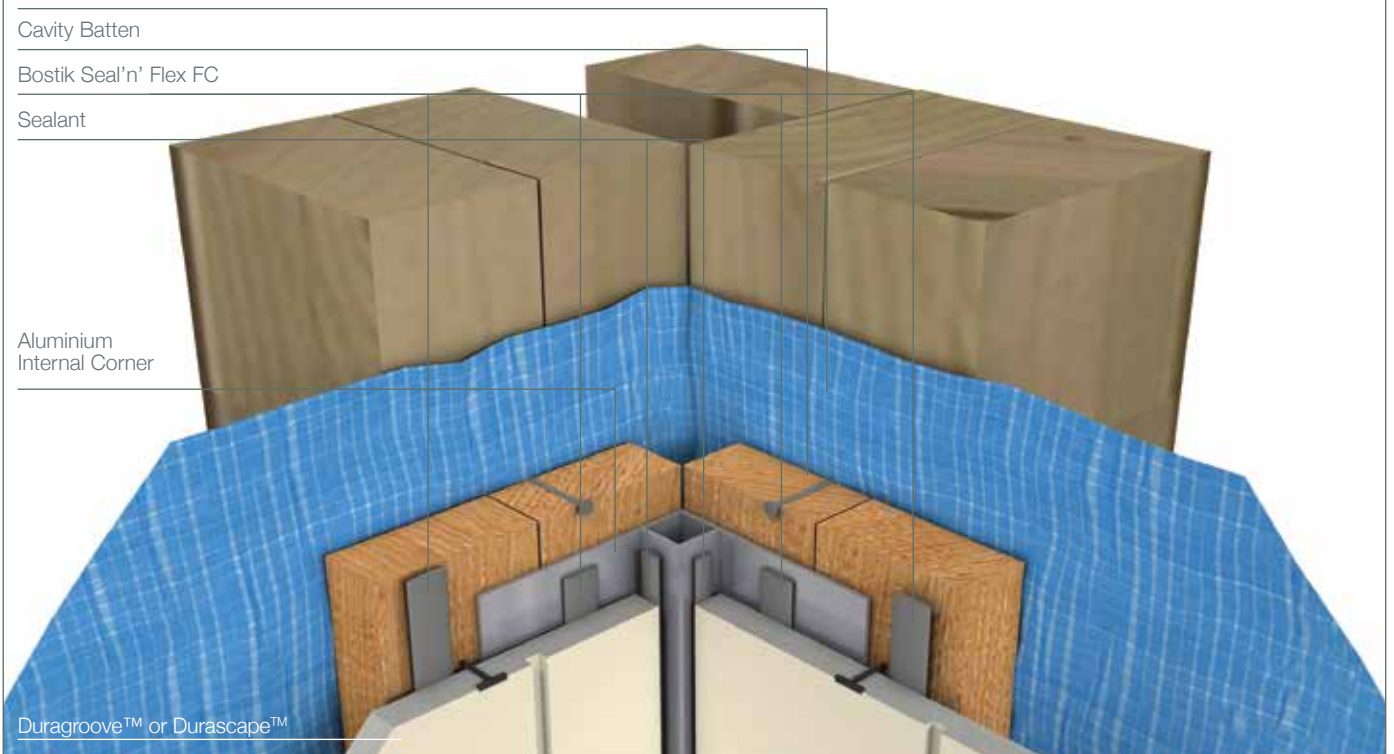
Cavity Batten

Bostik Seal'n' Flex FC

Sealant

Aluminium  
Internal Corner

Duragroove™ or Durascape™



Details are for both Duragroove™ and Durascape™

## INSTALLATION DETAILS

FIGURE 14  
WINDOW HEAD

Cavity Batten

Duragroove™ or Durascape™

Bostik Seal'n' Flex FC

Wall Underlay or Durabarrier

Additional Wall Underlay lapped over Head Flashing

Cavity Vent Strip

Flexible Flashing Tape

Window Head Flashing with 15° fall

Air Seal over PEF Rod

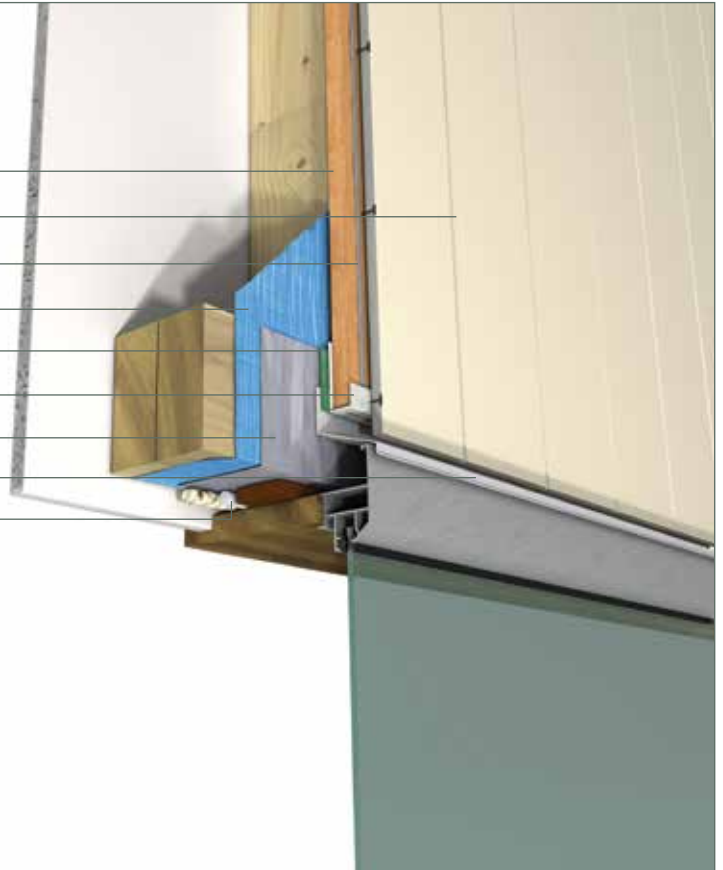


FIGURE 15  
WINDOW SILL

Air Seal over PEF Rod

Packer as required

Sill Support Bar

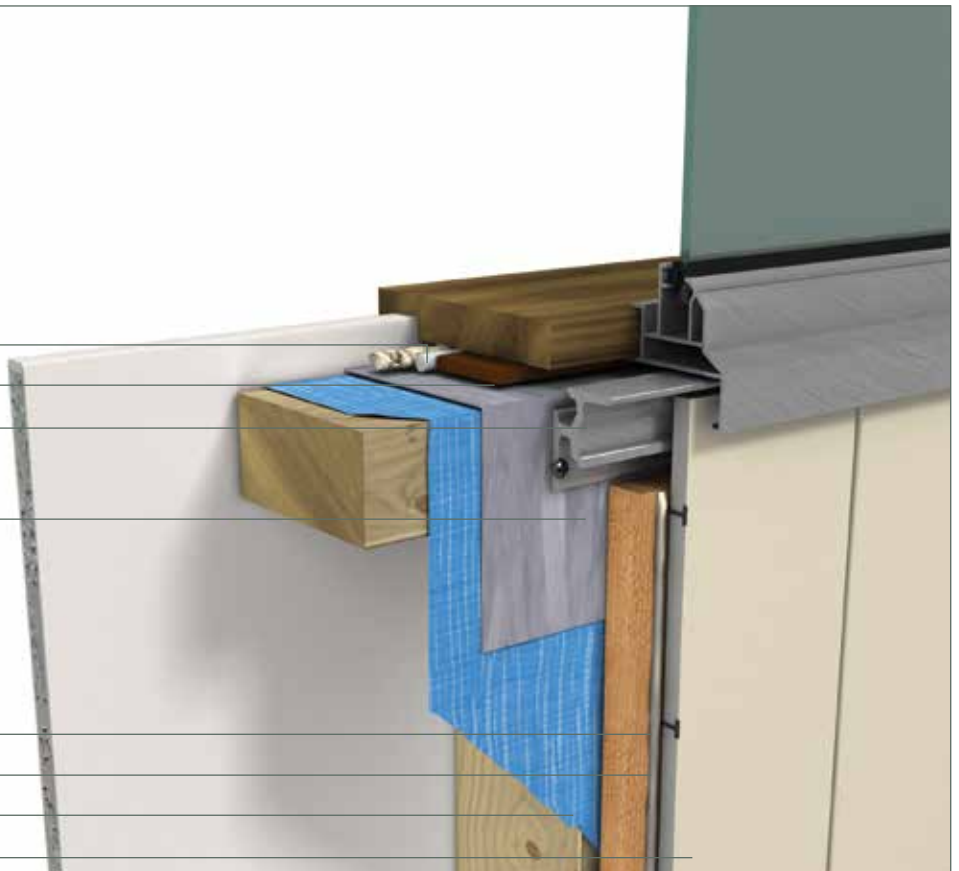
Flexible Flashing Tape

Cavity Batten

Bostik Seal'n' Flex FC

Wall Underlay or Durabarrier

Duragroove™ or Durascape™



Details are for both Duragroove™ and Durascape™

INSTALLATION DETAILS

FIGURE 16  
WINDOW JAMB

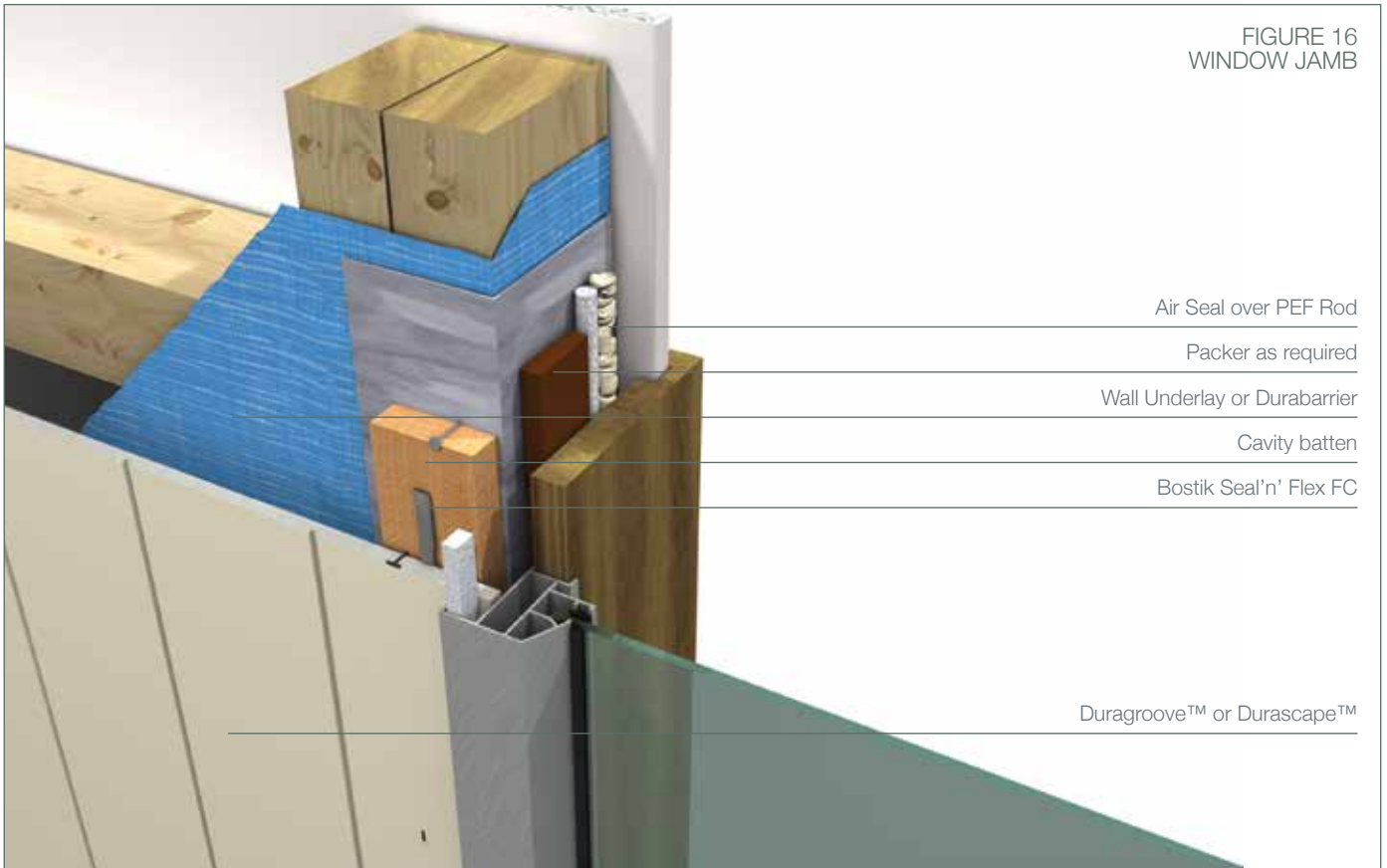


FIGURE 17  
UPPER FLOOR JUNCTION

Bostik Seal'n' Flex FC

Cavity Batten

Bostik Seal'n' Flex FC

Aluminium Horizontal Flashing

Wall Underlay or Durabarrier

Duragroove™ or Durascape™

Details are for both Duragroove™ and Durascape™



## MOISTURE MANAGEMENT

Designers, specifiers and builders have a duty of care to identify moisture-associated risks with any individual building design.

Wall construction design should consider both the interior and exterior environments of the building to effectively manage moisture. Special consideration should be given to buildings that are in extreme climates or at higher risk of wind driven rain.

In addition, all wall openings, penetrations, junctions, connections, window heads, sills and jambs must incorporate appropriate flashing for waterproofing. All other components, materials and installation methods used to manage moisture in walls should comply with the relevant standards of the New Zealand Building Code.

## FINISHING

Painting of Duragroove™ and Durascape™ is required to meet the durability and the external moisture management of the NZBC and BGC Warranty.

Duragroove™ and Durascape™ must be painted within 90 days of installation.

Duragroove™ and Durascape™ panels must be clean, dust free and dry before painting.

If the BGC Aluminium corner and horizontal flashings have been used, Duragroove™ and Durascape™ can be painted a dark colour.

For brad and screw installed panels, the brad head must be flush with the sheet surface and skimmed with a suitable exterior 2 part builder's filler. The skimmed area should be spot primed.

BGC recommended that Duragroove™ and Durascape™ is coated with a minimum of two coats of quality high build acrylic paint. Refer to the paint manufacturer's recommendations for specific details.

## MAINTENANCE

Building owners are responsible for the maintenance of Duragroove™ and Durascape™ facade systems. The maintenance requirements should be determined by the specifier based on the location and exposure of the building.

It is recommended that

- / Regular cleaning at least annually of the paint finish with water and a mild detergent
- / Do not water blast
- / Inspect regularly and repair if required
- / Check ground clearances
- / Follow paint manufacturer's recommendations on recoating

## WARRANTY

BGC (Aust) Pty Ltd trading as BGC Fibre Cement NZ warrants, subject to the Conditions and Notes set out below, that its products be:

- 1) Free from defects caused by defective materials or workmanship (manufacturer); and
- 2) Resistant to rotting, fire and cracking,  
For the following period from the date of purchase of each product:
  - 25 years for Nuline™ Plus
  - 50 years for Durabarrier (when used as bracing sheets)
  - 15 year for all other products.

If you purchase any BGC Fibre Cement (NZ) product and find that it does not meet the above warranty during the relevant warranty period, BGC Fibre Cement (NZ) will at its option, repair or replace the product, supply equivalent replacement products or reimburse the purchase price of the product, subject to receiving a valid claim, product inspection and confirmation of the existence of a defect by BGC Fibre Cement (NZ). We will bear the cost of any such repair, replacement or refund.

### CONDITIONS

- i) This warranty is non-transferable. To claim under this warranty, you must submit proof of purchase and a written claim to BGC Fibre Cement (NZ) at the following address:  
77 Cryers Road, East Tamaki, Auckland.

Postal Address PO Box 76695, Manukau City, Auckland

- ii) The product must be installed and maintained in accordance with the relevant BGC Fibre Cement (NZ) literature current and available at the time of purchase. All additional products used in conjunction with the BGC Fibre Cement product(s), including accessories, jointing systems and coatings must be applied or installed according to the relevant manufacturer's instructions.
- iii) Claims must be submitted in writing within 30 days of the defect becoming reasonably apparent. If the defect is detected prior to installation, the claim must be submitted prior to installation.
- iv) Your sole remedy under this warranty is the repair or replacement of the product, supply of equivalent replacement product or reimbursement of the purchase price as described above. BGC Fibre Cement (NZ) is not liable for any damage or losses (direct or indirect) including (without limitation) any property damage or personal injury, economic loss or loss of profits, consequential loss arising in contract or negligence or howsoever arising.
- v) BGC Fibre Cement (NZ) is not liable for any claims, damages or defects arising from or attributed to:
  - poor workmanship, poor design or detailing of the project,
  - products not supplied by BGC Fibre Cement (NZ),
  - settlement or structural movement or - movement of materials to which the product is attached,
  - incorrect design of the structure, - acts of God, including but not limited to floods, cyclones, earthquakes or severe weather or unusual climate conditions, - performance of coatings or paints applied to the product,
  - normal wear and tear, growth of mould, mildew, fungi, bacteria or any other organism on the product's surface (exposed or unexposed),

Failure to comply with all relevant requirements of the current New Zealand Building Code regulations and standards in the design and construction of the project.

Please note that:

- If any remedy under this warranty involves recoating or painting of BGC Fibre Cement (NZ) products, there may be slight colour differences between the replacement product and the original products due to the effect weathering and variations in materials over time.
- BGC Fibre Cement (NZ) does not warrant any product's suitability for any purpose or ability to comply with the relevant conditions set out in the New Zealand Building Code. It is the responsibility of the building designer to ensure that the products used are suitable for the intended project and that specific design is conducted where appropriate. All warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed by the law.
- The instructions and recommendations in BGC Fibre Cement (NZ) literature are based on good building practice, but are in no way an exhaustive statement of all relevant information and are subject to conditions above. BGC Fibre Cement has tested the performance of its products when installed in accordance with the products technical specification, in accordance with the standards required by the New Zealand Building Code.

### DISCLAIMER

The successful performance of the relevant product depends on a number of factors outside the control of BGC Fibre Cement (NZ). As such, BGC Fibre Cement (NZ) shall not be liable for the recommendations made in its literature and the performance of the products/systems including its suitability for any purpose or ability to comply with the relevant conditions set out in the New Zealand Building Code. It is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant BGC Fibre Cement (NZ) installation guide are suitable for the intended project and that specific design is conducted where appropriate.

The instructions and recommendations in BGC Fibre Cement (NZ) literature are based on good building practice, but are in no way an exhaustive statement of all relevant information and are subject to conditions above. BGC Fibre Cement has tested the performance of its products when installed in accordance with the products technical specification, in accordance with the standards required by the New Zealand Building Code. Those test results demonstrate the products compliance with the performance criteria set out by the New Zealand Building Code.

BGC FIBRE CEMENT  
PO BOX 76695  
MANUKAU CITY 2241

TELEPHONE / 09 273 1457  
FREE PHONE / 0800 424234  
FACSIMILE / 09 273 1461

WWW.BGCINNOVADESIGN.CO.NZ



Quality  
ISO 9001  
SAI GLOBAL



BGC HAS STATE OF THE ART  
MANUFACTURING FACILITIES  
IN PERTH, WA AND DISTRIBUTION  
CENTRES IN ALL STATES OF  
AUSTRALIA AND IN NEW ZEALAND.

BGC HAS A TEAM OF TECHNICAL  
SPECIALISTS WHO CAN ASSIST WITH  
ALL SPECIFICATION AND DESIGN  
INFORMATION. BGC PROVIDES BUILDERS,  
DEVELOPERS AND ARCHITECTS WITH A  
RANGE OF DESIGN ALTERNATIVES AND  
INNOVATIVE PRODUCTS SUCH AS:

DURASHEET™ / Fibre cement sheet for exterior applications.

DURATEX™ / Fibre cement sheets for applied finish systems.

DURABACKER™ / Fibre cement sheet for high build plaster coatings.

DURABARRIER / A rigid sheathing/air barrier for all types  
of timber framed construction.

DURAPLANK™ / Woodgrain and smooth fibre cement plank for  
exterior applications.

DURAGRID™ / A lightweight facade giving a modern and durable finish.

DURAGROOVE™ / A vertically grooved cladding.

DURASCAPE™ / A base sheet with a 5mm shiplap join.

DURALINER™ / Interior lining suitable as a substrate for tiles and  
is ideal for wet areas.

NULINE™PLUS / Weatherboard cladding system.

STONESHEET™ / Fibre cement stone slip substrate.

SAFE WORKING PRACTICES - PLEASE WEAR A P1 OR P2  
MASK AND SAFETY GOGGLES (APPROVED TO AS/NZW1337  
STANDARDS) WHILST CUTTING OR INSTALLING DURAGROOVE™.  
DURAGROOVE™ CAN BE SAFELY HANDLED DURING UNLOADING  
OR STACKING WITHOUT THE USE OF THESE PRECAUTIONS.

CLEANING UP - ALWAYS WET DOWN YOUR WORK AREA WHEN  
CUTTING DURAGROOVE™, TO ENSURE THAT DUST IS MANAGED.  
DISPOSE OF ANY VACUUMED DUST WITH CARE AND USING  
CONTAINMENT PROCEDURES.



## Product Data Sheet

WAIMAKARIRI DISTRICT COUNCIL  
Plans and specifications APPROVED in accordance  
with the Building Act 2004, clause 49 and the Building  
Regulations 1992, Clause 3  
200253 1/04/2020 ChrisK

# 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 <sup>2</sup> coverage*
1250mm wide	40m long	50m <sup>2</sup> coverage*

\* **Note:** m2 is the roll size for actual coverage, allow for laps and joins.

Smarter products. Better buildings.  
**thermakraft.co.nz**



# 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**.

Thermakraft Limited / 0800 806 595

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**thermakraft.co.nz**



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.



## 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.

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**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.

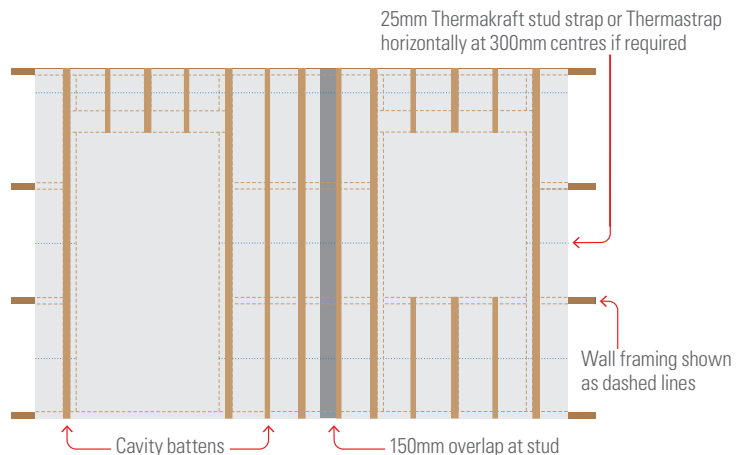
# Installation Guide

- 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.



**MASONS**  
Designed Smart, Built Tough.

# Barricade FR



**FIRE RETARDANT**



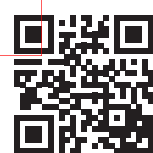
**RESISTS UV EXPOSURE  
FOR UP TO 60 DAYS**

WAIMAKARIRI DISTRICT COUNCIL  
Plans and specifications APPROVED in accordance  
with the Building Act 2004, clause 49 and the Building  
Regulations 1992, Clause 3  
200253 1/04/2020 Chrisk

**SUITABLE FOR ALL  
FRAME & CLADDING SYSTEMS**

**CUSTOM BRANDING AVAILABLE**

MASONS.NZ



**CODEMARK™**  
CMA-AB-CM40134



# Barricade FR

## Fire Retardant - Building Wrap

**NEW**

Barricade FR is a fire rated building wrap suitable for all frame and cladding systems with or without cavity and holds a Codemark Certificate.

### Applications

- Where a **fire retardant wrap is required**
- Barricade FR is **absorbent** and can be used with absorbent and non-absorbent cladding
- Barricade FR is **strong and durable**, suitable for all areas of New Zealand including up to **'Very High' wind zones** of NZS 3604 and "Extra High" over rigid wall underlays.
- Barricade FR is suitable for use with **all cladding systems**
- Barricade FR performs over **timber or steel** framing.
- Barricade FR is suitable to be used as a **non rigid backing for stucco plaster**
- Barricade FR is suitable as an **air barrier** on walls that are not lined
- May be used on **gable ends**
- Vertical use only, not suitable as a roof underlay

### New Zealand Building Code Standard (NZBC)

The following tests have been carried out in accordance with NZBC Acceptable Solution E2/AS1 Table 23:

- Tensile strength, edge tear resistance and resistance to water vapour transmission in accordance with ASNZS 4200.1
- Resistance to water penetration in accordance with AS/NZS 4201.1.4
- Surface water absorbency in accordance with AS/NZS 4201.6
- Air resistance to BS 6538.3
- Shrinkage in accordance with AS/NZS 4201.3
- pH of extract in accordance with AS/NZS 1301.421s
- Fire retardant in accordance with AS1530 Part 2 Flammability

### Physical Properties

- Barricade FR Wrap is a non-woven fire retardant, water resistant, breathable synthetic wall underlay for use under direct fixed and non-direct fixed wall cladding on timber framed and steel framed buildings. The product is manufactured from high quality synthetic spun bonded material with high UV qualities.
- Barricade FR has unique anti fungal properties
- Barricade FR resists UV exposure for up to 60 Days

Masons Building Wraps	Masons Code
Barricade FR Building Wrap 2.74m x 50m <sup>2</sup>	BFRMPB2.74x50
Barricade FR Building Wrap 2.74m x 100m <sup>2</sup>	BFRMPB2.74x100
Barricade FR Building Wrap 1.37m x 100m <sup>2</sup>	BFRMPB1.37x100
Barricade FR Building Wrap 1.37m x 50m <sup>2</sup>	BFRMPB1.37x50
Barricade FR Building Wrap 1.37m x 25m <sup>2</sup>	BFRMPB1.37x25
Barricade FR Building Wrap 0.6m x 21.9m <sup>2</sup>	BFRMPB0.6x22





# Installation Instructions

## Barricade FR and Barricade Building Wrap

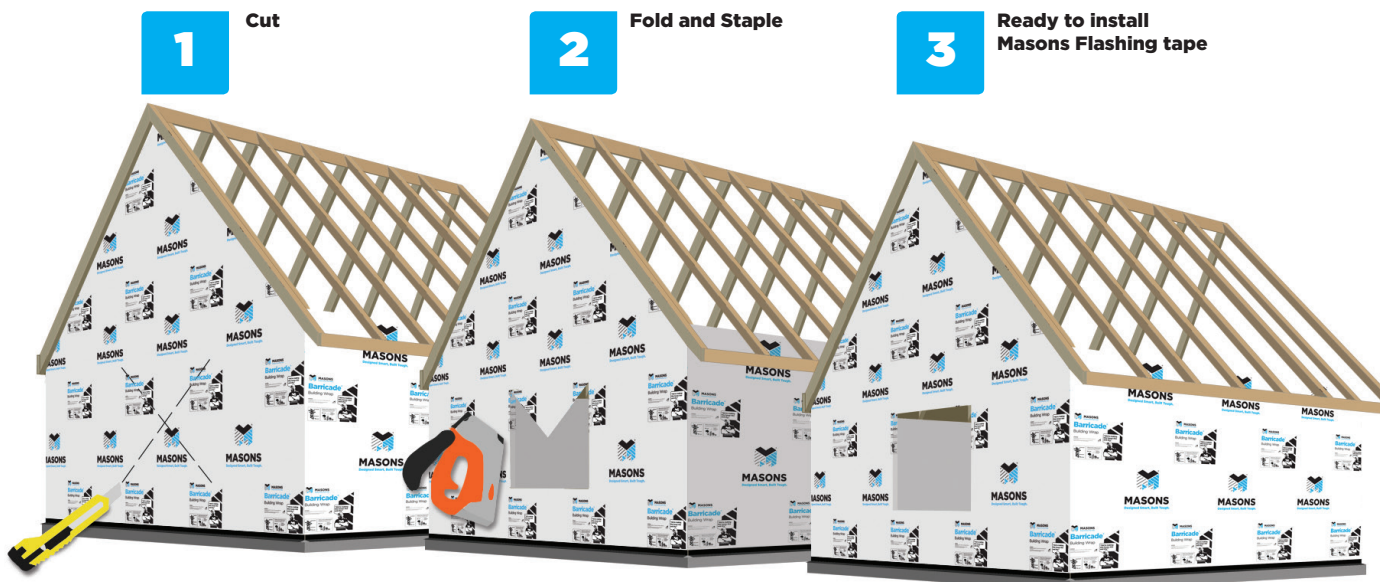
- 1 *Masons Building Wrap* must be fixed (with the printed side out) to all framing members at maximum 300 mm centres with large-head clouts 20 mm long, 6-8 mm staples, self drilling screws or proprietary underlay fixings. The membrane must be pulled taut over the framing before fixing.
- 2 *Masons Building Wrap* must be run horizontally and must extend from the upper-side of the top plate to the under-side of the bearers or wall plates supporting ground floor joists, or below bottom plates on concrete slabs. Horizontal laps must be no less than 75 mm wide, with the direction of the lap ensuring that water is shed to the outer face of the membrane. End laps must be made over framing and be no less than 150 mm wide.
- 3 The wall underlay should be run over openings and these left covered until windows and doors are ready to be installed. Openings are formed in the membrane by cutting on a 45 degree diagonal from each corner of the penetration. The flaps of the cut membrane must be folded inside the opening and stapled to the penetration framing. Excess underlay may be cut off flush with the internal face of the wall frame. Masons **Hydro™ or 40 Below™ Flashing Tape** needs to be installed around the openings prior to fitting the doors and windows.
- 4 *Masons Building Wrap* must be restrained from bulging into the drained cavity in accordance with NZBC Acceptable Solution E2/ AS1, Paragraph 9.1.8.5. Installing Masons **WrapStrap** - horizontal at 300mm centres - prevents the wrap and insulation from bulging.
- 5 *Masons Building Wrap* can be added as a second layer over head flashings in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.7(e).
- 6 When fixing the product in windy conditions, care must be taken due to the large sail area created by wide roll widths.
- 7 Any damaged areas of *Masons Building Wrap*, such as tears, holes or gaps around service penetrations, must be repaired. Damaged areas can be repaired by covering with new material lapping the damaged area by at least 150 mm and taping, or by taping small tears with Masons **Hydro™ or 40 Below™ Flashing Tape**.

Provided Masons Wrap is not exposed to the weather or ultra-violet light for a total of more than 42 days, and provided the exterior cladding is maintained in accordance with the manufacturers instructions and the cladding remains weather resistant, the wrap is expected to have a serviceable life equal to that of the cladding.

### Handling & Storage

Masons Wrap whether on or off site should

- Be stored on end under a cover, in a clean and dry area
- Do not crush the rolls
- The rolls must be protected from damage



# Hydro™

## Bituminous Window Flashing Tape



Hydro Flashing Tape is a bituminous flashing tape to seal around windows, doors, and other joinery openings as a secondary defence against water penetration. Adhesion from 5°C.

### Applications

- It's suitable for timber and steel framed buildings
- Simple 4 step installation, save time reducing costs
- Reliable and dependable weather tightness
- Works in temperatures from **5°C**
- An *Optional* **Corner Guard** is easy to install and increases protection to framing

NB. *Masons Hydro Flashing Tape* and *Masons Corner Guard* must be installed in accordance with the instructions outlined on page 11 of this catalogue.

### New Zealand Building Code Standard (NZBC)

- Has been tested and passed by **CodeMark**
- For a risk score between 0-20 in accordance with NZBC Acceptable Solution E2/AS1
- Passed NZS3604 Building Wind Zones up to and including 'Extra High'

### Physical Properties

- **Compatible** with most building wraps

**WARNING: Don't apply any solvent based glues or adhesives/sealants to the tape as it will react with the bitumen.**



**Note: 150mm Wide tape is used for 100mm wide window or door framing. 200mm wide tape is used for 140mm-150mm wide revels.**

Hydro flashing tape	Roll Sizes	Masons Code
Hydro flashing tape 75mm	H 75mm x L 25m	HYDRO75x25
Hydro flashing tape 100mm	H 100mm x L 25m	HYDRO100x25
Hydro flashing tape 150mm	H 150mm x L 25m	HYDRO150x25
Hydro flashing tape 150mm	H 150mm x L 10m	HYDRO150x10
Hydro flashing tape 200mm	H 200mm x L 25m	HYDRO200x25
Masons corner guards pack of 10	pack of 10	HYDRO10CNRGUARD
Masons corner guards pack of 50	pack of 50	HYDROCG50

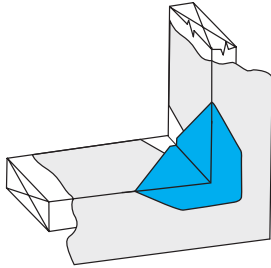




# Flashing Tape

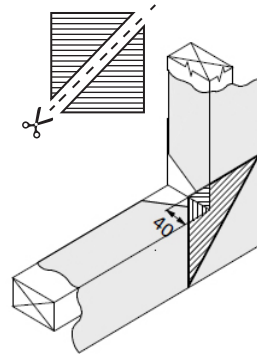
## Installation Instructions

### Window Sill Installation Instructions



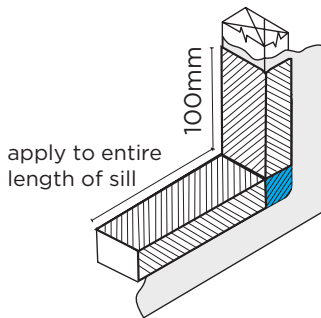
#### 1. Corner Guard *option 1*

Place the *Masons Corner Guard* over the building wrap and into the **bottom** corners of the window or door sill and staple to the jamb. With steel frames use double sided tape to attach the *Corner Guard* to the metal.



#### 1. Corner Guard *option 2*

Cut a 150mm square of *Flashing Tape* into two equal triangular pieces. Install these at the **bottom** corners of the frame opening. The triangle needs to reach 40mm in from the extreme end of the window sill, with the remainder overlapping the building paper.



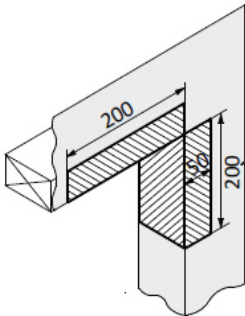
#### 2. Sill Guard

A. Install sill tape flush with the interior face of the opening. Apply along entire length of sill, continue up each jamb with a minimum of 100mm

B. IMPORTANT: Press tape firmly into the corner over the Corner Guard first, then fold around onto the frame face.

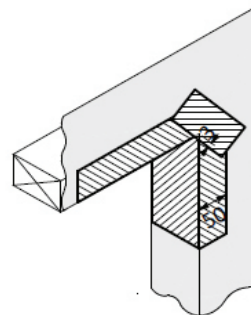
C. Fold remainder *Flashing Tape* against outer face of frame/building. Smooth out all creases & press firmly for good adhesion.

### Window Head Installation



#### 1. Lintel Piece

Install lintel pieces on top corners of opening, 200mm along the lintel and 200mm down the jamb. Slit at each corner and fold onto outer face of building wrap (at least 50mm).



#### 2. Butterflies

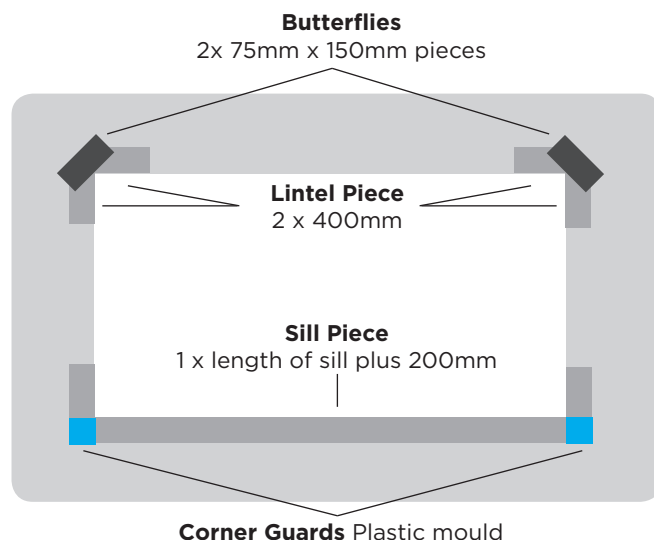
To create a seal at corner junction, install butterflies at 45° across the corner of head/jamb.

### Window Head Flashing Installation

Apply *Masons Flashing Tape* to top of window head flashing, up-stand and building wrap. Refer to window & cladding details for specific application.

#### Cutting Diagram:

To ensure maximum adhesion of the tape, make sure the substrate surface is clean, dry and free from any dust or other contaminants.





# CERTIFICATE OF CONFORMITY

This is to certify that



**MASONS**  
Designed Smart, Built Tough.

## MASONS HYDRO Flashing Tape



### Product Description

Masons HYDRO Flashing Tape is a flexible flashing tape system for use around framed joinery openings as a secondary weather resistant barrier.

Size – 50mm x 25m, 75mm x 25m, 100mm x 25m, 150mm x 25m, 200mm x 25m, 150mm x 10m

### Product Purpose or Use

The system is installed into and around the framed joinery opening over the wall underlay and exposed frame to cover both the face and edge of the opening framing. It can also be used at joinery heads to seal flashing upstands to the wall underlay.

### Certificate Holder

**Masons Plastabrick Ltd**

9A Parkhead Place  
Albany, Auckland 0632  
NEW ZEALAND  
Phone: 64 3 455 1502  
www.mpb.co.nz

### Certification Body

**CertMark International Pty Ltd**

T/A CertMark New Zealand  
ABN: 80 111 217 568  
JAS-ANZ Accreditation No. Z4450210AK  
PO Box 321 Tuakau 2121  
www.CertMark.org

### Complies with the New Zealand Building Code :

1. NZBC Clause B2 Durability - Performance B2.3.1 a) - not less than 50 years & B2.3.2.
2. NZBC Clause E2 External Moisture - E2.3.2
3. NZBC Clause F2 Hazardous Building Materials - F2.3.1.

### Subject to the following Conditions & Limitations:

- a. Ensure all surfaces to which MASONS HYDRO Flashing Tape is applied are clean, dry and free of dust.
- b. When applying MASONS HYDRO Flashing Tape to Light Organic Solvent Preservation (LOSP) treated timber, ensure the solvent has been allowed to flash off prior to installing the product. It is suggested that a minimum of one (1) week is allowed for.
- c. MASONS HYDRO Flashing Tape when used, installed and maintained in accordance with the requirements outlined in Hydro technical data sheet (February 2015) and will meet the requirements of Acceptable Solution E2/AS1, Clause 9.1.5 (b) (i).
- d. Only to be installed by a suitable licenced tradesperson.
- e. This certification relates only to the clauses of the NZBC as contained herein. Consequently any clause not included on this certificate are outside the scope of this Certificate. Excluded clauses are to be addressed at an individual project basis.
- f. This certification relates only to the MASONS HYDRO Flashing Tape that is described above and has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective.
- g. For further information contact the certificate holder.

**John Thorpe**  
CertMark International Pty Ltd

19/02/2015  
Date of Issue

CMA-CM40125  
Certificate Number

- This certificate is issued by an independent certification body accredited by the product certification accreditation body appointed by the Chief Executive of the Ministry of Business, Innovation & Employment (MBIE) under the Building Act 2004. MBIE does not in any way warrant, guarantee, or represent that the building method or product the subject of this certificate conforms to the New Zealand Building Code, nor accept any liability arising out of the use of the building method or product. MBIE disclaims, to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages, and costs arising as a result of the use of the building method(s) or product(s) referred to in this certificate
- It is advised to check that this Certificate of Conformity is currently valid and not withdrawn, suspended or superseded by a later issue by referring to the MBIE website, www.mbie.govt.nz
- This certificate may only be reproduced in its entirety.



# GIB Aqualine<sup>®</sup> Wet Area Systems



WAIMAKARIRI DISTRICT COUNCIL  
Plans and specifications APPROVED in accordance  
with the Building Act 2004, clause 49 and the Building  
Regulations 1992, Clause 3  
200253 1/04/2020 Chrisk

## GIB AQUALINE® WET AREA SYSTEMS



### Introduction

MARCH 2007

#### THIS PUBLICATION

This publication is not intended as the definitive guide on wet area construction and wet area systems, but rather as a helpful guide to best practice around areas where there is intermittent water exposure and splash zones within residential and non-residential buildings – in particular, areas covered by the New Zealand Building Code (NZBC), Clause E3 Internal Moisture. The information herein 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 NZBC 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.

It is important to introduce materials and systems which have been specially designed to cope with the conditions that are common in wet areas, and to ensure they are installed correctly, using best practice, and are compatible to form a complete wet area system.

The code numbers shown with each “typical detail”, e.g. GAW-D030, match the code numbers for drawings available as downloads on the GIB® website at [www.gib.co.nz](http://www.gib.co.nz)

The reference numbers (e.g. GAW-D030) stand for:

GAW	D	030
GIB Aqualine® Wet Area System	Detail	Drawing Number

#### WHAT IS A WET AREA?

Generally, wet areas are described as spaces to where fresh water is reticulated, such as bathrooms, toilets, laundries and kitchens. Wet areas fall into two categories; these are well explained and documented in the NZBC, Clause E3.

1. Water splash areas – These are areas subject to intermittent splash of liquid water around sanitary fittings and appliances such as baths, vanities, laundry tubs, sinks, etc. These areas are required to have an impervious, easily cleaned surface.
2. Shower enclosures – These are areas subject to more frequent, larger quantities of water, and include shower enclosures and shower over bath areas. The NZBC E3/AS1 requires these areas to be impervious, and specifically excludes any paint and wallpaper finishes. Where ceramic tile or stone finishes are applied, E3/AS1 requires that they “shall be laid on a continuous impervious substrate or membrane”.

The requirements of these wet areas are described on page 6 of this publication and in full in Clause E3 of the NZBC. Clause E3 also refers to other requirements not covered in this publication, such as ventilation, condensation control and overflow management, which will require separate consideration. Ongoing maintenance of wet areas is also important to maximise the life of the wet area.

#### GIB AQUALINE®

Although able to cope with infrequent short-term exposure, standard gypsum plasterboard will have a shortened life expectancy when frequently exposed to water or moisture.

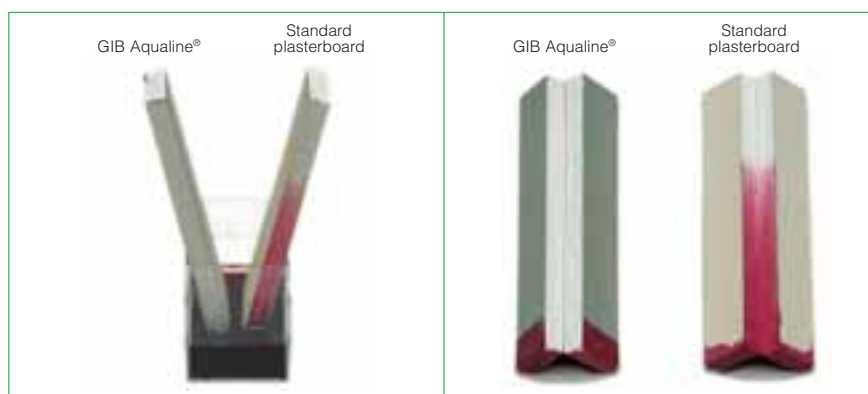
The NZBC does not call for water resistant linings in wet areas but it is highly desirable to incorporate lining materials which will maintain their integrity longer when exposed more frequently to water or steam and particularly to one-off events such as leakages or flooding of a room.

GIB Aqualine® is ideal in such situations because it features a water resistant wax polymer impregnated core.

Unlike other commonly used substrates, the GIB Aqualine® core not only resists penetration of water through the lining into the framing behind, but also resists water “wicking” up the core, a common cause of long-term damage where a water resistant lining has not been used.

GIB Aqualine® will maintain its integrity for extended periods, particularly where wicking over large areas can destroy the integrity of the interface between the lining and paint or wallpaper surfaces or between the lining and the tile adhesive.

The illustrations below graphically show the difference between GIB Aqualine® and standard plasterboard after a two-hour soak test in red dye.



## GIB AQUALINE® WET AREA SYSTEMS – DESIGN



### Introduction/Design Considerations

#### GIB AQUALINE® *continued*

#### Where to Use GIB Aqualine®

Though not required by NZBC, it is highly desirable to include GIB Aqualine® in all areas at risk of water or moisture damage, in order to prolong the life expectancy of that space.

They include:

	WALLS	CEILINGS
BATHROOMS	✓	✓
SHOWERS	✓	✓
LAUNDRY	✓	✓
KITCHEN	✓	
TOILET	✓	

#### Benefits

- Water resistant and durable to help protect against water damage
- Proven substrate for paint, wallpaper, tiles, sheet vinyl and rigid sheet shower linings with installations in over 300,000 bathrooms in New Zealand
- Suitable for both residential and non-residential applications
- Dimensionally stable, will not buckle or warp, hence an excellent substrate for ceramic tiles
- Conventional jointing methods
- Easy to cut and form openings
- Contains fibreglass and other additives for strength and fire resistance
- May be used in GIB® Bracing, GIB® Fire Rated and GIB® Noise Control Systems (see Compliance with the NZBC, Clauses B1, C3 and G6). Consult the appropriate GIB® literature for installation details
- Green face paper for ease of recognition.

#### Sheet Dimensions and Weights

SHEET DIMENSIONS (ALL SHEETS 1200mm WIDE AND TE/TE)		MAXIMUM WEIGHT/m <sup>2</sup>
Thickness (mm)	Length (mm)	
10	2400, 2700, 3000, 3600	7.8kg
13	2400, 2700, 3000, 3600	10.2kg

#### Handling and Storage

- GIB Aqualine® must be stored under cover, stacked flat and clear of the floor with sufficient support to avoid sagging
- GIB Aqualine® must be handled as a finishing material.

#### APPRAISAL

The document entitled *GIB Aqualine® Wet Area Systems* 2007 has been appraised by BRANZ, Appraisal Certificate, No. 427 (2007).

#### COMPLIANCE WITH THE NEW ZEALAND BUILDING CODE (NZBC)

#### Structure – Clause B1

The design and material specification for steel and timber framing used in GIB Aqualine® systems must be in accordance with the performance requirements of NZBC Clause B1 (Structure). See Bracing in Wet Areas on page 5.

#### Durability – Clause B2

When installed and maintained in accordance with this literature, GIB Aqualine® tiled or vinyl covered systems have a serviceable life of at least 15 years. They comply with the requirements of NZBC 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 Aqualine® systems have a serviceable life of at least 50 years and comply with NZBC Clause B2 (Durability) for use within toilets, kitchens, bathrooms and laundries not directly exposed to liquid water.

#### Spread of Fire – Clause C3

GIB® Fire Rated Systems provide passive fire protection in accordance with the requirements of NZBC Clause C3 (Spread of Fire). When GIB Aqualine® is substituted into fire rated systems in place of the equivalent thickness GIB Fyrelite®, the Fire Resistance Rating (FRR) of that system will be maintained.

## GIB AQUALINE® WET AREA SYSTEMS – DESIGN



### Design Considerations

MARCH 2007

#### COMPLIANCE WITH THE NEW ZEALAND BUILDING CODE (NZBC) *continued*

##### Internal Moisture – Clause E3

When installed in accordance with this literature, tiled or vinyl covered GIB Aqualine® systems may be used in areas directly exposed to liquid water, such as showers, to provide an impervious and easily cleaned wall surface. These systems comply with the requirements of NZBC Clause E3 (Internal Moisture).

##### Hazardous Building Materials – Clause F2

At no stage during handling, installation, or serviceable life does GIB Aqualine® constitute a health hazard. It therefore meets the provisions of NZBC 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

NZBC 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 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 NZBC Clause G6 (Airborne and Impact Sound). When GIB Aqualine® is substituted into GIB® Noise Control systems in place of the equivalent thickness GIB® Standard plasterboard or GIB Fyrelene®, the STC and IIC rating of that system will be maintained. When GIB Aqualine® is substituted in place of the equivalent thickness GIB Noiseline®, a small performance loss may occur. For further information contact the GIB® Helpline 0800 100 442.

#### LIMITATIONS

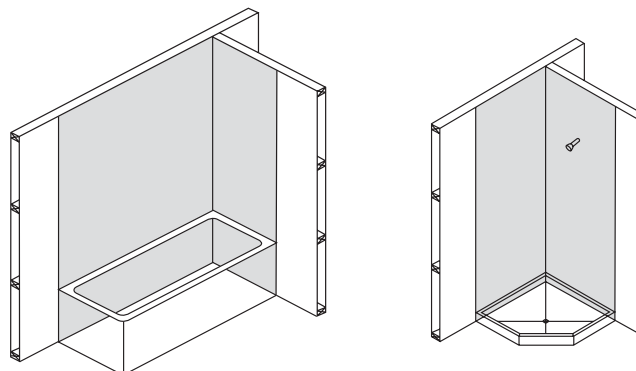
- GIB Aqualine® must not be used for bracing purposes in shower cubicles or above baths (see Bracing in Wet Areas below)
- Do not use GIB Aqualine® where it may be exposed for extended periods to humidities of 90% RH and above. Such areas include group shower or steam rooms as well as moisture and chlorine rich environments such as indoor swimming pools
- GIB Aqualine® must not be directly applied to solid plaster (gypsum or cement), wood based sheet linings or similar materials, masonry or concrete. GIB Aqualine® may only be applied to these materials where timber strapping or steel furring channels are installed
- GIB Aqualine® 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® 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.

#### BRACING IN WET AREAS

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.

Otherwise, GIB® Bracing Systems can be used in water-splash areas as defined by NZBC Clause E3/AS1, provided these are maintained impervious for the life of the building.

GIB Aqualine® can be used in place of GIB® Standard plasterboard in GIB® bracing elements. GIB Aqualine® can be used in place of GIB Braceline® in GIB® bracing elements 900mm or longer, provided the perimeter of the element is fixed with GIB Braceline® Nails or GIB Braceline® screws at 100mm centres, using the GIB Braceline® corner fixing pattern.



No bracing in the shaded areas.

# GIB AQUALINE® WET AREA SYSTEMS – DESIGN



## Design Considerations

MARCH 2007

### NEW ZEALAND BUILDING CODE

E3.3.4 requires impervious and easily cleaned surfaces to all surfaces adjacent to sanitary fixtures or laundering facilities.

E3.3.5 requires that surfaces of building elements likely to be splashed or contaminated in the course of the intended use of the building must also be impervious and easily cleaned.

E3.3.6 requires that surfaces of building elements likely to be splashed must be constructed in a way that prevents water from penetrating behind linings or into concealed spaces (e.g. wall cavities).

Walls in wet areas therefore need to be addressed according to whether they fall within the scope of one of the following descriptions:

1. Wall surface likely to be splashed
2. Shower walls. Although not a requirement of NZBC it is highly recommended that the wall surfaces within 150mm of the top edge of a bath, and the vertical faces immediately under the edge of a bath, are treated in the same way as for a shower wall.

### WALL SURFACES IN AREAS LIKELY TO BE SPLASHED

Suitable linings include:

- a. Integrally waterproof sheet material (e.g. polyvinylchloride) with sealed joints
- b. Ceramic or stone tiles having 6% maximum water absorption, waterproof grouted joints, and bedded with an adhesive specified by the tile manufacturer as being suitable for the tiles, substrate material and the environment of use
- c. Cement based solid plaster or concrete having a steel trowel or polished finish (semi-gloss or gloss paint must be used if a paint finish is required)
- d. Cork tile or sheet sealed with waterproof applied coatings
- e. Monolithic applied coatings having a polished, non-absorbent finish (e.g. terrazzo)
- f. Sheet linings finished with vinyl coated wallpaper, or semi-gloss or gloss coating
- g. Water resistant sheet linings finished with decorative high pressure laminate or factory applied polyurethane or resin
- h. Modular or multiple lining units which are themselves *impervious* and easily cleaned, and are installed with *impervious* joints
- i. Timber or timber-based products such as particleboard sealed with waterproof applied coatings.

**NB: Floor surfaces and floor/wall junctions are required by E3 to be impervious.**

### SURFACES IN SHOWERS AND AROUND BATHS

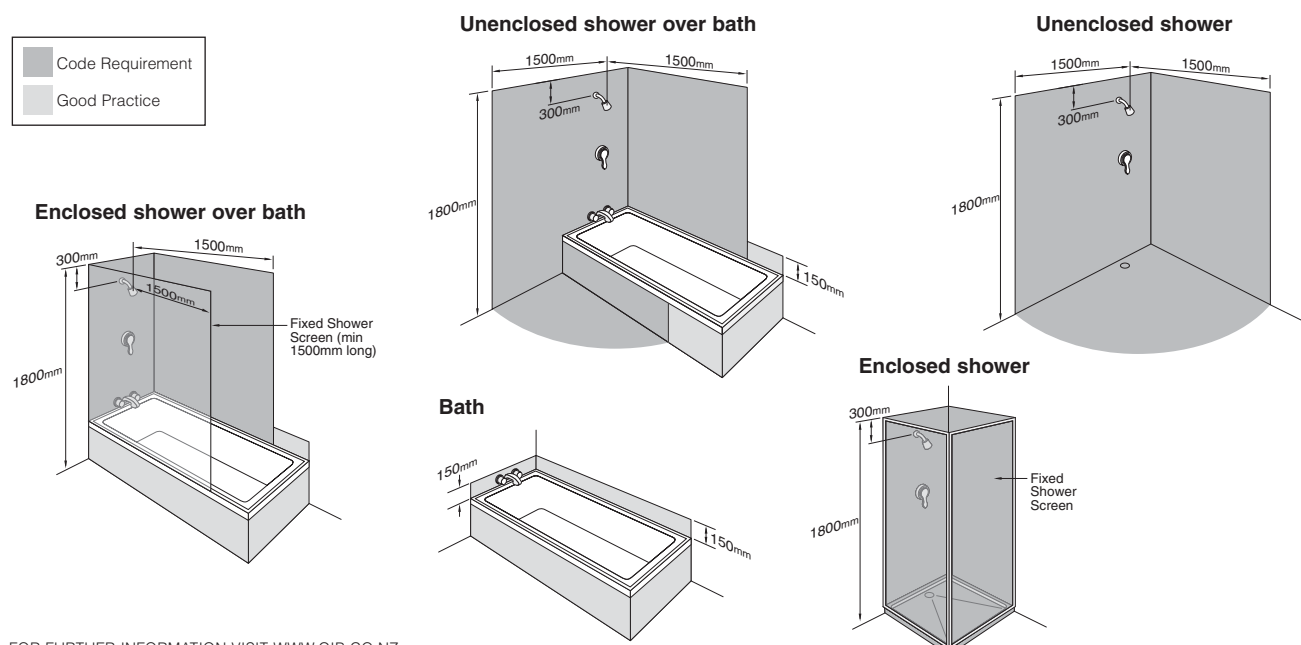
Suitable linings include all of the above, but **NOT including items (d) and (f) from the above list.**

Note that a waterproof membrane complying with AS/NZS 4858: 2004 **MUST** be applied to all lining materials used under ceramic tiles in these areas.

The waterproof membrane must extend to a 1500mm horizontal radius from a shower rose unless the shower is contained within a fixed enclosure. A shower curtain does not constitute a fixed enclosure.

Particleboard manufacturers recommend that in wet areas, panels should be protected with a suitable wet area membrane or an integrally waterproof sheet material. Some local authorities call for this treatment on all timber based floors. Local requirements should be checked before proceeding.

**Dark grey shaded areas in the diagrams below represent the minimum extent of wall surfaces requiring impervious sheet materials or waterproof membranes prior to tiling. Light grey shaded areas represent good practice.**



## GIB AQUALINE® WET AREA SYSTEMS – DESIGN



### Design Considerations

MARCH 2007

#### WALL SURFACES SURROUNDING COOKTOPS

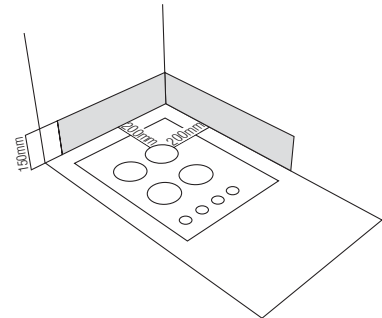
The protection of combustible surfaces surrounding gas cooking appliances is covered by NZS 5261. Consult the current version of this standard to ensure compliance.

However, 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 ceramic tiles on GIB® plasterboard
- 5mm toughened glass on GIB® plasterboard
- or any system that can be demonstrated to meet the requirements of Clause 2.6.2.6 of NZS5261.

Because of the moisture generated by cooking, it is highly recommended that GIB Aqualine® is used in kitchen areas.

GIB® plasterboard products must not be exposed to temperatures in excess of 52°C for sustained periods. Check with the appliance manufacturer that this requirement will be met. However, it would be unusual for surfaces outside 200mm to exceed 52°C for sustained periods.



#### 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
- Sealants should be of a mould inhibiting type and be neutral cure. 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
- Gun a bead of silicone sealant to the full depth of the GIB Aqualine® in the following locations:
  - Around all tap/pipe bodies
  - The gap between the bath rim and the bottom edge of the GIB Aqualine®
  - 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 GIB Aqualine® 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 then refer to the publication *Penetrations in GIB® Fire Rated Systems*. Always use tested and approved proprietary solutions.

#### WATERPROOF MEMBRANES

- A waterproof membrane must be applied to **all** 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 over the lining and the jointed areas shown shaded on page 6
- Only in-situ waterproofing materials which are manufactured to AS/NZS 4858:2004 "Wet Area Membranes" are recommended and applied to manufacturer's recommendations. Typically, these types of membranes are not suitable for paint and wallpaper finishes
- Waterproof membranes must be fully cured and dry prior to application of tiling adhesives
- Embed reinforcing mats in the membrane at all internal corners of the shower (including floor/wall junctions)
- 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 technical literature are generic in nature. For accurate detailing, follow the specifications provided by the supplier of the proprietary waterproof membrane.

#### TILING

GIB Aqualine® is suitable as a substrate for tiling up to the following weights:

- 10mm GIB Aqualine® up to 20kg/m<sup>2</sup>
- 13mm GIB Aqualine® up to 32kg/m<sup>2</sup>.

**Note:** Most ceramic and porcelain tiles weigh less than 20kg/m<sup>2</sup>.

For further information on tiling consult the BRANZ *Good Practice Guide – Tiling*.

## GIB AQUALINE® WET AREA SYSTEMS – DESIGN



### Design Considerations

MARCH 2007

#### FLEXIBLE SHEET VINYL – SHOWERS AND OTHER WET AREAS

- GIB Aqualine® is a suitable substrate for flexible vinyl wall finishes in wet areas of residential, commercial or institutional buildings
- Framing requirements and installation procedures for the GIB Aqualine® substrate shall be as per page 10 or 11, except that the lining gap at the floor should be reduced to 5mm when a pencil cove detail is used
- The installation of galvanised steel reinforcing angles (32 x 32 x 0.55mm) behind internal GIB Aqualine® corners is recommended for sheet vinyl applications in showers or shower over bath situations (see illustration page 14)
- The GIB Aqualine® lining must be jointed and stopped to a paint quality finish (Level 4) – trowel marks can telegraph through even a commercial grade 2mm vinyl
- A commercial grade vinyl is recommended for the wall finish 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 the 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 manufacturers/suppliers of thin (usually 2-3mm) and rigid acrylic shower linings commonly recommend direct adhesive fixing to wall linings using solvent-based adhesives
- Water temperature changes will cause movement of the thin acrylic sheet, which in turn will stress the adhesive and wall lining substrate
- **Do not preseal or paint** areas which are to be covered by the rigid shower linings
- The wall surface must be free of dust before installation of the lining
- 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
- Care must be taken to ensure that rooms are adequately ventilated and the adhesive is fully cured before the shower is used
- Consult the manufacturer/supplier of the shower lining for full installation details.

#### 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 within those spaces.

In most cases when renovating these rooms it is often easier and more cost-effective to remove the existing linings and replace them with GIB Aqualine®. This allows for a completely 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 and water resistant linings where appropriate
- Make the job easier.

#### MAINTENANCE

Lack of maintenance is frequently the cause of premature and often very expensive failure of components and building elements within wet areas.

It is important to regularly inspect and repair any potential problem before it becomes a major problem and 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 recoated 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.

## GIB AQUALINE® WET AREA SYSTEMS – DESIGN



### Non-residential and Apartments

MARCH 2007

High-rise and commercial wet areas can generally be divided into four separate categories:

#### HIGH-RISE APARTMENTS AND INTERTENANCY

Wet areas in apartment complexes are generally covered by Clause E3 of the NZBC and will have the same requirements as shown for residential applications. However, apartment buildings will also involve intertenancy walls requiring noise control and fire resistance.

Generally, noise control and fire resistance are the first consideration and then the water resistance is added to those systems.

For noise control, GIB Aqualine® can substitute for the equivalent thickness GIB® Standard plasterboard or GIB Fyrelite®.

For fire resistance, GIB Aqualine® can substitute for GIB Fyrelite® of equivalent thickness.

In all cases the prescribed noise control or fire resistance system specifications must be followed completely as presented in the GIB® publications *GIB® Noise Control Systems* and *GIB® Fire Rated Systems*.

Refer to typical details on page 25.

The NZBC for intertenancy calls for special consideration to be given to preventing water from travelling from one tenancy to another. This calls for a waterproof membrane to all wet area floors with upstands to walls and the inclusion of floor wastes.

It is important to avoid penetrations such as taps, shower roses, etc. in intertenancy walls as this will compromise fire and noise ratings.

#### OFFICE, WORKPLACE AND SCHOOLS

These wet areas are generally no different in requirements to those shown in this publication or those of high-rise apartments, and are treated in the same manner.

As there is often a higher impact requirement in commercial applications, 13mm GIB Aqualine® is the minimum thickness recommended.

These areas are often finished in sheet vinyl or ceramic tiles and GIB Aqualine® is an ideal substrate, particularly in the case of sheet vinyl where a high quality finish is required to minimise telegraphing of imperfections in the substrate.

#### HEALTHCARE AND HOSPITALS

This industry will generally have special requirements for wet areas. GIB Aqualine® will generally satisfy specific design needs in healthcare facilities and in particular is an ideal substrate for the preferred finish of sheet vinyl.

#### PUBLIC AMENITIES AND SPORTS CLUBS

Public amenities and sports clubs often have a high demand for impact resistance, therefore 13mm GIB Aqualine® should be used, and suitable impact resistant wall coverings considered, such as heavy duty sheet vinyl or ceramic tiles over waterproof membrane to 1200mm high.

Also full consideration should be given to the usage of the amenity and whether high pressure or chemical cleaners will be used or if the amenity may be subject to vandalism.

Because of extreme humidity and presence of chemicals, GIB Aqualine® is not suitable for enclosed swimming pool areas.

Contact the GIB® Helpline on 0800 100 442 for further assistance.

# GIB AQUALINE® WET AREA SYSTEMS – FRAMING AND LINING INSTALLATION



## Non-tiled Walls – Timber Framing

MARCH 2007

If bracing, noise control or fire rating considerations exist, consult the relevant GIB® technical publication, e.g. *GIB® Fire Rated Systems*, *GIB® Noise Control Systems*, *GIB® Bracing Systems*, for the appropriate information.

### Wall Framing

Framing dimensions must comply with the requirements of NZS 3604:1999.

- 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

- 10mm GIB Aqualine® – minimum 25mm x 6g GIB® Grabber® High Thread Drywall Screws or 30mm x 2.8mm GIB® Nails
- 13mm GIB Aqualine® – minimum 32mm x 6g GIB® Grabber® High Thread Drywall Screws or 30mm x 2.8mm GIB® Nails.

### 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
- 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.

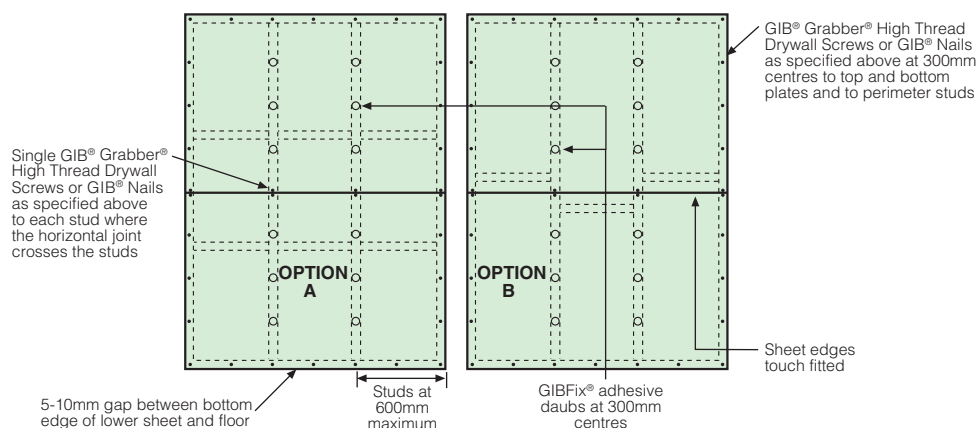
### Lining

- 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.

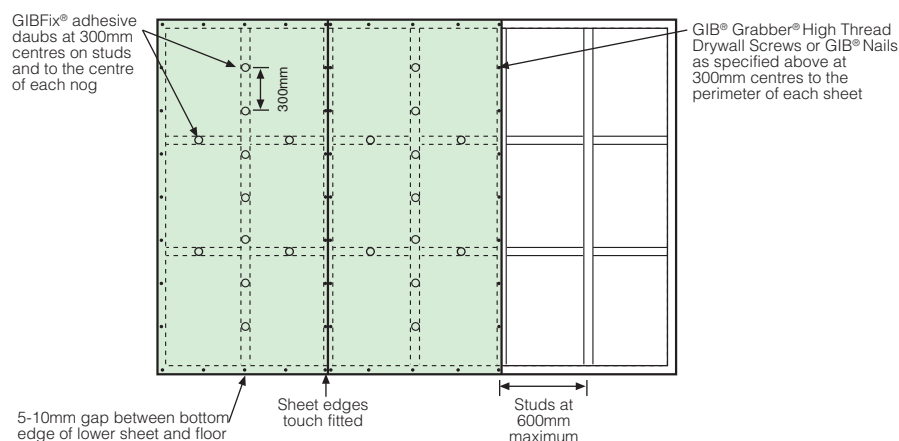
### Jointing

- Jointing shall be carried out in accordance with the instructions in the *GIB® Site Guide*; GIB® AquaMix is recommended for the first two coats.

### Fastening the Linings – Horizontal Fixing Only



### Fastening the Linings – Vertical Fixing Only



# GIB AQUALINE® WET AREA SYSTEMS – FRAMING AND LINING INSTALLATION



## Non-tiled Walls – Steel Framing

MARCH 2007

The minimum sheet thickness for fixing on light gauge steel framing is 13mm GIB® plasterboard.

Steel framing for residential construction is by specific design.

If noise control or fire rating considerations exist, consult the relevant GIB® technical publication (e.g. *GIB® Fire Rated Systems* or *GIB® Noise Control Systems*) for the appropriate information.

### Wall Framing

- Steel stud dimensions to be minimum 63 x 34 x 0.55mm nominal with a 6mm return
- Steel channel dimensions to be minimum 63 x 30 x 0.55mm nominal
- Studs shall be spaced at 600mm centres maximum
- Ensure that the studs are placed with the open side facing in the same direction (see *GIB® Site Guide*).

### Fasteners

- 25mm x 6g GIB® Grabber® Self Tapping Drywall 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
- 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.

### Lining

- Lay the sheets, leaving a 5-10mm gap at the floor line.

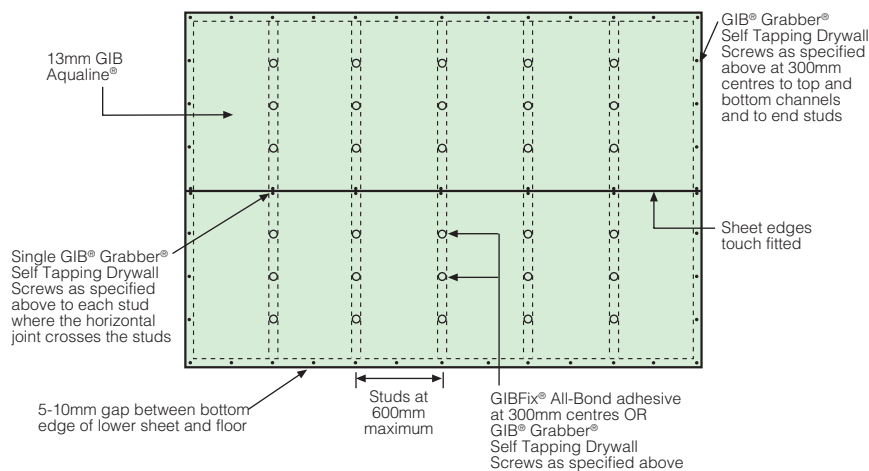
**Note:** If friction fitted steel studs have been used, sheets must be fitted hard to the floor. Ensure floor is cured and dry

- Sheets to be touch fitted.

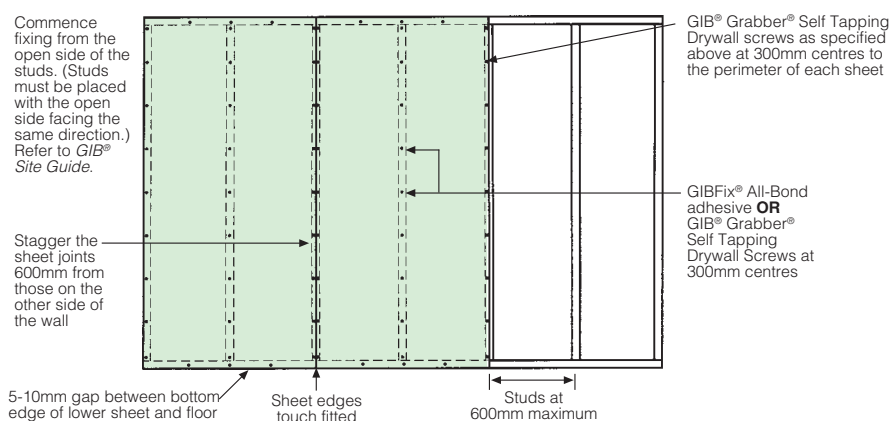
### Jointing

- Jointing shall be carried out in accordance with the instructions in the *GIB® Site Guide*. GIB® AquaMix is recommended for the first two coats.

### Fastening and Jointing the Linings – Horizontal Fixing



### Fastening and Jointing the Linings – Vertical Fixing



# GIB AQUALINE® WET AREA SYSTEMS – FRAMING AND LINING INSTALLATION



## Tiled Walls

MARCH 2007

**Important:** See page 6 and 7 for waterproof membrane requirements.

### Wall Framing

Framing dimensions and spacing must comply with the requirements of NZS 3604:1999 or relevant NZ Standard.

- 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. Each side of the angle shall be fastened to the framing with 30mm galvanised clouts at 300mm centres
- Steel stud systems do not generally require nogs except as below:
  - Adjacent to each pipe penetration and behind sink and tub flashings
  - Between all studs above bath flanges and preformed shower bases
- 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 either vertical fixing of the GIB Aqualine® or the installation of some additional nogs.

### Fasteners

- For 10mm GIB Aqualine® use minimum 25mm x 6g GIB® Grabber® Drywall Screws
- For 13mm GIB Aqualine® use minimum 32mm x 6g GIB® Grabber® Drywall Screws.

### Fastener Centres

- GIB® Grabber® Drywall Screws at 100mm centres to perimeter of wall and to all intermediate studs
- Adhesive is not to be used in place of mechanical fastenings.

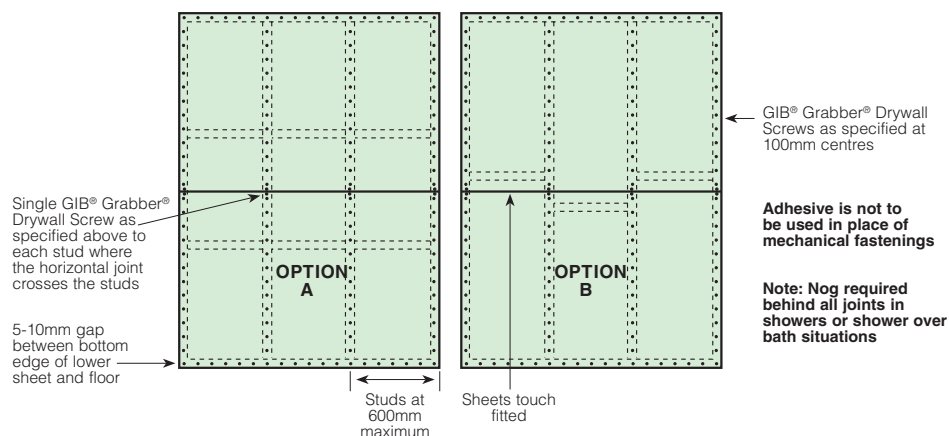
### Lining

- 10mm or 13mm GIB Aqualine® is suitable for use on timber framing and for tile weights up to 20kg/m<sup>2</sup>
- 13mm GIB Aqualine® must be used for tile weights between 20 and 32kg/m<sup>2</sup> and when light steel framing has been used
- GIB Aqualine® may be fixed vertically or horizontally
- Provide a 5-10mm gap at the wall/floor junction
- Provide a 5-10mm gap between the bottom edge of the GIB Aqualine® and any bath rim or preformed shower base to allow for placement of sealant
- GIB Aqualine® sheets shall be touch fitted
- Where the framing or fastener centres required for tiled areas are closer than those specified for GIB® Fire Rated and GIB® Noise Control Systems, the tiling specification shall prevail. Where relevant, check that fastener lengths comply with the requirements of GIB® Fire Rated Systems or GIB® Noise Control Systems.

### Jointing

- Jointing shall be carried out in accordance with instructions in the *GIB® Site Guide*
- Water resistant GIB® AquaMix is recommended for the first two coats
- No top coat is required.

### Fastening the Linings – Horizontal Fixing in Tiled Areas



### Note:

GIB Aqualine® is suitable for tiling to full height of walls, but if a wall is to be partially tiled (i.e. half high), only the area of wall under the tiles needs to be fixed as above. The remainder of the wall may be fixed as for non-tiled area (see page 10 & 11).

# GIB AQUALINE® WET AREA SYSTEMS – FRAMING AND LINING INSTALLATION



## Ceilings

MARCH 2007

### Ceiling Framing

Framing dimensions and spacing must comply with the requirements of NZS 3604:1999 or relevant NZ Standard. If bracing, noise control, fire rating considerations exist consult the relevant GIB® publication for appropriate information.

### Fasteners

- Steel battens – 25mm x 6g GIB® Grabber® Self Tapping Drywall screws
- Timber battens or Joists – 32mm x 6g GIB® Grabber High Thread Drywall screws.

### Adhesives

- Steel battens – GIBFix® All-Bond
- Timber battens – GIBFix® Wood Bond (not suitable for LOSP treated timber).

### Fasteners Centres

- Single screws to the edges and centre of the sheets across each batten
- 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 or nail pops.

### Lining

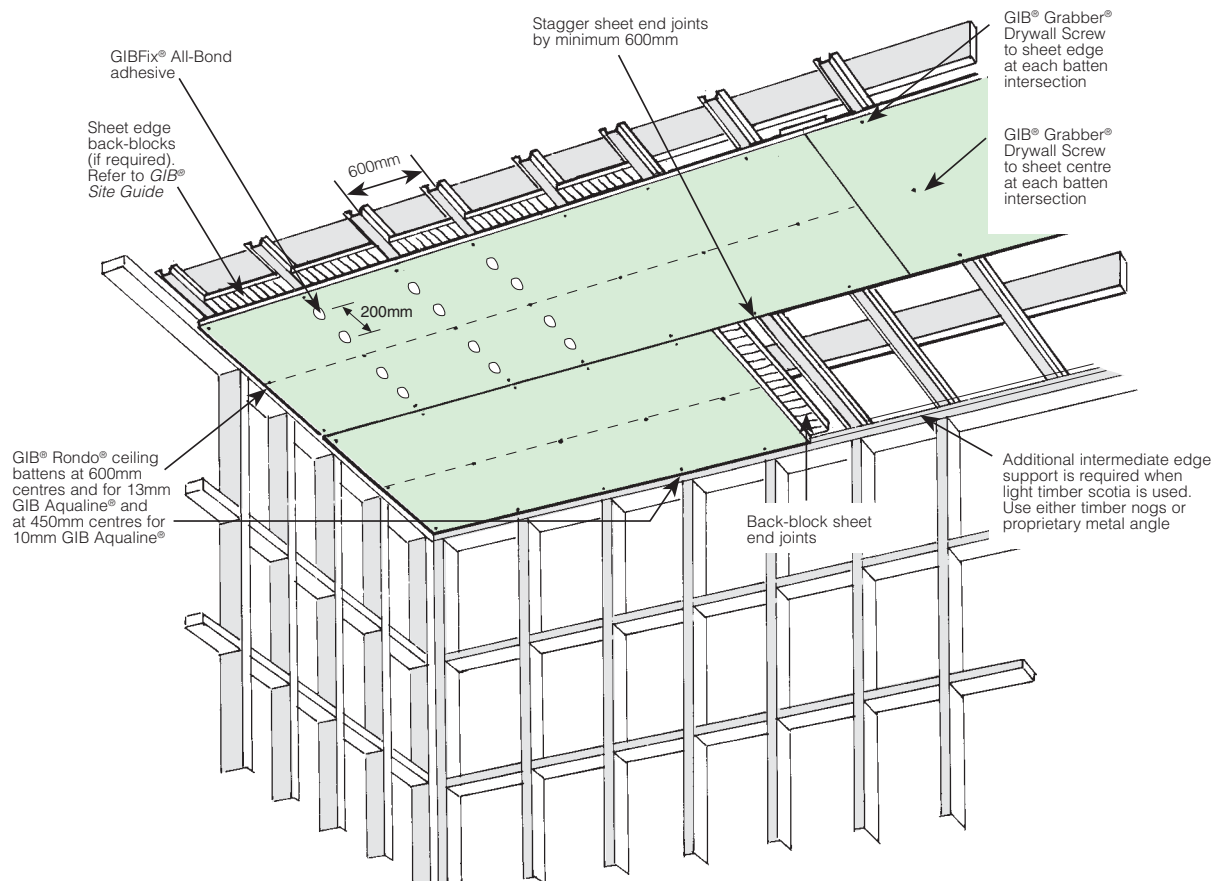
- The lining shall be fixed at right angles to the battens or joists
- Commence fixing from the centre of the sheets outwards
- Sheets to be touch fitted
- Use long length sheets to minimise sheet end butt joints
- Back-block sheet end butt joints
- See GIB® Site Guide for sheet edge backblocking requirements.

### Batten Spacings

- 13mm GIB Aqualine® plasterboard – 600mm centres max
- 10mm GIB Aqualine® plasterboard – 450mm centres max.

### Jointing

- All sheet joints must be paper tape reinforced and stopped in accordance with instructions in the *GIB® Site Guide*. Water resistant GIB® AquaMix is recommended for the first two coats.
- Do not fix tiles to GIB® plasterboard ceilings.

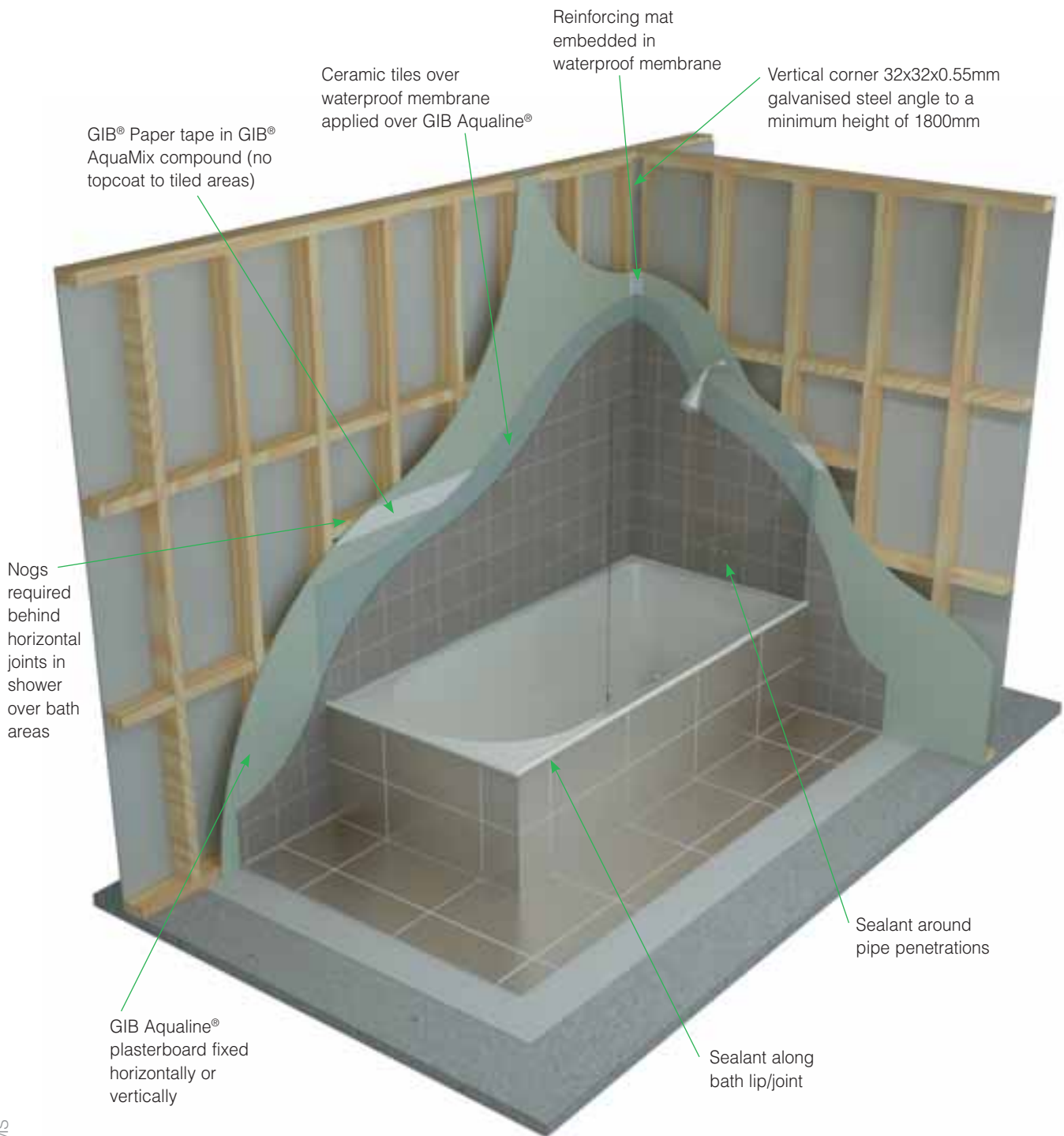


## GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS



### Shower Over Bath – Tiled Walls

MARCH 2007



Run a bead of silicone sealant around the mixer unit on the tiles extending below the bottom of the pipe aperture.

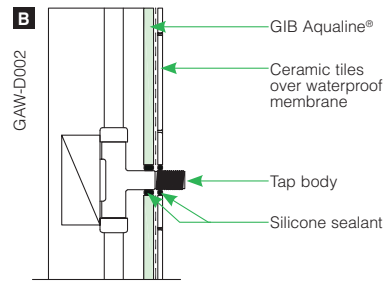
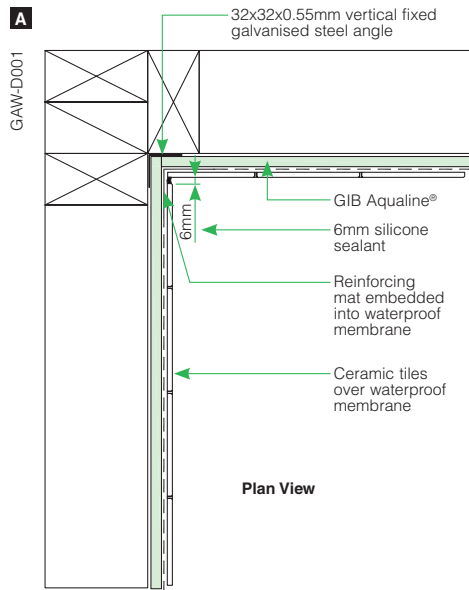
For typical details, see the following pages.

# GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS

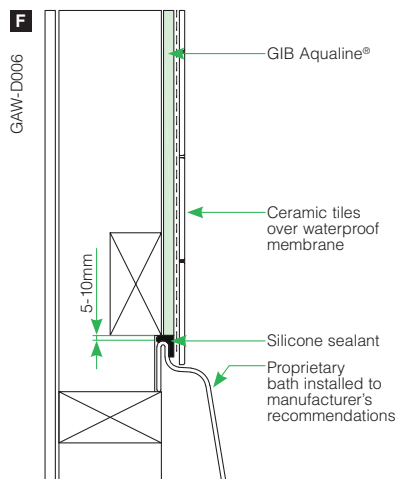
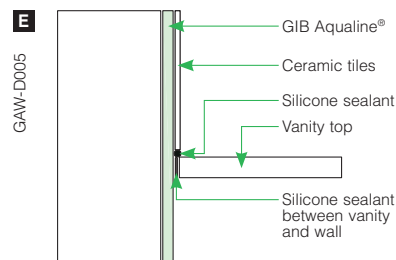
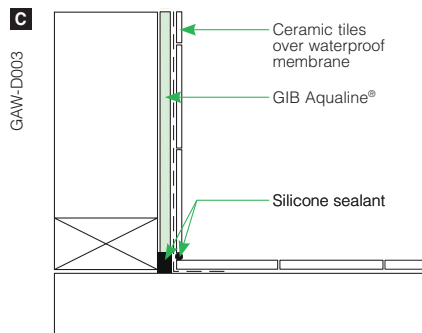
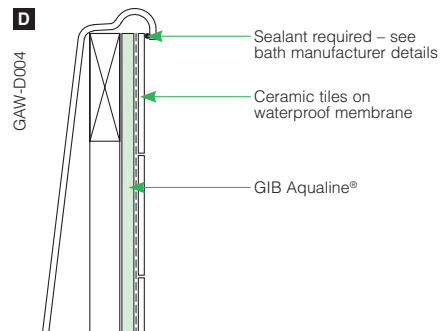


## Shower Over Bath – Tiled Walls

MARCH 2007



**Note:**  
Where impact noise from pipes is an issue, fix all pipes on resilient brackets.

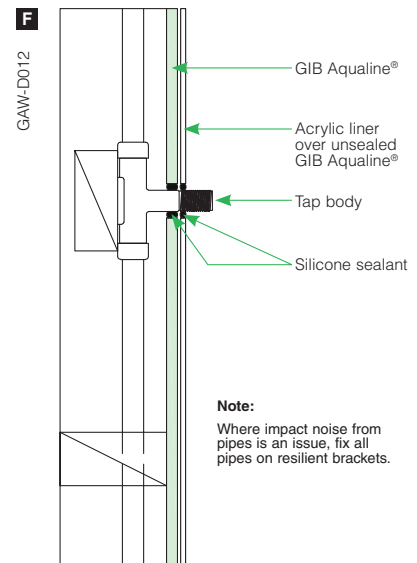
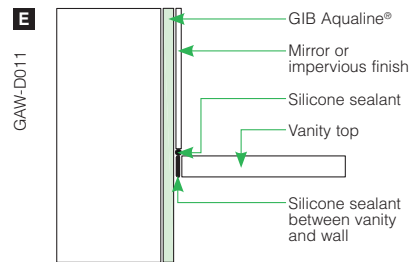
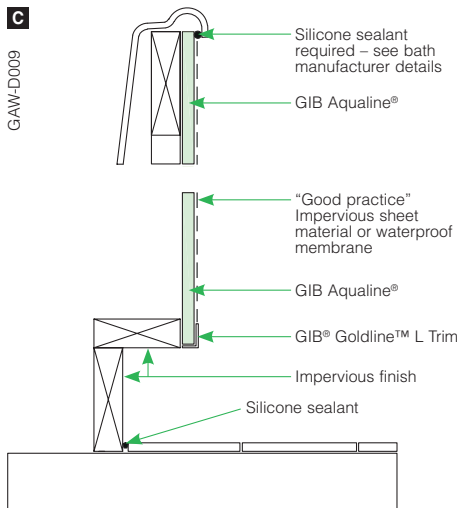
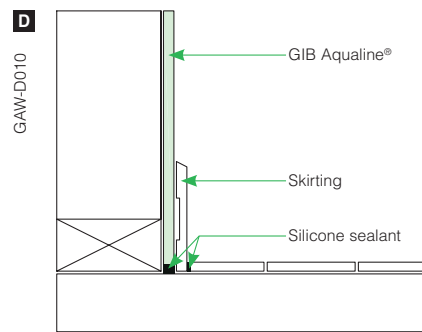
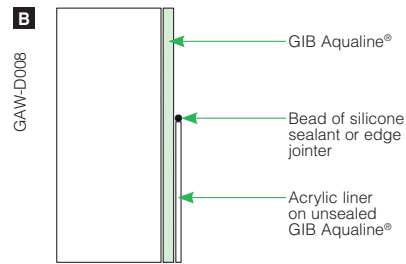
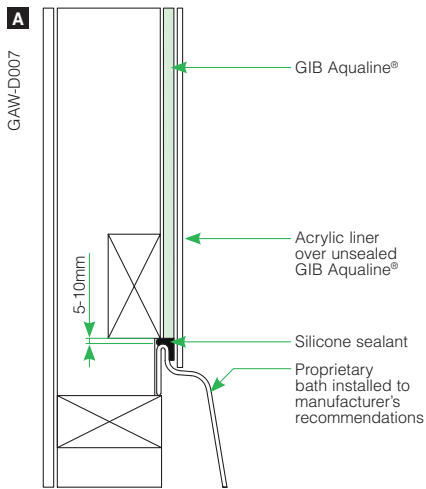


# GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS



## Shower Over Bath – Acrylic Liner

MARCH 2007

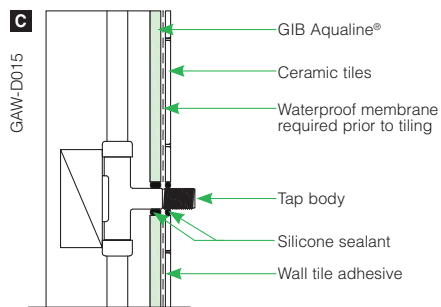
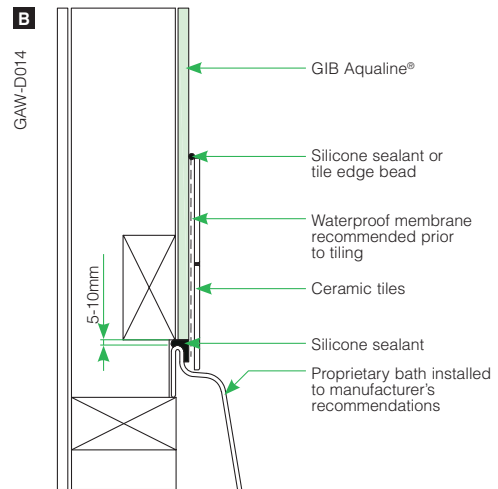
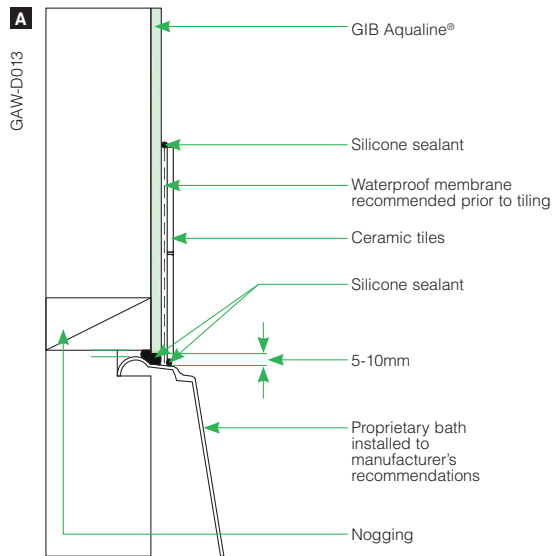


# GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS

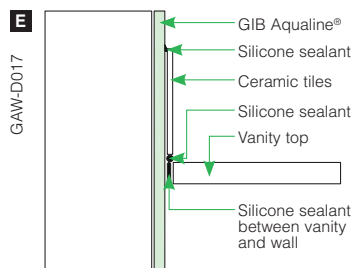
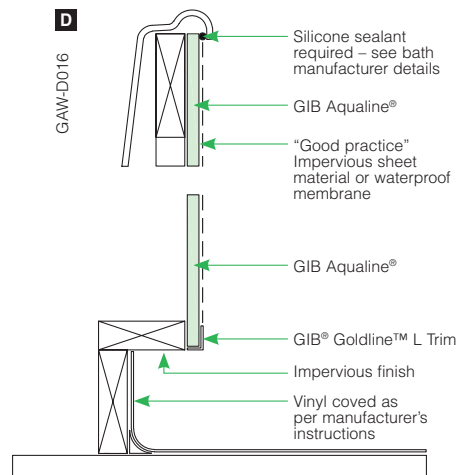


## Bath – Tiled Upstand

MARCH 2007



**Note:**  
Where impact noise from pipes is an issue, fix all pipes on resilient brackets.

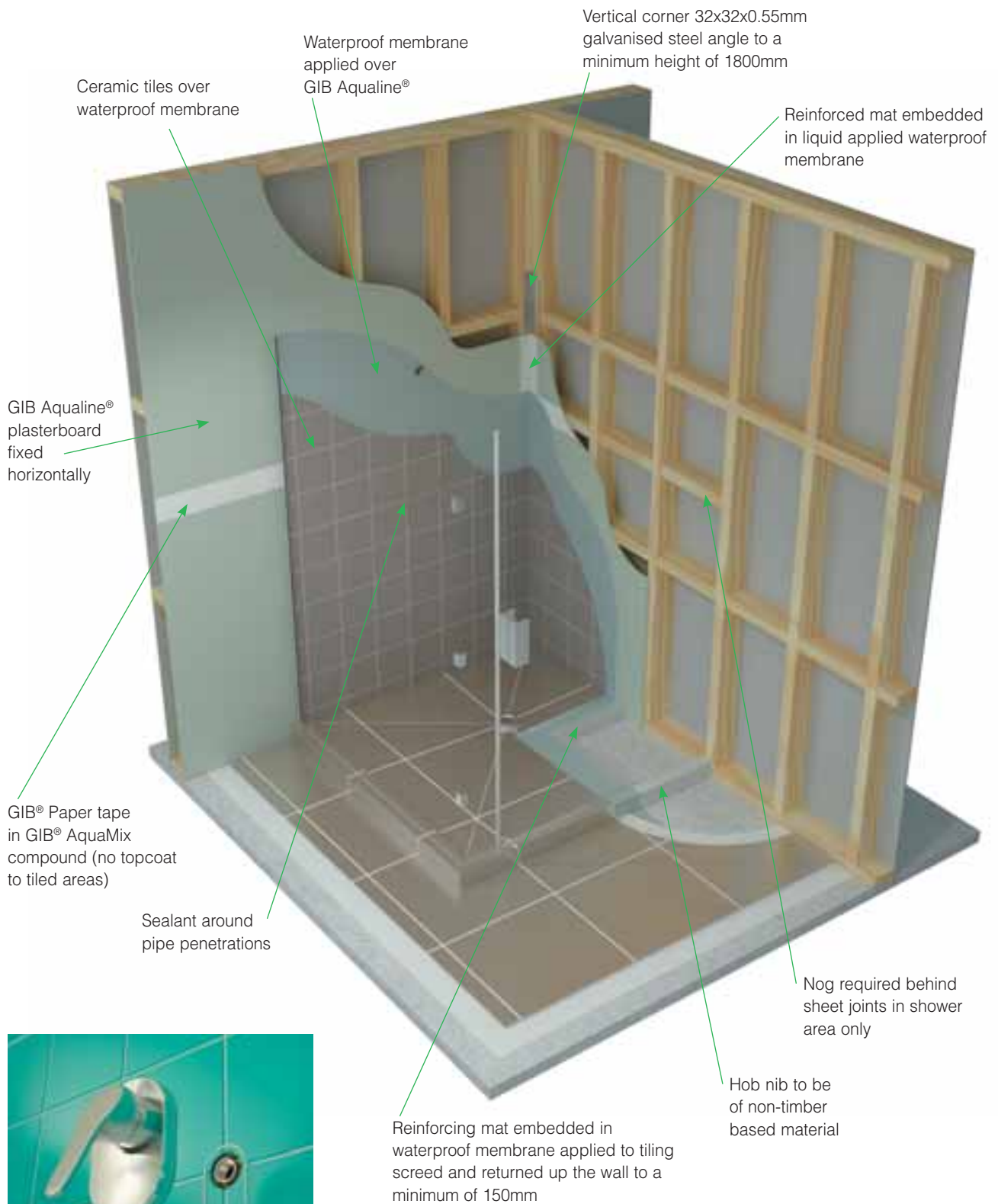


## GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS



### Shower – Tiled Walls and Base

MARCH 2007



Run a bead of silicone sealant around the mixer unit on the tiles extending below the bottom of the pipe aperture.

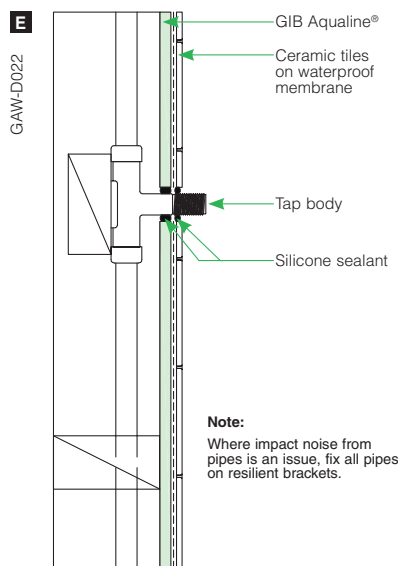
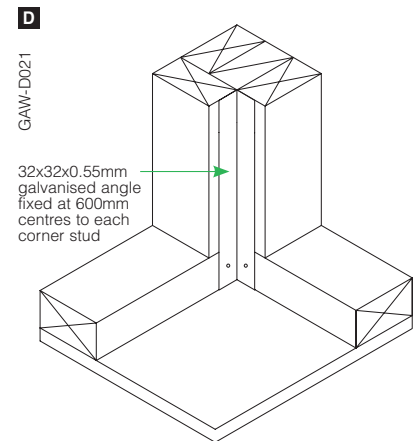
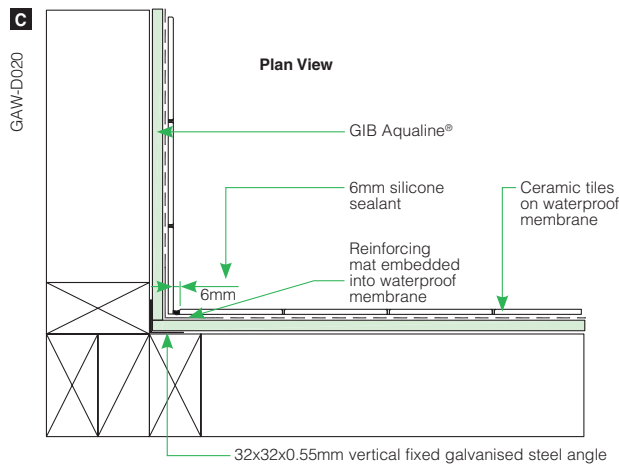
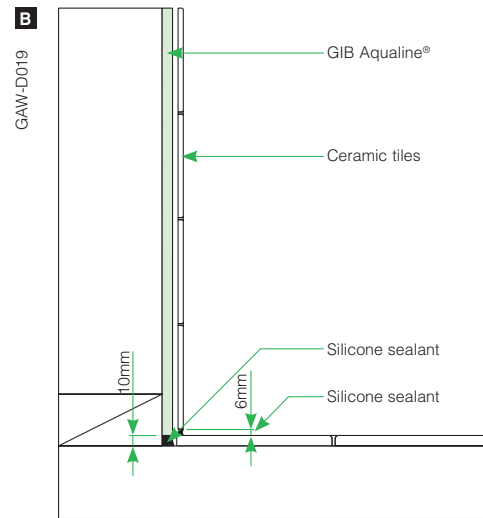
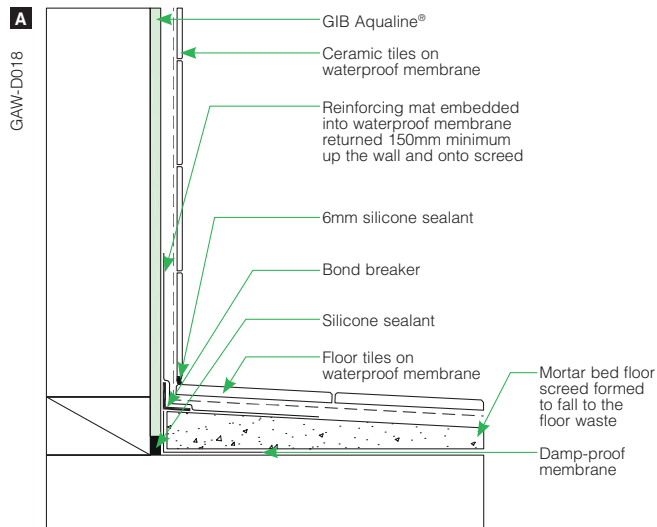
For typical details, see the following pages.

# GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS



## Shower – Tiled Walls and Base

MARCH 2007

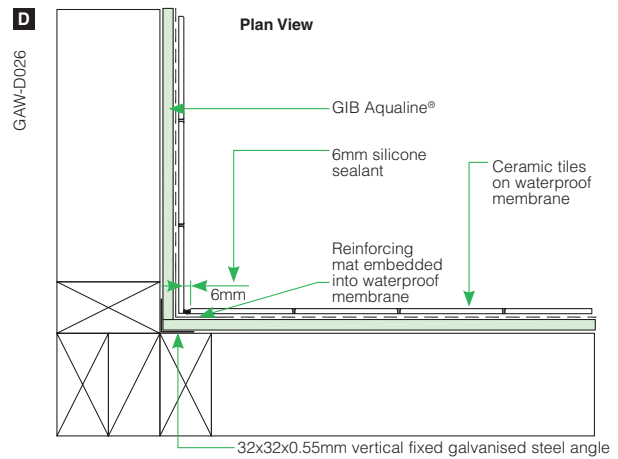
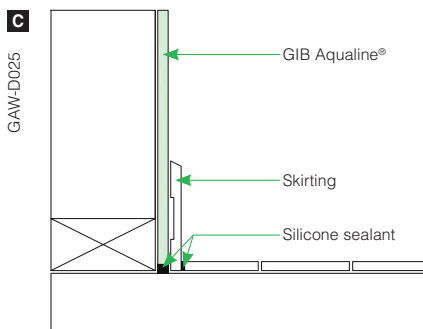
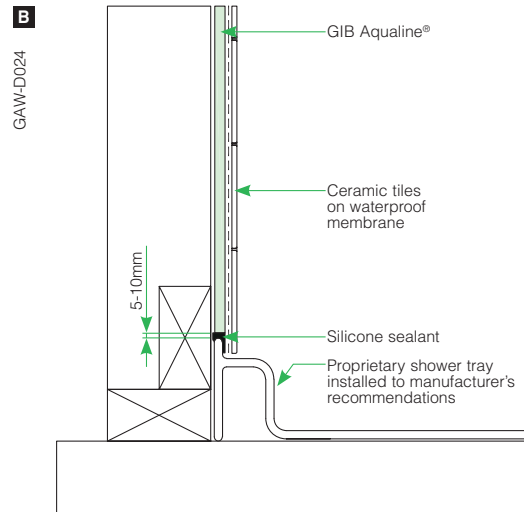
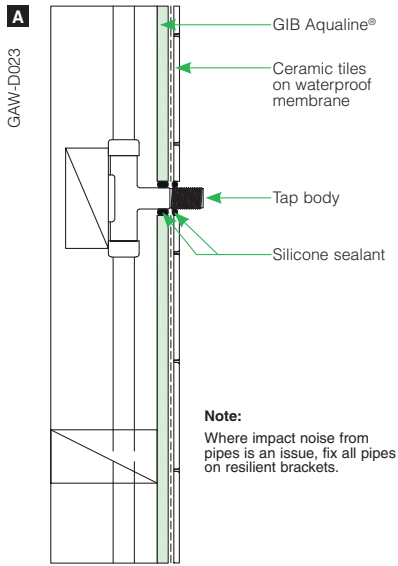


# GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS



## Shower – Tiled Walls and Acrylic Base

MARCH 2007



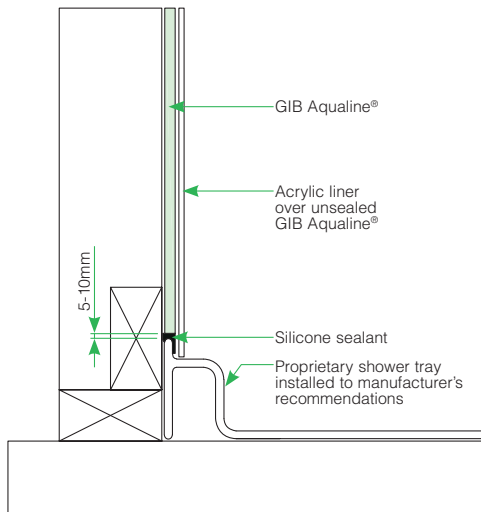
# GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS



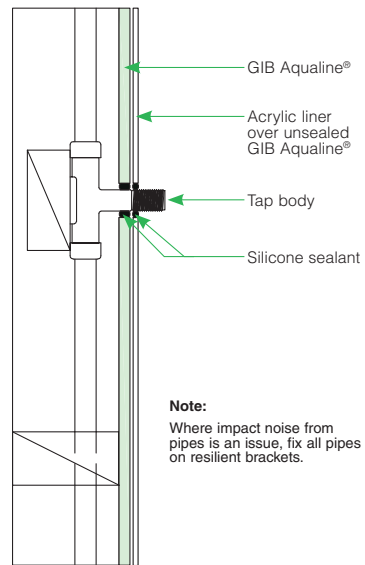
## Shower – Acrylic Liner and Base

MARCH 2007

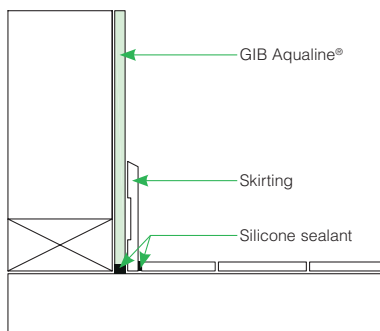
A  
GAW-D027



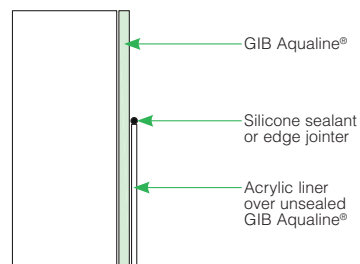
B  
GAW-D028



C  
GAW-D029



D  
GAW-D030

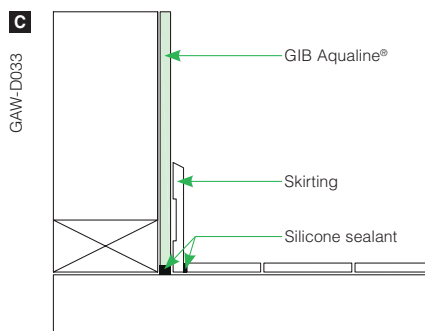
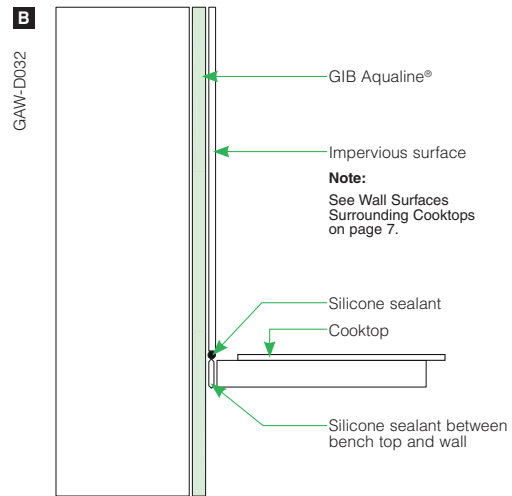
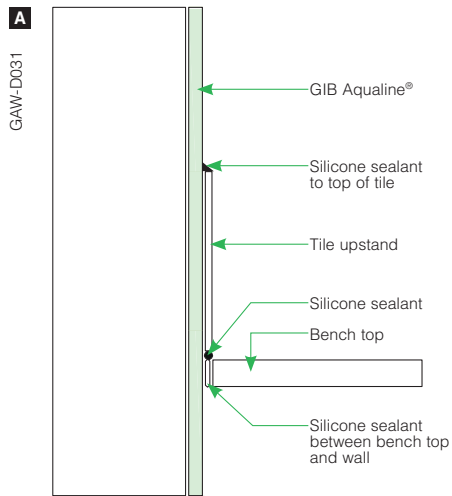


# GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS



## Kitchen and Laundry

MARCH 2007



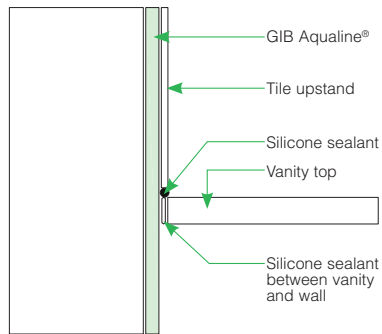
# GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS



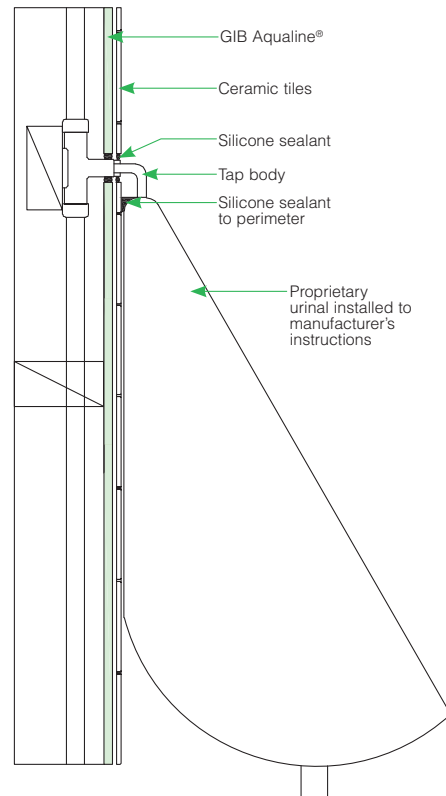
## Office, Workplace or School Bathroom

MARCH 2007

**A**  
GAW-D034



**B**  
GAW-D035

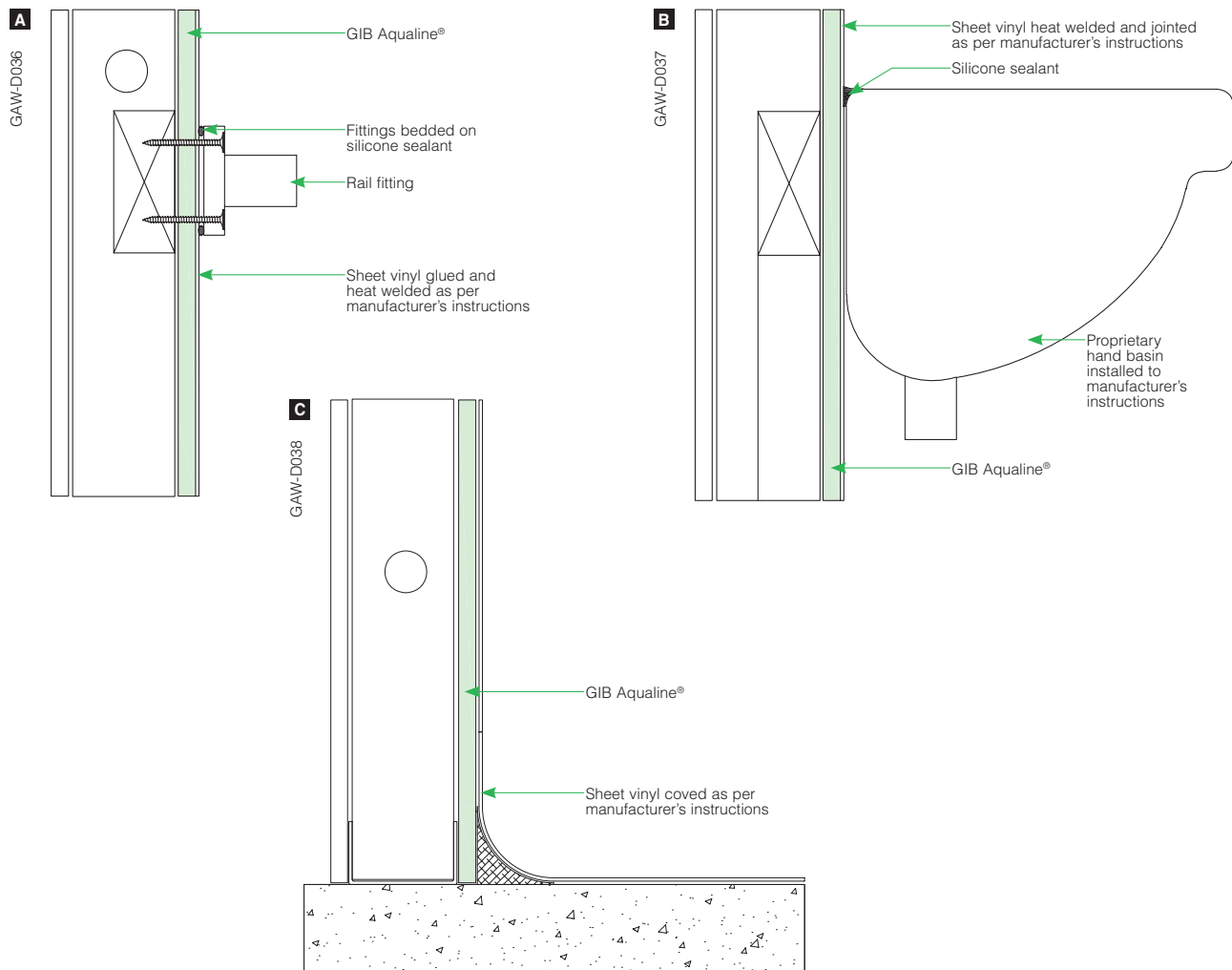


# GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS



## Healthcare and Hospital Bathroom

MARCH 2007



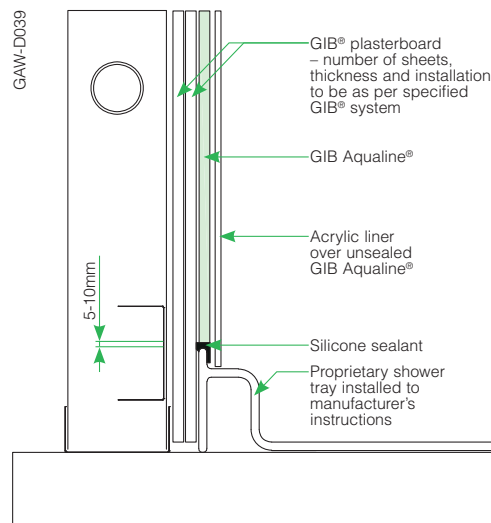
# GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS



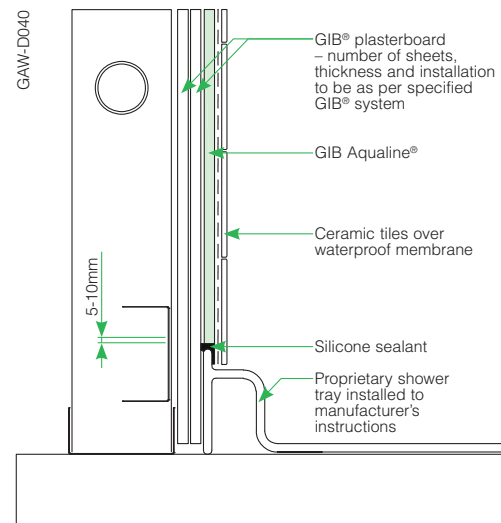
## Fire Rated and Noise Control

MARCH 2007

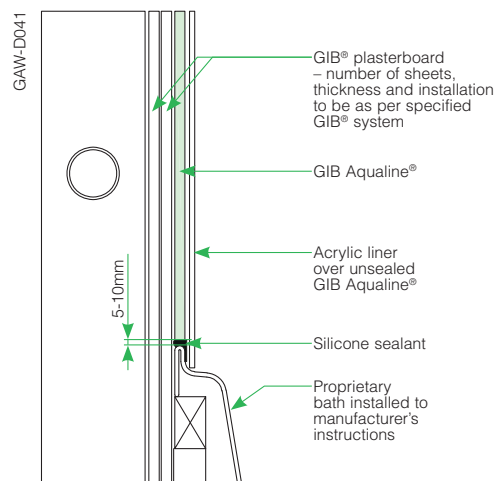
**Shower – Acrylic Liner**



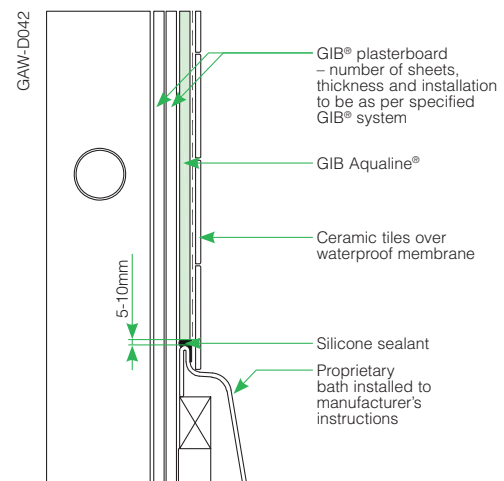
**Shower – Tiled Walls**



**Shower Over Bath – Acrylic Liner**



**Shower Over Bath – Tiled Walls**



### GIB Aqualine® Fire Resistance and Noise Control Performance

When GIB Aqualine® is substituted into GIB® Fire Rated systems in place of the equivalent thickness GIB Fyrelite®, the Fire Resistance Rating (FRR) of that system will be maintained.

When GIB Aqualine® is substituted into GIB® Noise Control systems in place of the equivalent thickness GIB® Standard plasterboard or GIB Fyrelite®, the STC and IIC rating of that system will be maintained. When GIB Aqualine® is substituted in place of the equivalent thickness GIB Noiseline®, a small performance loss may occur. For further information contact the GIB® Helpline on 0800 100 442.

# GIB AQUALINE® WET AREA SYSTEMS

## Specification and Installation Checklist

MARCH 2007

Contract ID	
Site Address	
Client Name	
Designer	
Builder	
Plasterboard Installer	
Plasterboard Supplier	
Tiler	
Shower Installer	

DESIGNER	YES	NO	CHECKED BY	DATE
GIB Aqualine® specified for wet areas and appropriate details included on plans?				
Are tiled areas clearly shown on plans?				
Is area requiring waterproof membrane clearly shown on plan?				
Is the waterproof membrane required to be installed by a licensed applicator? If so, is this noted on the documentation?				
No bracing behind shower or bath?				
BUILDER	YES	NO	CHECKED BY	DATE
Galvanised steel angle installed to the internal corners of tiled shower?				
All sheet joints in showers to be made on solid timber. This may require some additional dwangs for horizontal board installation.				
PLASTERBOARD INSTALLER	YES	NO	CHECKED BY	DATE
10mm GIB Aqualine® for tiles up to 20kg per m²?				
13mm GIB Aqualine® for tiles up to 32kg per m²?				
GIB Aqualine® mechanically fastened at 100mm centres when tiles are to be installed?				
All junctions between GIB Aqualine® and walls, floors, baths, showers and other elements are correctly sealed with appropriate sealant?				
Pipe penetrations sealed?				
PLASTERBOARD STOPPER	YES	NO	CHECKED BY	DATE
Air drying compound (e.g. GIB ProMix® or GIB Plus 4®) not to be used on areas to be tiled.				
Recommended that GIB® AquaMix is used in wet areas.				
TILER	YES	NO	CHECKED BY	DATE
Waterproof membrane applied to shower areas prior to tiling?				
SHOWER INSTALLER	YES	NO	CHECKED BY	DATE
GIB Aqualine® walls must not be sealed or painted under where acrylic linings are to be installed.				
Ensure GIB Aqualine® is free from dust before installation of acrylic liners.				
Sealant applied to top edge of acrylic shower linings?				
BUILDER/PLUMBER	YES	NO	CHECKED BY	DATE
Sealant applied under penetration face covers?				

Flexible Duct

The Shower Fan  
screwed to the joist

Internal  
Grille

External  
Grille

## INSTALLATION INSTRUCTIONS

### CLASSIC IN-LINE FAN SF125 MODELS

The Manrose Shower Fan is designed for safe ventilation within a shower cubicle.

Thank you for selecting our Manrose 125mm In-Line Fan Kit.  
Please read all instructions before commencing installation.

1. First select the grille you prefer in your room. There are two designs a circular ceiling grille which we recommend as the interior grille, and a fixed louvre design which is suitable for the exterior.
  2. The interior grille comes in two parts, the chassis (or spigot) and the circular fascia. If using fixing clips cut a 135mm hole in the ceiling ensuring first that the area above is free from obstruction. Alternatively cut a 120mm hole.
  3. Fit 2 fixing clips supplied to the grill chassis then push the chassis (or spigot) section into the hole in the ceiling. Alternatively mark the position of the fixing holes on the ceiling, drill the holes and screw the grille chassis to the ceiling. Then refit the fascia to the chassis by aligning the locking tabs and twisting clockwise to secure.
  4. Select a suitable place for the Fan to be screwed to a joist and secure using two screws through the fixing bracket. The fan motor is of ball bearing design to prolong the life of the motor.
  5. Select a suitable position either in the soffit or on an outside wall for the other grille (fixed louvre). Carefully remove the grille insert from its housing by levering gently at the sides with a small screwdriver. Cut a 130mm hole ensuring first that the area above is free from obstruction.
  6. Attach one end of the flexible duct to the spigot with the duct tape provided and from the outside feed the duct through the hole until the grille is flush with the soffit/wall. Mark the position of the fixing holes on the soffit/wall. Drill the holes and screw the grille chassis to the soffit/wall then refit the grille to the chassis.
- Note:** It is best not to cut the flexible duct until the grille has been screwed to the outside surface to avoid the possibility of cutting the duct too short.
7. Pull the flexible duct gently to the discharge spigot of the fan and cut it to length and connect to the fan with duct tape provided.
- Note:** The discharge end of the Fan unit is the end where you can see the fan blade clearly. There is also an arrow on the unit showing airflow direction.
8. Connect the remaining piece of duct to the ceiling grille and onto the fan using the duct tape provided. **Note:** Make sure wherever possible to keep the duct running in a straight line as this will improve the performance of the fan.

#### IMPORTANT

- Isolate the mains supply before making any electrical connections.
- This system should be installed by a qualified electrician.
- When fitting through an external wall, an external grille must be fitted at all times.
- Fan should only be installed by fixed wiring, a flexible cord should not be used.
- The appliance is not intended for use by young children or infirm persons without supervision.
- Young children should be supervised to ensure that they do not play with the appliance.
- Precautions must be taken to avoid the back-flow of gases into the room from the open flue of gas or other open-fire appliances when mounted in outside windows or walls.

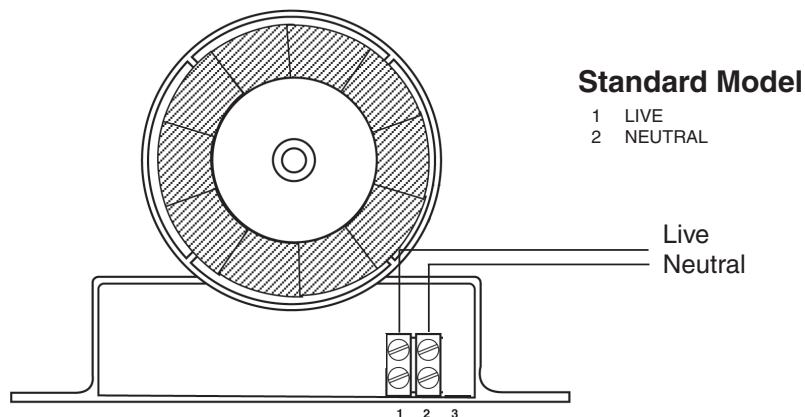
We reserve the right to change specification without prior warning



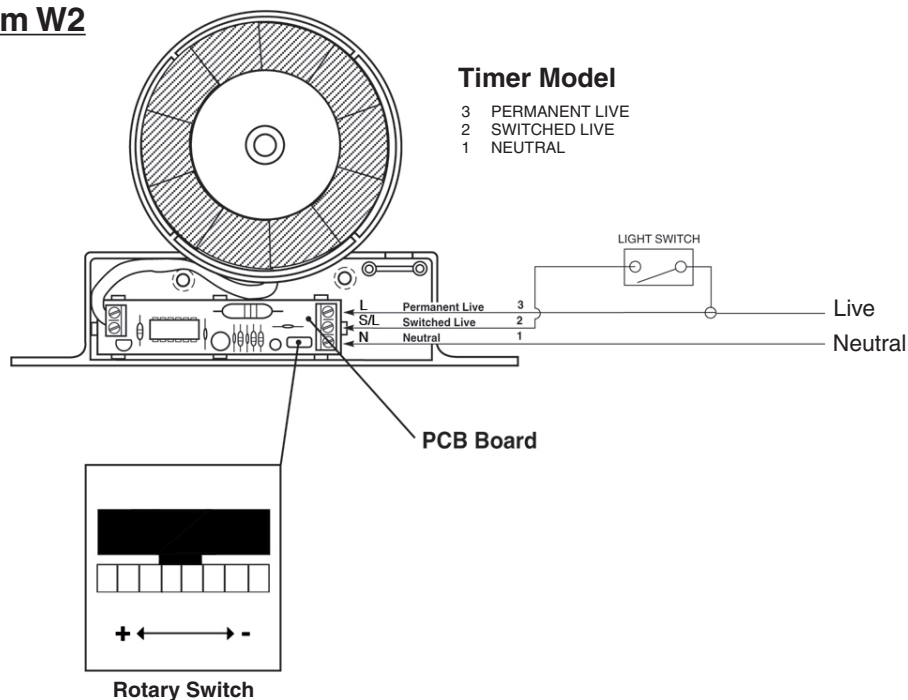
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WAIMAKARIRI DISTRICT COUNCIL  
Plans and specifications APPROVED in accordance  
with the Building Act 2004, clause 49 and the Building  
Regulations 1992, Clause 3  
200253 1/04/2020 Chrisk

## Diagram W1



## Diagram W2



9. Remove the cover on the Fan Bracket and make the electrical connection as follows:

### Wiring of Standard Model FAN0064 - SF125S (Diagram W1).

The fan can be connected to the light switch so that the fan will start when the light is switched on, or a dedicated fan switch (not supplied). The fan should not be accessible to a person using either the shower or the bath.

**Note:** All wiring must be fixed securely and the cable to the fan should be a minimum of 1mm<sup>2</sup> in section. All wiring must comply with Current Regulations. This system should be installed by a qualified electrician.

### 10. Wiring of Timer Model FAN0065 - SF125T (Diagram W2).

The fan can be connected to the light switch so that the fan will start when the light is switched on, or a dedicated fan switch (not supplied). The fan should not be accessible to a person using either the shower or the bath.

**Note:** All wiring must be fixed securely and the cable to the fan should be a minimum of 1mm<sup>2</sup> in section. All wiring must comply with Current Regulations. This system should be installed by a qualified electrician.

When the light switch or fan switch is switched off the fan will run for between 20 seconds & 30 minutes (pre-set to 1 minute). The fan should not be accessible to a person using either the shower or the bath.

### 11. Timer Adjustment SF125T

This time delay can be adjusted by firstly switching off the power to the fan and removing the cover. Locate the rotary adjuster as shown in Diagram W2. The serrated adjuster wheel can be rotated using a thumbnail to adjust the timer setting.

- + = Rotate to the left to increase the time (indicated by + on the diagram)
- = Rotate to the right to decrease the time (indicated by - on the diagram)

**Only adjust with power switched off.**

### NOTE:

This unit is double insulated and therefore does not require an earth. The time delay is preset for approximately one minute and can be adjusted as described in paragraph 11. Try to keep the duct as straight as possible and wherever possible keep the distance between the ceiling grille and the external soffit or wall as short as possible as the shorter the length of duct the better the performance of the fan.

### Specifications

Electrical: 220-240V ~50Hz

Fan Wattage: 20W

IP Rating: IP44

Max Temp: 40°C

Max Pressure: 35 Pa

Airflow: 36l/s (130m<sup>3</sup>/hr)

Sound Volume: 41 dB(A)

