

# Sharalyn Fraser *Agency*

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# CODE COMPLIANCE CERTIFICATE

Section 95 Building Act 2004 [Form 7 – Building (forms) Regulations 2004]



Consent No: 180550

| The Building                                                                      |                                                                                              |                                                    |                               |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------|
| Street address of building:                                                       | 2 Lamont Place, Waikanae                                                                     | Building name:                                     | N/A                           |
| Current, Lawfully established, use:                                               | Residential Dwelling                                                                         | Location of building within site/block number:     | Towards front of site         |
| Level/unit number:                                                                | Single Level                                                                                 | Intended life of the building if 50 years or less: | -                             |
| Legal description of land where building is located:                              | LOT 29 DP 409302 C/T 434083                                                                  | Year first constructed:                            | 2018                          |
| The Owner                                                                         |                                                                                              |                                                    |                               |
| Name of owner:                                                                    | Pate Geoffrey Kenneth & Finman Trustees Limited                                              | Street address /registered office:                 | 11 Kodex Place, Paraparaumu   |
| Contact person:                                                                   | As above                                                                                     | Phone numbers:                                     |                               |
| Mailing address:                                                                  | C/-The Trustees G Pate Family Trust<br>PO Box 84<br>Paraparaumu 5254                         | Landline:                                          | 04 296 1248                   |
| Email address:                                                                    | kapiti@gjgardner.co.nz                                                                       | Mobile:                                            | -                             |
| Website:                                                                          | -                                                                                            | Daytime:                                           | -                             |
|                                                                                   |                                                                                              | After hours:                                       | -                             |
|                                                                                   |                                                                                              | Facsimile number:                                  | -                             |
| First point of contact for communications with the Kapiti Coast District Council: |                                                                                              |                                                    |                               |
| As above                                                                          |                                                                                              |                                                    |                               |
| Building Work                                                                     |                                                                                              |                                                    |                               |
| Building Consent No:                                                              | 180550                                                                                       | Issued by:                                         | Kapiti Coast District Council |
| Project Description:                                                              | New dwelling, 3 bedrooms & study, 2 bathrooms, 1 living area. Double internal access garage. |                                                    |                               |

## Code Compliance

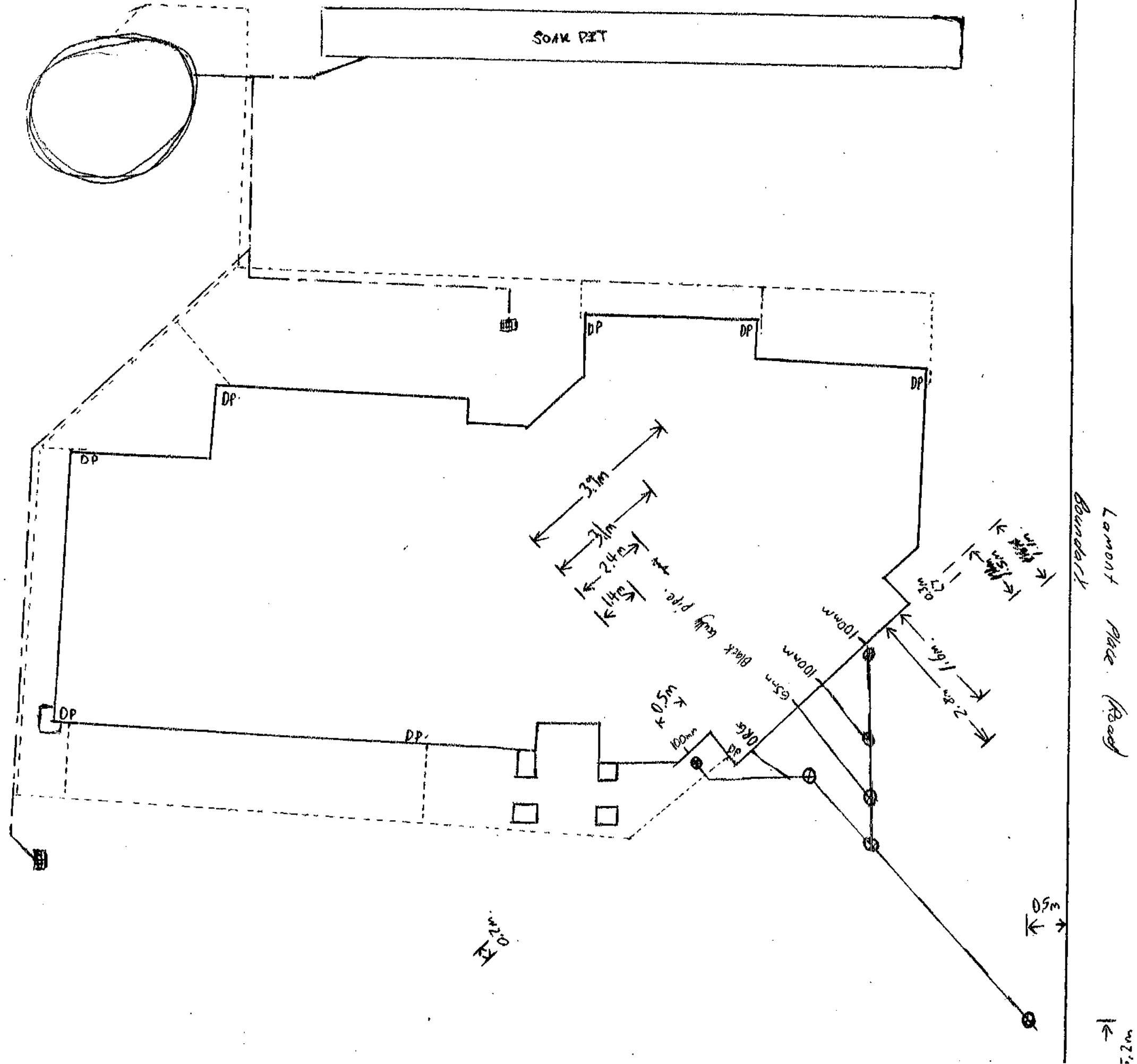
The building consent authority named below is satisfied, on reasonable grounds, that:

- (a) the building work complies with the building consent

Michelle Salmon –  
Building Inspections Team Leader  
On behalf of **Kapiti Coast District Council**

Date: 08 March 2019

2 Lamont Place  
 Ferndale Waikanae.  
 Sewer 1:60 Fall  
 storm water to tank  
 and soak pit.



# GASFITTING CERTIFICATE OF COMPLIANCE – GAS SAFETY CERTIFICATE



## Certificate of Compliance:

Client Name:

Reference / Job #:  ICP (if known):

Address of work:

Suburb:  Town / City:

**Description of gasfitting work:** (If different gasfitting work was done by different people, state who did what gasfitting.)

Installed gas pipe work to framing from gas meter to appliance locations, performed a pipe work leak test, test was sound. Installed a Rinnai HD200i internal Infinity unit to roof space complete with flue system thru the roof and a F&P CG905DX1 gas hob to kitchen. Commissioned system and checked appliance operation, performed a final system leak test, test was sound.

Gas supply pressure  kPa Risk classification (tick one) ☐ Low-Risk ☒ General ☐ High-risk

Gas type (tick one) ☒ Natural gas ☐ LPG ☐ Biogas ☐ Other (specify)

The work has been done in accordance with a certified design: ☐ Yes ☒ No

If yes – identify the certified design including name, date and version. Also attach a copy of the certified design to this certificate.  
(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:  
Link:

The work relies on manufacturer's instructions: ☒ No ☐ Yes:

If yes – identify the instruction manual including name, date and version. Also attach a copy of manufacturer's instructions to this certificate.  
(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:  
Link:

The work has been done in accordance with means of compliance (specify):

☒ Yes – AS/NZS 5601.1 sections 3 to 6 ☐ Yes – AS/NZS 5601.2 sections 3 to 9 ☐ No

Were any other standards or gas code of practice required for compliance?

☐ Yes (specify)  ☒ No

Parts of the gas installation to which this certificate relates that are safe to connect to a gas supply?

☒ All ☐ Parts (specify)

Date(s) on which the work was done:

Name and registration number of anyone who carried out work under supervision:

BC180550  
Received by  
Kapiti Coast District Council  
20/02/2019  
via email

By signing this document I confirm that I am satisfied that the work described in this certificate of compliance has been done lawfully and safely, and that the information on this certificate is correct.

Certifier name:  Registration number:

Certifier Signature:  Digitally signed by Bernard Lynch Date: 2019.02.19 21:42:13 +13'00' Date:

## Gas Safety Certificate:

By signing this document I confirm that the work described in this Gas Safety Certificate, and the installation or part installation, is connected to a gas supply and is safe to use.

Name of person authorised to certify the connection:

Registration number:  Date of completion or connection

Certifier Signature:  Digitally signed by Bernard Lynch Date: 2019.02.19 21:43:03 +13'00' Date:



## MBF Tiling Ltd

### Producer statement

### Construction - water proof membrane

**Building Consent application number:** 180550

**Address:** Lot 29, 2 Lamont Place, Ferndale, Waikanae

**Issued by:** Matthew Fisher - MBF Tiling Ltd

**Date:** 27 January 2019

**Warranty period:** 15 years from 27 January 2019

**Product used:** Davco K10 Plus

In respect of: Waterproofing bathroom: all floor and skirtings, shower floor and walls and bath surround. Waterproofing ensuite: floor, skirtings and shower floor.

I have been engaged by the building consent applicant to undertake ☒ all or ☐ part only (as specified in the attached particulars) of the water proof membrane application in respect of the above building consent. I have sighted the above building consent and read the conditions, together with the waterproofing details contained therein. I have inspected the substrate to which the water proof membrane was applied, and have found this to be satisfactory.

As the water proof membrane applicator, I can confirm that the water proof membrane application specified above has been constructed in accordance with the manufacturer's specifications and requirements, and to the extent required by the above building consent, and complies with the above building consent in respect of Clauses E2 and E3 of the Building Regulations 1992.

I attach copies of the following warranties to the property owners:

- ✓ Davco Waterproofing producer statement
- ✓ 15 year product warranty

I understand that this producer statement, if accepted, will be relied on by Council for the purposes of establishing compliance with the above building consent.

Matthew Fisher

Water Proof Membrane Applicator Registration Number: 16/0529

Qualifications: BCITO Qualified Tiler

Address: 21 Tireti Road, Titahi Bay, Porirua

Phone: 0220978682

Email: matt@mbftiling.co.nz

# Davco

EXCELLENCE IN  
TILING SYSTEMS



## WATERPROOFING PRODUCER STATEMENT

All sections of this form must be completed

|                       |                                                                                                                                                                                                                                                                                                                       |                 |                                                                                                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date of Installation: | <input type="text" value="2"/> <input type="text" value="4"/> <input type="text" value="0"/> <input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="9"/>                                                                                                                             | Completion Date | <input type="text" value="2"/> <input type="text" value="7"/> <input type="text" value="0"/> <input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="9"/> |
| Applicator Number:    | <input type="text" value="1"/> <input type="text" value="6"/> <input type="text" value="0"/> <input type="text" value="5"/> <input type="text" value="2"/> <input type="text" value="9"/>                                                                                                                             |                 |                                                                                                                                                                                           |
| Author Name:          | <input type="text" value="Matthew"/>                                                                                                                                                                                                                                                                                  |                 | <input type="text" value="Fisher"/>                                                                                                                                                       |
| Company:              | <input type="text" value="M B Fisher Tiling Limited"/>                                                                                                                                                                                                                                                                |                 |                                                                                                                                                                                           |
| Address:              | <input type="text" value="21 Tireti Road, Titahi Bay, Porirua"/>                                                                                                                                                                                                                                                      |                 |                                                                                                                                                                                           |
| Contact Number:       | <input type="text" value="0"/> <input type="text" value="2"/> <input type="text" value="2"/> <input type="text" value="0"/> <input type="text" value="9"/> <input type="text" value="7"/> <input type="text" value="8"/> <input type="text" value="6"/> <input type="text" value="8"/> <input type="text" value="2"/> |                 |                                                                                                                                                                                           |
| e-Mail:               | <input type="text" value="matt@mbftiling.co.nz"/>                                                                                                                                                                                                                                                                     |                 |                                                                                                                                                                                           |
| Site Address:         | <input type="text" value="Lot 29, 2 Lamont Place, Ferndale, Waikanae"/>                                                                                                                                                                                                                                               |                 |                                                                                                                                                                                           |
| Site Owners Name:     | <input type="text" value="G. K. Pate Family Trust"/>                                                                                                                                                                                                                                                                  |                 | <input type="text"/>                                                                                                                                                                      |

### Site Installation Details

|                              |                                               |                                     |                                    |
|------------------------------|-----------------------------------------------|-------------------------------------|------------------------------------|
| Primer:                      | <input checked="" type="checkbox"/>           |                                     |                                    |
| Bond Breaker:                | <input checked="" type="checkbox"/>           |                                     |                                    |
| Waterproofing:               | K10 Plus: <input checked="" type="checkbox"/> | K10 Rapid: <input type="checkbox"/> | Dampfast: <input type="checkbox"/> |
| Davco Adhesive Systems Used: | <input checked="" type="checkbox"/>           |                                     |                                    |

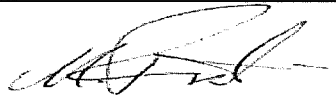
BC180550  
Received by  
Kapiti Coast District Council  
08/02/2019  
via email

### Application Details

|           |                                     |           |                          |
|-----------|-------------------------------------|-----------|--------------------------|
| Internal: | <input checked="" type="checkbox"/> | External: | <input type="checkbox"/> |
|-----------|-------------------------------------|-----------|--------------------------|

### Product Purchase Details

|                    |                                                            |
|--------------------|------------------------------------------------------------|
| Place of purchase: | <input type="text" value="Tilemax, Thorndon, Wellington"/> |
|--------------------|------------------------------------------------------------|

Applicator Signature:  Date: 6 February 2019\_

Customer Name (Print)

**Subject to the conditions within this document, THE APPLICATOR warrants his/her workmanship as follows:**

- a) The waterproof membrane has been installed in direct compliance with the manufacturer's specifications and installation guidelines.
- b) As per the manufacturer's product warranty, the workmanship on the materials by the applicator shall hold a watertight barrier for a period of 15 years.

**The applicators workmanship warranty will be subject to the following conditions:**

- 1. This warranty will extend only to the workmanship undertaken by the applicator and will in no way bind the manufacturer of the materials which is applied and installed by the applicator.
- 2. Under this warranty, the applicators obligations will be limited to the applicator making good at their expense any workmanship found to be defective.
- 3. This warranty will not apply to any defective workmanship that is
  - a) Caused either directly or indirectly by governmental or environmental issues or any other interference beyond the reasonable control of the applicator.
  - b) Caused by the act, omission, default or representation of any other party other than the applicator, and in particular the work of any other trade, damage caused by unauthorised repair or maintenance other than the approved applicator during the warranty period.
  - c) Caused by the materials being altered by any other party other than the approved applicator after application.
- 4. All warranties will be deemed invalid unless the applicator receives the customers claim in writing within the warranted period and within fourteen (14) days after the date of discovering the alleged defect.
- 5. All warranties will be deemed invalid should the area be disturbed prior to the applicator and or manufacturer sighting the alleged defect.
- 6. Where the applicator is required to repair any defective workmanship, the customer shall remove and or replace any equipment or objects hindering access by the applicator to the materials. The cost of any site inspection requested under the warranty claim that is not a direct result relating to scope of works completed, will be paid by the party requesting the inspection at the agreed applicators consultancy rate.
- 7. The customer will have made full payment to the applicator for the work completed within the terms of the applicators contract, prior to the customer making any claim under this warranty.
- 8. In the event that any materials subject to this warranty are acquired for personal, domestic or household use, then this warranty shall be read subject to the guarantees contained in the Consumer Guarantees Act 1993.
- 9. The customer acknowledges that the applicator is not employed by nor is the applicator an agent representing the manufacturer of the materials and that the manufacturer will not be liable to any person for the workmanship, acts or defaults of the applicator.

Building Code Clause(s) **B1 & 2****PRODUCER STATEMENT – PS4 – CONSTRUCTION REVIEW**

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

ISSUED BY: Hamish Wells Consulting Civil Engineer  
(Construction Review Firm)TO: G J Gardner  
(Owner/Developer)TO BE SUPPLIED TO: Kapiti Coast District Council  
(Building Consent Authority)IN RESPECT OF: Rib Raft Preparation Inspection  
(Description of Building Work)AT: 2 Lamont Place, Fernvale, Waikanae  
(Address)

LOT \_\_\_\_\_ DP \_\_\_\_\_ SO \_\_\_\_\_

\_\_\_\_\_ has been engaged by RFL  
(Construction Review Firm)To provide ☐ CM1 ☐ CM2 ☒ CM3 ☐ CM4 ☐ CM5 (Engineering Categories) or ☐ observation as per agreement with owner/developer  
or ☐ other \_\_\_\_\_ servicesin respect of clause(s) B1 & 2 of the Building Code for the building work described indocuments relating to Building Consent No. 180 550 and those relating toBuilding Consent Amendment(s) Nos. none issued during the

course of the works. We have sighted these Building Consents and the conditions of attached to them.

Authorised instructions / variations(s) No. none (copies attached)or by the attached Schedule ☐ have been issued during the course of the works.On the basis of ☐ this ☒ these review(s) and information supplied by the contractor during the course of the worksand on behalf of the firm undertaking this Construction Review, I believe on reasonable grounds that ☐ All ☒ Part

only of the building works have been completed in accordance with the relevant requirements of the Building Consent

and Building Consent Amendments identified above, with respect to Clause(s) B1 & 2 of the Building Code.

I also believe on reasonable grounds that the persons who have undertaken this construction review have the necessary competency to do so.

I, Hamish Tennent Wells am: ☒ CPEng No. 186323  
(Name of Construction Review Professional)☐ Reg Arch No. \_\_\_\_\_I am a Member of: ☒ IPENZ ☐ NZIA and hold the following qualifications: NZCE Civil REA

The Construction Review Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000\*.

The Construction Review Firm is a member of ACENZ: ☐SIGNED BY Hamish Tennent Wells ON BEHALF OF Hamish Tennent WellsDate: 31/8/2018 Signature: [Signature]

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

This form is to accompany Forms 6 or 8 of the Building (Form) Regulations 2004 for the issue of a Code Compliance Certificate.

## Site Inspection Report Form

No: 0019

|                                                               |                                    |             |      |      |
|---------------------------------------------------------------|------------------------------------|-------------|------|------|
| Controlling Authority                                         | KCDC                               | Date        | 23/8 | 2018 |
| BC/RC reference #                                             | 180550                             | Other Ref # |      |      |
| Site location details<br>(add UTM co-ords<br>for rural sites) | 2 Lamont Place, Ferndale, Waikanae |             |      |      |
| Client & designer details<br>Phone # details<br>Email details | G S Gardner / H Wells              |             |      |      |
| Contractor details<br>Phone # details<br>Email details        | RFL<br>Shane McKenzie              |             |      |      |

### Description of work being inspected:

#### Rib Rafter Prepar Inspection

Edge Beams - 2 x H012 bottom steel  
- 1 x H012 top  
- L bars to all corners top & bottom

Ground Beam - 2 x H012 bottom steel.

Penetrations - good

Concrete cover to steel & boxing - good

Crack Control

Mesh

Shower Rebates

DPM

Chairs

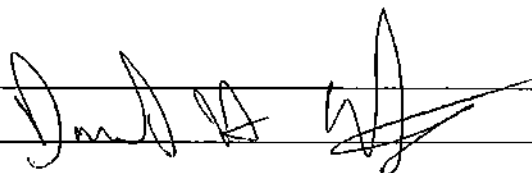
Pods

Nibs

- 2 x H0 12's  
& stirrups

Tidy work / Ready to pour

Signed

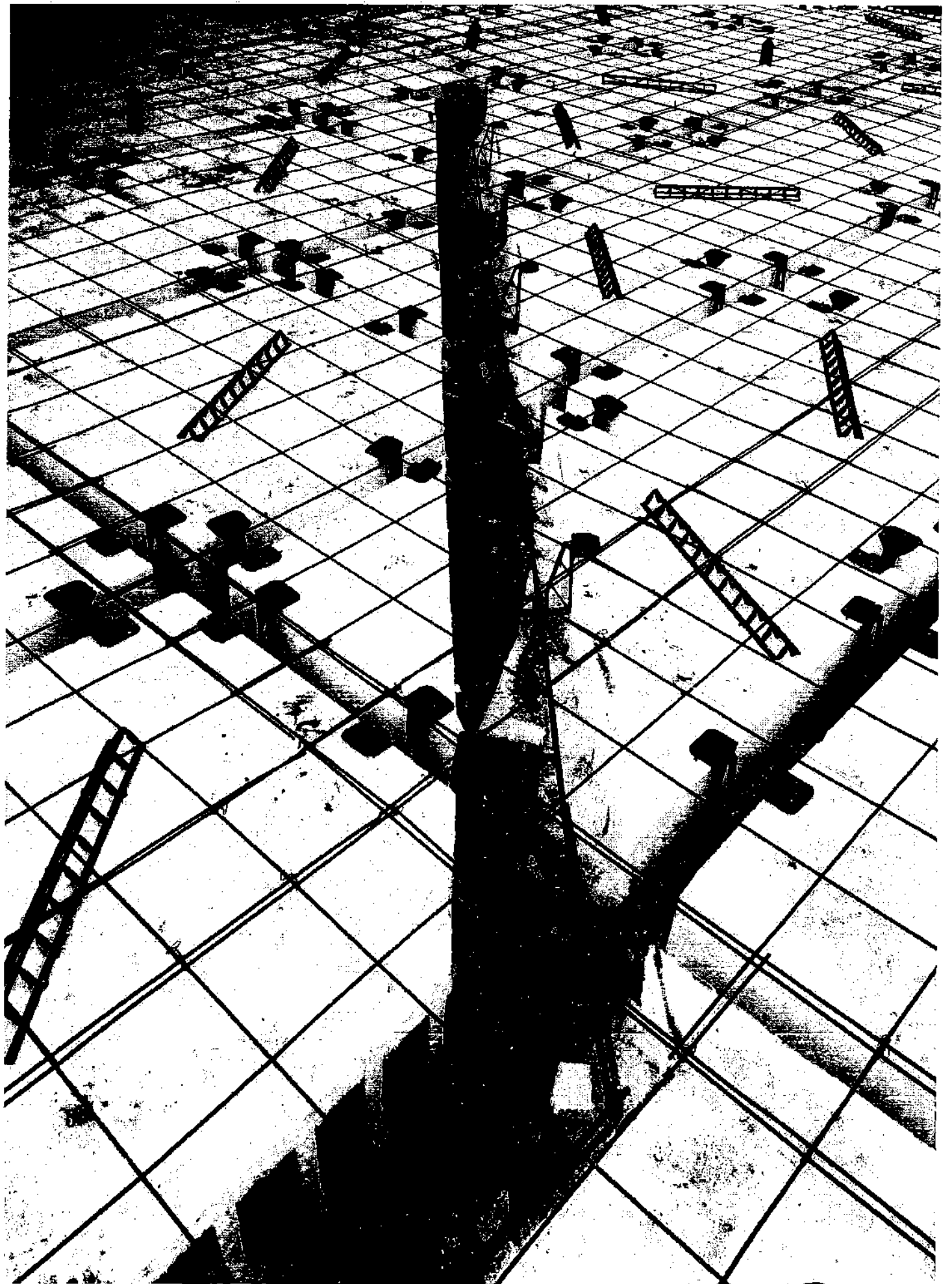


Page

1

of

1





**PRODUCER STATEMENT  
- SUPPLY -**

**Issued By:** MCG Ltd T/A Larsens Concrete & Drainage

**To:** GJ Gardner Homes Ltd

**In Respect of:** Ele10 Plus – 10,000 L Underground Tank & Pump System

McDonald Concrete Group Ltd were engaged to supply the above item to KCDC Plan Change 75 specification and AS/NZS1546 and AS/NZS1547 Standards; at

**2 Lamont pl  
Ferndale  
Waikanae**

The article has been built and installed in accordance with the above standards and as described in our technical descriptions and drawings as issued by McDonald Concrete Group Ltd.

**I believe on reasonable grounds** that subject to;

- (i) all proprietary products meeting the performance specification requirements that this item is constructed and installed in accordance with the New Zealand Standards as listed above.

**Signed**

**Dated:** 15/01/2019

**Note:** This producer statement covers only these sections of the work specifically referred to in the details above.

Some items of installation are required to be performed by others and we are not qualified to inspect these or these have not yet been performed.

- Electrical Connection
- House Plumbing Connection

**18 Murray Street  
WANGANUI  
Phone: (06) 344 5911 Fax: (06) 344 8189**

Wellington Frame & Truss  
Broken Hill Road  
Porirua  
WELLINGTON

Phone 04 296 1086

July 26, 2018

Client: GJ Gardner Homes  
GK Pate Family Trust

**PRODUCER STATEMENT**

Ref. Lot 29 Ferndale  
Waikanae

Job No. 18-034  
Consent #

This statement is to confirm the frames & trusses supplied to the above job have been manufactured as follows:

**Timber frames:**

|                  |                                                                                     |
|------------------|-------------------------------------------------------------------------------------|
| External Walls - | Kiln Dried and Gauged Radiata Pine, Machine Stress Graded, H1.2 LOSP/Boron treated. |
| Internal Walls - | Kiln Dried and Gauged Radiata Pine, Machine Stress Graded, H1.2 LOSP/Boron treated. |
| Trusses -        | Kiln Dried and Gauged Radiata Pine, Machine Stress Graded, H1.2 LOSP/Boron treated. |

Note: All timber used in frames and trusses is a minimum grade MSG8 unless the architectural plan states MSG10/12 and then the higher grade is used.

Yours faithfully



Matt Taylor  
Detailer

**Site:** G.J Gardner Homes  
2 Lamont Place, Ferndale  
Warragabe

Phone:

Printed 12/17/17 2:56 PM 2018

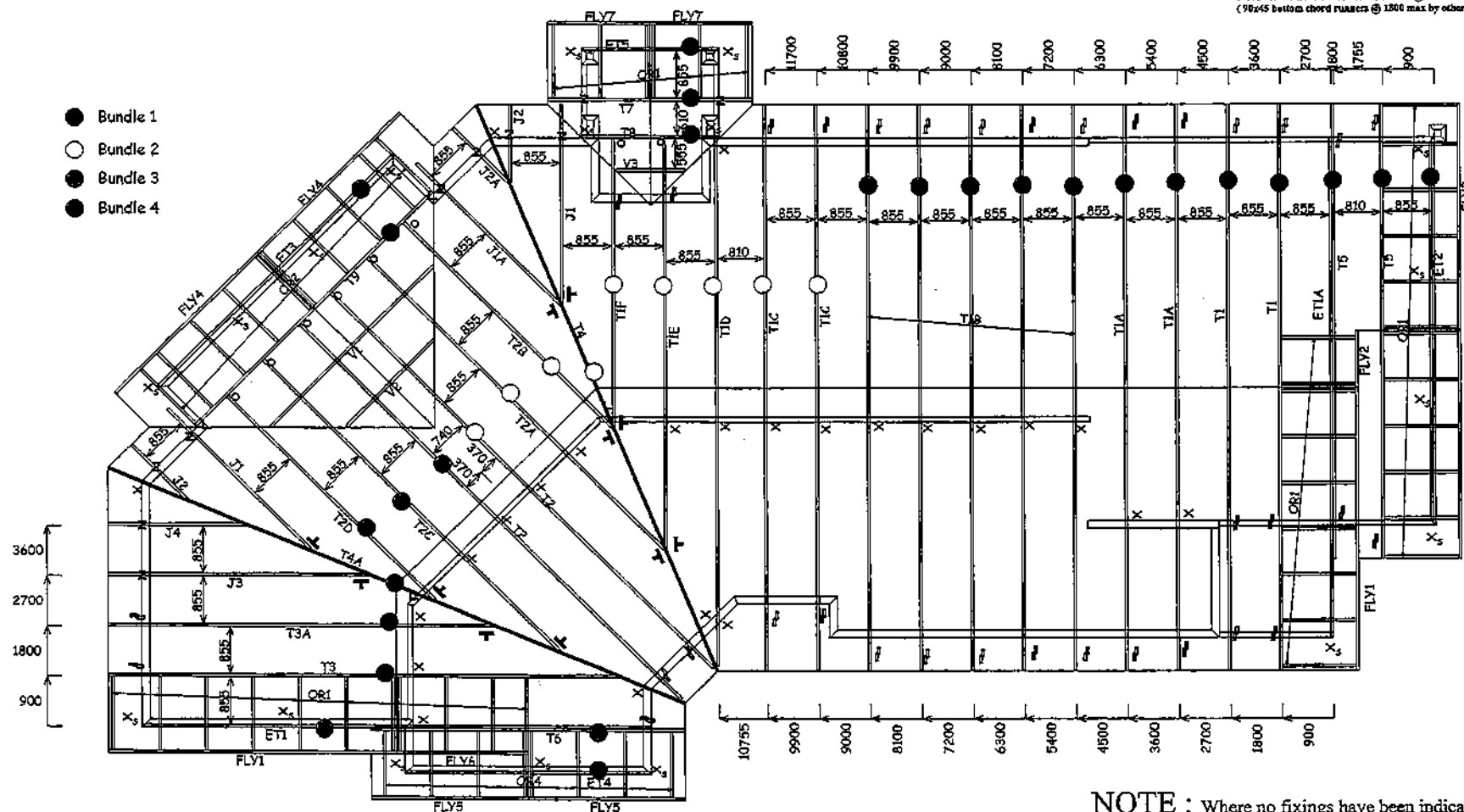
**Wind**  
Area: High (44.0 m/s )  
Pressure Coeff: Cpe = varies; Cpi = -0.30, 0.20

**PlaceMakers**  
Know how. Can do.  
*Manufacturing*



|                                                           |
|-----------------------------------------------------------|
| Design wind speed category: B10h                          |
| Pressure Coeff: $C_{pe}$ varies: $C_{pi} = -30.0$ , B10   |
| Timber size and grades: 90x45 MSG8 & MSG10 (H1.2)         |
| Roof Weight & Type: Light (Longspan Iron)                 |
| Roof Pitch: 25 Degrees                                    |
| Roof Dead Load: 0.218 kPa                                 |
| Roof Restraints: 900mm centres                            |
| Roof Live Load: $Q_{r1} = 0.348$ kPa: $Q_{r2} = 1.100$ kN |
| Ceiling Material: 12mm Master Board                       |
| Ceiling Dead Load: 0.210 kPa                              |
| Ceiling Restraints: 1800mm centres (see note below)       |
| Ceiling Live Load: $Q_c = 1.400$ kN                       |
| Earthquake Zone: 3 / Snow Zone: N1                        |
| Soffit Overhang: 600mm / Verg Overhang: 450mm             |

If Roofs hangers on clips are used then the bottom chords of the trusses must be restrained @ 1800 max. (90x45 bottom chord runners @ 1200 max by others)



Wells with 'H' in the label to be H&1

These plans are provided solely to enable the builder to erect the precast on site. They are not intended for any other purpose and Race Wilkes will not accept any liability arising in any other use of these plans.

All internal chart times 2080 unless otherwise listed

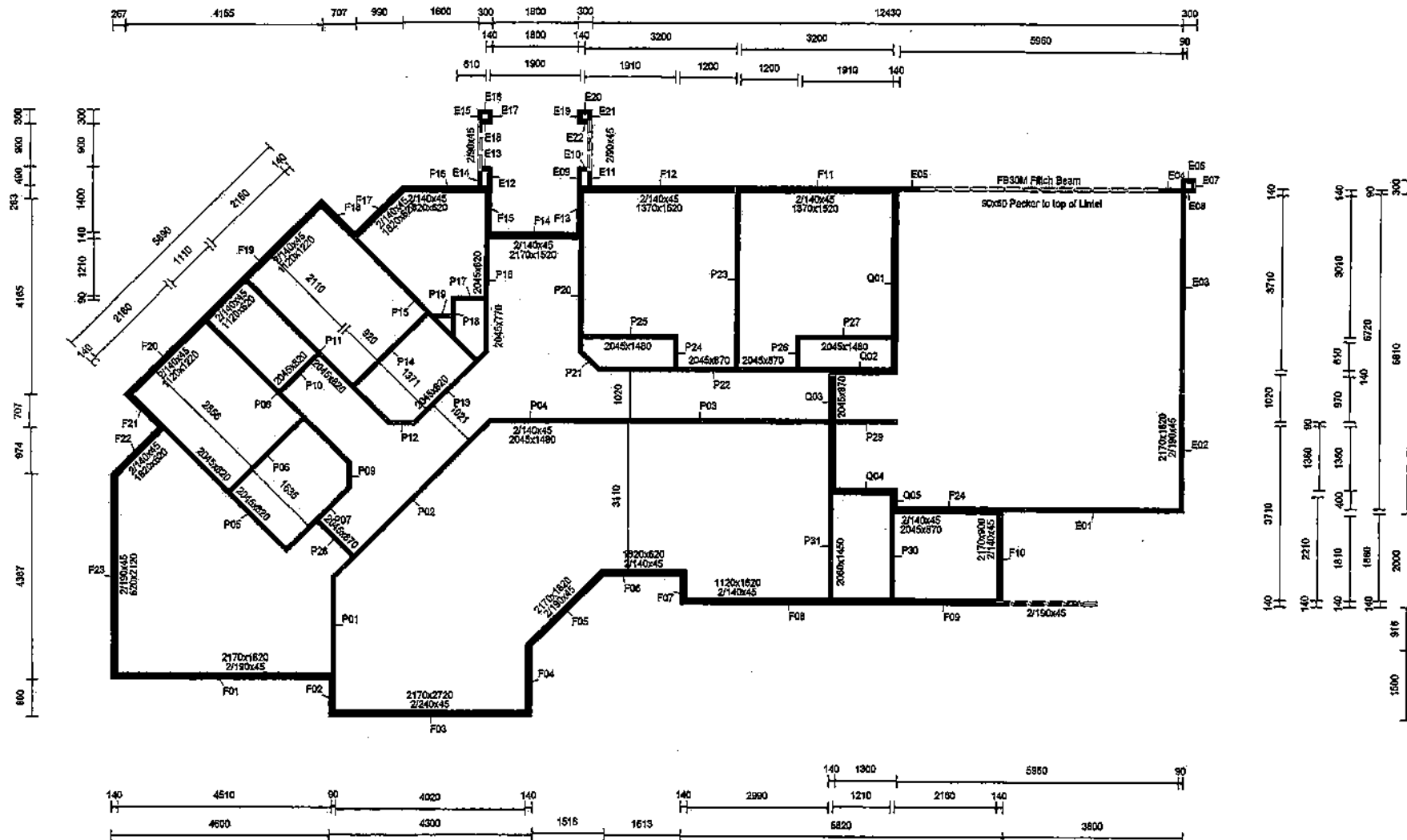
**If Experiencing Problems, Contact Your Rep**

**Wellington Frame & Truss**

**Pain****Fertile**

29/07/2016

|      |            |              |
|------|------------|--------------|
|      | Lead: Boss | DownBy: Milt |
| FILE | SITE       | FACTORY      |





# Combined Certificate of Compliance and Electrical Safety Certificate

Unique ID: 32076

Note: If you are using this form to provide only an Electrical Safety Certificate, then only complete sections 1, 3 and 5

## 1. Customer Information

Customer Name: G.K. Pate Family Trust

Customer Phone / Email: 027-443 1292

Location of Installation: 2, Lamont Place, Ferndale, Waikanae

## 2. Certifier Information

Certifier Name: Shawn O'Leary Registration / Practising Licence Number: E17118

Organisation: O'LEARY ELECTRICAL LTD Telephone Number: 027-2755400

Email: olearyelectrical11td@gmail.com

Name and Registration Number of person(s)  
Involved in work and supervised by certifier:

## 3. Details of work to which certificate applies

The work is: ☒ an entire installation ☐ a specific part of an installation

The work is: ☒ High Risk ☐ General ☐ Low Risk (Certificate of Compliance not required)

Indicate the number of each  
item installed or altered:

Number of lighting outlets: 36

Number of socket outlets: 33

Number of ranges: 1x DU4N

Number of water heaters: N/A

General Description of Work

New House

Tick (✓) if work includes:

☒ Mains

☒ MEN switchboard closest to point of supply

☒ Main Earthing System

☐ Electric Lines

Period within / Date on which the work was done: 14/1/19

The work is safe to be connected to: ☒ 230/400V MEN System ☐ Other (specify)

## 4. Certificate of Compliance

I am satisfied that the work to which this Certificate of Compliance applies has been done lawfully and safely  
and the information in this certificate is correct. The work:

- ☐ complies with Part 1 of AS/NZ 3000 ☒ complies with Part 2 of AS/NZ 3000
- ☐ complies with the following standard(s):
- ☐ has been installed in accordance with a certified design (attach or reference\*)
- ☒ has an earthing system that is correctly rated
- ☒ contains fittings which are safe to connect to a power supply
- ☐ relies on supplier's Declaration of Conformity (attach or reference\*)
- ☐ relies on manufacturer's instructions (attach or reference\*)
- ☒ has been satisfactorily tested in accordance with Electricity (Safety) Regulations 2010
- ☒ is safe to connect

### Test Results:

|                               | Electrical<br>Worker | Inspector |
|-------------------------------|----------------------|-----------|
| Polarity (Independent earth): |                      |           |
| Insulation resistance:        |                      |           |
| Earth continuity:             |                      |           |
| Bonding:                      |                      |           |
| Other (specify):              |                      |           |

Electronic reference: www.jarussell.co.nz

Certifier's Signature: S. O'Leary

Date: 14/1/19

\* If it is impractical to attach a copy of any relevant certified design, manufacturer's instruction or supplier declaration of conformity, provide a reference to where the documents can be found, in a readily accessible format, through electronic means.

## 5. Electrical Safety Certificate

Date on which the connection was done: 14/1/19

I am satisfied that the work to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use

Name: Shawn O'Leary

Registration / Practising License Number: E17118

Signature of Connector: S. O'Leary

Date: 14/1/19

# Independent Electrical Inspectors Ltd.

3 Celtic Way, Paraparaumu.  
☑ Andrew Stellingwerf -12866 ph:027 280 4588

## COMBINED COC / ROI / ESC

Customer Name: D Lenny Reference: 140119/1  
Location of Installation: 2 Lamont Pl  
WIMBORNE

Certificate of compliance: for revenue metering installed on this site in accordance with E.I.P.C code.

☐ Vircom EMS testhouse ☐ Indeserve testhouse ☐ Other 2000A ZIMP METER

Record of Inspection: Description of work inspected: MAIN HOUSE MAIN MTR  
MAIN 1 MAIN MTR

Certificate of compliance supplied

Reference: 32076 Issued by: S O'Lenny Reg Number: 617115 Dated: 14-1-19  
Reference: \_\_\_\_\_ Issued by: \_\_\_\_\_ Reg Number: \_\_\_\_\_ Dated: \_\_\_\_\_

## HAZARD IDENTIFICATIONS AND CONTROLS.

ELECTRA CONTROL ROOM PH: 06 367 9755 IN EMERGENCY PHONE: 111 NETWORK ACCESS PH: 0800 800 109  
MINIMUM P.P.E. REQUIRED: HARD HAT, ARCPROOF OVERALLS, WORK BOOTS, GLOVES, SAFETY GLASSES.

FIRE EXTINGUISHER, FIRST AID KIT, AND WATER BOTTLE LOCATED REAR OF VEHICLE.

|                      |                  |                                                                                                         |                          |                                                     |
|----------------------|------------------|---------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------|
| Client:              | <u>D Lenny</u>   | Electra acknowledgement #                                                                               |                          |                                                     |
| Job Type:            | <u>N/L TTP</u>   | Time on:                                                                                                | <u>0900</u>              |                                                     |
|                      |                  | Time off:                                                                                               | <u>0945</u>              |                                                     |
| Asset #:             | <u>32537R</u>    | Pole <input type="checkbox"/> Pillar <input checked="" type="checkbox"/> Other <input type="checkbox"/> |                          |                                                     |
| HAZARD               | POTENTIAL HARM   | ACTIONS PROPOSED                                                                                        | COMMENTS                 | WORK CARRIED OUT                                    |
| Electricity          | Shock, burns     | <u>MINIMISE</u>                                                                                         | <u>CHECK GLOVES TYPE</u> | Inspect & Liven <input checked="" type="checkbox"/> |
| Heights              | Gravity          | <u>PA</u>                                                                                               |                          | 1 PH tie in <input checked="" type="checkbox"/>     |
| Falls, trips & slips | Injury           |                                                                                                         |                          | 3 PH tie in <input type="checkbox"/>                |
| Outdoor/Weather      | Cold/Heat/Rain   |                                                                                                         |                          | Disco/Reco <input type="checkbox"/>                 |
| Traffic              | Hit by           |                                                                                                         |                          | Fuse <input type="checkbox"/>                       |
| Public Access        | Danger to public | <u>MINIMISE</u>                                                                                         | <u>SIGN AT WORK AREA</u> |                                                     |

CONSIDER ALSO: SITE SECURITY, OTHER SERVICES, ENVIRONMENTAL ISSUES, HEAVY LIFTING, ELEVATED WORKING, ETC

## TESTING AND COMMISSIONING

TESTING & INSPECTIONS CARRIED OUT IN ACCORDANCE WITH THE ELECTRICITY SAFETY REGULATIONS AS/NZS 3000 / AS/NZS 3019

|                                              |                                                  |                                      |                        |           |
|----------------------------------------------|--------------------------------------------------|--------------------------------------|------------------------|-----------|
| Voltage:                                     | R: <u>238</u> v                                  | W: v                                 | B: v                   | Comments: |
| Earth Loop impedance:                        | R: <u>3</u> Ω                                    | R: Ω                                 | B: Ω                   |           |
| PSSC:                                        | R: <u>8</u> ka                                   | W: ka                                | B: ka                  |           |
| Insulation Resistance:                       | <u>7500</u> MΩ                                   | Earth Lead Resistance: <u>0.10</u> Ω | Bonding: <u>0.00</u> Ω |           |
| Polarity <input checked="" type="checkbox"/> | Visual Check <input checked="" type="checkbox"/> | R.C.D Test <u>27.8</u> ms            | <u>24</u> ma           |           |

## NOTES

This work complies with the NZ building code, is connected to a power supply and has not adversely affected any other part of this installation. I certify that the installation or part thereof, to which this certificate applies, complies with the current electrical regulations and is safe to use.

SIGNATURE: [Signature]

DATE: 14-1-19

Reviewed 08/12/2015



O'LEARY ELECTRICAL LTD  
PO BOX 2167 RAUMATI

C.O.C # 32076

ADDRESS: 2 Lamont Place, Ferndale, Waikeanae.

- ✓ GENERAL CABLE <http://www.generalcable.co.nz/>
- SCHNEIDER DATA <http://www.schneider-electric.com/>
- ✓ UTILUX <http://www.utilux.co.au/WebSiteUtilux/Default.asp>
- MERLIN GERIN <http://www.schneider-electric.com/>
- ✓ MARLEY <http://www.marley.co.nz/>
- HPM <http://www.hpm.co.nz>
- TEUBEL <http://www.teubels.co.nz/>
- GENERAL ELECTRIC <http://www.ge.com/nz/>
- DYNAMIX <http://www.dynamix.co.nz/>
- ✓ MANROSE <http://www.simx.co.nz/>
- ✓ SIMX <http://www.simx.co.nz/>
- ✓ PDL <http://www.pdl.co.nz>
- ✓ PHILIPS <http://www.philips.co.nz/>
- VYNCO <http://www.vynco.co.nz/>
- LORETTO <http://www.globelink.co.nz/>
- SWITCH LIGHTING <http://www.switch-lighting.co.nz/>
- PRISMA <http://www.rexel-lighting.co.nz/>
- SG (JUPITER) <http://www.sg-as.no/>

- MICRON <http://www.micronsecurity.com/>
- WEISS <http://www.weiss.co.nz/>
- ✓ GOLDAIR <http://www.goldair.co.nz/>
- HUGO <http://www.hugolighting.com/>
- FUJITSU <http://www.fujitsu.com/nz/>
- HOME DOWNLIGHTS <http://www.homedownlights.co.nz/>
- HALCYON LIGHTING <http://halcyonlights.co.nz/>
- SUPERLUX <http://www.superlux.com.au/>
- MARTEC [www.lightingpacific.co.nz](http://www.lightingpacific.co.nz)
- LIGHTINGPLUS [www.lightingplus.co.nz](http://www.lightingplus.co.nz)
- UNDERTILE [www.warmup.co.nz](http://www.warmup.co.nz)

**ABOUT KITCHENS LIMITED GUARANTEE**

1. About Kitchens Guarantees their own products (being manufactured by About Kitchens rather than supplied through About Kitchens by a product partner or other manufacturer) for a period of one year from the date of installation. All other products supplied by About Kitchens carry the guarantees that are issued by the particular product supplier. Notwithstanding the products suppliers own guarantee, the liability of About Kitchens shall be limited to a period of 1 year from the date of installation.
2. About Kitchens' obligations under this guarantee are, at About Kitchens discretion, limited to:
  - a. Repairing the goods or
  - b. Replacing the goods (excludes all deleted product lines)
  - c. Only those products purchased from About Kitchens
3. About Kitchens total liability under this guarantee will not exceed the contract price paid by the Customer to About Kitchens for the goods.
4. This Guarantee excludes defects or issues arising either directly or indirectly from:
  - i. The Customer's negligence or misuse or any inevitable accident, natural movement of timber, act of God or other factor beyond reasonable control of About Kitchens.
  - ii. Unreasonable or excessive exposure to heat, sunlight, water or steam.
  - iii. Non-compliance by the Customer over the correct care and treatment of any About Kitchens product (as evidenced by reasonable use and/or the product care instructions)
  - iv. Any unauthorised person repairing or attempting to repair the goods.
  - v. The goods having been modified, incorrectly maintained or used for a purpose other than for which it was intended.
  - vi. The goods having been incorrectly installed by persons not approved by About Kitchens.
  - vii. Blemishes, imperfections, colour and pattern variations in granite, stone, veneers and quarts, and knots or grains in timber veneers, which occur as part of the natural product (including those that arise in the course of fair wear and tear that do not affect the suitability of the material for the purpose for which it is used)
  - viii. Any goods that have not been installed by approved About Kitchens installers.
5. Appliance guarantees and warranties will be voided where clients request cabinetry dimensions other than those specified by the Appliance Manufacturer. About Kitchens accepts no liability where appliances fail as a result.
6. This Guarantee excludes any goods or services which are not purchased from, or contracted by About Kitchens.
7. This Guarantee is personal to the customer and is non-transferable.
8. This Guarantee does not limit or restrict any other statutory right or remedy available to the Customer within New Zealand.
9. To make a claim, contact About Kitchens directly by calling 06 3647152.

## **KITCHEN CARE AND MAINTENANCE GUIDE**

### **Kitchen Cabinets and Doors**

Whilst Melteca/Melamine doors are hardwearing and water resistant, they can be damaged by water. Please contact your plumber immediately should any leaks or seepage occur.

#### **Cleaning**

Your kitchen cabinets are manufactured from durable Melteca and Melamine and should be cleaned using a streak-free glass cleaner or a high quality micro-fibre cloth. For more difficult stains, start by using a dish-washing detergent on a damp cloth. To clean glass doors or aluminium doors, spray glass cleaner onto the cloth (not directly onto the glass).

Alternatively use a high quality micro fibre cloth without cleaners. Panel Form vinyl foil wrapped doors should be wiped over using a cleaning agent such as dish-washing detergent or Spray and Wipe. Under NO circumstances should abrasive cleaners such as "Jif" or "Ajax" be used.

### **Kitchen Benchtops - Care**

Your bench is manufactured from low maintenance high pressure laminate. Whilst heat and scratch resistant, care is still needed when taking pots and pans straight from the hob or oven – use a heatproof mat or board to protect the bench. Take care not to drag rough objects across the bench as scratches may damage the surface. And finally do not use a knife to cut directly onto the bench surface. Be aware that the base board of your bench does not have the same waterproof qualities as the top surface. Please contact your plumber immediately should any leaks or seepage occur.

Your Granite bench top is one of the most hard-wearing stones and is almost impossible to scratch under normal kitchen use. It is not damaged by standing hot utensils on it (although this is not recommended) or by sharp knives, although diamond or tungsten implements can scratch the surface. Granite is also resistant to spills of substances such as acids and alcohol. However, things such as beetroot, wine and cooking oil, particularly when hot, may cause a stain on your granite bench top if they are left too long, so you should always clean them up immediately.

#### **Cleaning**

Cleaning with dishwashing detergent is usually sufficient, however stubborn food stains may need full strength "Handy Andy" or "Janola" diluted 1 part to 3 water. For everyday of your Granite bench top we recommend wiping the surface of your bench top with warm, soapy water and a damp cloth.

## **Caesarstone – Care**

Caesarstone has outstanding properties to ensure ease of maintenance and longevity of your surfaces. It will withstand exposure to tea, wine, vinegar and strongly coloured substances. Everyday cleaning Caesarstone requires very little maintenance to keep the surface looking like new. For every day, using a warm cloth with mild detergent will suffice.

To avoid damage, it is best to use the appropriate cutting board and never use knives directly on the Caesarstone surface.

Caesarstone will tolerate brief exposures to moderately hot temperatures, however prolonged direct contact with heat from hot pots can cause thermal shock, discolouration or damage. Therefore, never place hot cooking appliances directly onto the surface of Caesarstone. The use of a "hot pad" or appropriate heat proof board will prevent damage from occurring.

## **Uniquartz – Care**

Uniquartz surfaces are virtually maintenance-free. There is no need for polishing, sealing or reconditioning. Light dusting followed by cleaning with warm soapy water is enough to restore the shine to the countertops.

### **Protecting Uniquartz**

Make sure not to use any abrasives or harsh chemicals on the countertops. Uniquartz surfaces are suited to interiors only and are not intended for use on external walls or surfaces.

## **Stainless Steel Surfaces**

Always wipe with detergent based cleaner and never use scouring products e.g. "Jif" or "Ajax". To remove finger marks and smears we recommend use of a high quality micro fibre cloth. Avoid aggressive detergents such as oven cleaner coming in contact with stainless steel.

## **Ceramic Hobs**

Clean with specialist ceramic hob cleaners available from your supermarket. Burnt on spills can be scraped off using either a glass scraper or the scraper provided by the hob manufacturer.

## **Kitchen Sinks**

Sinks are manufactured from high quality stainless steel which provides a surface with maximum durability. However, stainless steel can be scratched or scuffed. When scuffing does occur, please remember that this is normal and the effect will become uniform with age. The high quality stainless steel will not lose its attractive shine.

### **Recommended daily care**

Regular cleaning is important to maintain the appearance of your sink. Wipe with a soft, soapy cloth, rinse and dry after every use. Drying is very important to eliminate any film build-up that may develop from hard water deposits.

### **What to AVOID**

Bleaches containing hypochlorite will attack stainless steel and cause pitting and staining. Silver dip cleaners containing acids which attack stainless steel and leave a permanent stain. Certain foods, when left for prolonged periods can cause pitting and corrosion. Examples are citric fruit juices, salt, vinegar, mustard, pickles and mayonnaise. Strong acids can damage stainless steel (e.g. Photographic developing liquids or denture cleanser). If they come into contact with the sink, they should be washed away immediately with clean water.

# Memorandum from licensed building practitioner: Record of Building work [CARPENTRY]

Section 88, Building Act 2004

## THE BUILDING

Street Address: Lot 29, 2 Lamont Place,

Suburb: FERNDALE

## THE PROJECT

Building consent number:

## THE OWNER(S)

Name(s): G. K. Pate Family Trust

Mailing Address: c/- Geoff Pate , P O Box 84, PARAPARAUMU

Phone Number: 027 443 1292 or

Email Address: gpate@placemakers.co.nz

## RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

### PRIMARY STRUCTURE

| Work that is restricted building work                 | Description of restricted building work                                                             | Carried out or supervised                                                                                                                  |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Tick <input checked="" type="checkbox"/>              | <input checked="" type="checkbox"/> If appropriate, provide details of the restricted building work | Tick <input checked="" type="checkbox"/> whether you carried out this design work or supervised someone else carrying out this design work |
| Walls <input checked="" type="checkbox"/>             | <input checked="" type="checkbox"/> Standing PreNail Framing and all connections                    | <input checked="" type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                     |
| Roof <input checked="" type="checkbox"/>              | <input checked="" type="checkbox"/> Erect Roof Framing and all connections                          | <input checked="" type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                     |
| Columns and beams <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> Columns & Beams as per plan                                     | <input checked="" type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                     |
| Bracing <input checked="" type="checkbox"/>           | <input checked="" type="checkbox"/> Ply Bracing and all hold downs and fixings                      | <input checked="" type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                     |
| Bracing <input checked="" type="checkbox"/>           | <input checked="" type="checkbox"/> Gib Bracing only, as per plan.                                  | <input checked="" type="checkbox"/> Carried out                                                                                            |
| Other <input type="checkbox"/>                        | <input type="checkbox"/>                                                                            | <input checked="" type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                     |

**EXTERNAL MOISTURE MANAGEMENT SYSTEMS**

| Work that is restricted building work                                                                    | Description of restricted building work | Carried out or supervised                                                                                                                  |
|----------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Tick <input checked="" type="checkbox"/> If appropriate, provide details of the restricted building work |                                         | Tick <input checked="" type="checkbox"/> whether you carried out this design work or supervised someone else carrying out this design work |
| Damp proofing <input checked="" type="checkbox"/>                                                        | DPC between frames and concrete         | <input checked="" type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                     |
| Building Wrap <input checked="" type="checkbox"/>                                                        | Installed Building Wrap and Flashings   | <input checked="" type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                     |
| Ventilation system (for example, subfloor or cavity) <input checked="" type="checkbox"/>                 | Cavity for Linea as per plan            | <input checked="" type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                     |
| Wall cladding or wall cladding system <input checked="" type="checkbox"/>                                | Linea on Cavity as per plan             | <input checked="" type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                     |
| External Windows & Joinery <input checked="" type="checkbox"/>                                           | Installed Joinery                       | <input checked="" type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                     |
| Other <input type="checkbox"/>                                                                           |                                         | <input checked="" type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                     |

**ISSUED BY**

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work:

Name: Thomas Maude

LBP number: 129962

Class(es) licensed in: ☐ Foundations ☒ Carpentry ☐ Roofing ☐ External Plastering ☐ Brick & Blocklayers

Plumbers, Gasfitters and Drainlayers registration number (if applicable):

Mailing Address (if different from below):

Street Address/Registered Office: 135 South Makara Road

Town/City: Wellington

Postcode: 6972

Phone number: 0273715010

Mobile: 0273715010

After hours:

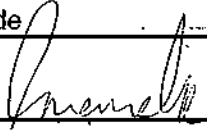
Fax:

Email address: Tkmaudey@gmail.com

Website:

**DECLARATION**

I, Thomas Maude, carried out or supervised the restricted building work identified on this form:

Signature: 

Date: 07 / 11 / 18

# Memorandum from licensed building practitioner: Record of Building work [BRICKWORK]

## Section 88, Building Act 2004

### THE BUILDING

Street Address: Lot 29, 2 Lamont Place,

Suburb: FERNDALE

### THE PROJECT

Building consent number: ✱

### THE OWNER(S)

Name(s): G. K. Pate Family Trust

Mailing Address: c/- Geoff Pate, P O Box 84, PARAPARAUMU

Phone Number: 027 443 1292 or

Email Address: gpate@placemakers.co.nz

### RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

#### PRIMARY STRUCTURE

| Work that is restricted building work    | Description of restricted building work                         | Carried out or supervised                                                                                                                  |
|------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Tick <input checked="" type="checkbox"/> | If appropriate, provide details of the restricted building work | Tick <input checked="" type="checkbox"/> whether you carried out this design work or supervised someone else carrying out this design work |
| Other <input type="checkbox"/>           |                                                                 | <input type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                                |

#### EXTERNAL MOISTURE MANAGEMENT SYSTEMS

| Work that is restricted building work                                     | Description of restricted building work                         | Carried out or supervised                                                                                                                  |
|---------------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Tick <input checked="" type="checkbox"/>                                  | If appropriate, provide details of the restricted building work | Tick <input checked="" type="checkbox"/> whether you carried out this design work or supervised someone else carrying out this design work |
| Damp proofing <input type="checkbox"/>                                    | Ensured DPC is breaking mortar joint                            | <input type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                                |
| Wall cladding or wall cladding system <input checked="" type="checkbox"/> | Brick Veneer as per plan                                        | <input type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                                |
| Other <input type="checkbox"/>                                            |                                                                 | <input type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                                |

## ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work:

Name: Kelly BarkerLBP number: 111559

Class(es) licensed in: ☐ Foundations ☐ Carpentry ☐ Roofing ☐ External Plastering ☒ Brick & Blocklayers

Plumbers, Gasfitters and Drainlayers registration number (if applicable):

Mailing Address (if different from below):

Street Address/Registered Office:

66 Campbell Ave Porirua

Town/City:

Wellington

Postcode:

Phone number:

0272 804266

Mobile:

0272 804266

After hours:

. " "

Fax:

Email address:

barkerhub@gmail.com

Website:

## DECLARATION

I, Kelly Barker carried out or supervised the restricted building work identified on this form:

Signature:



Date:

29/10/18

# Memorandum from licensed building practitioner: Record of Building work [FOUNDATIONS]

Section 88, Building Act 2004

|                                         |
|-----------------------------------------|
| <b>THE BUILDING</b>                     |
| Street Address: Lot 29, 2 Lamont Place, |
| Suburb: FERNDALE                        |

|                          |
|--------------------------|
| <b>THE PROJECT</b>       |
| Building consent number: |

|                                                          |
|----------------------------------------------------------|
| <b>THE OWNERS</b>                                        |
| Name(s): G. K. Pate Family Trust                         |
| Mailing Address: c/- Geoff Pate, P O Box 84, PARAPARAUMU |
| Phone Number: 027 443 1292 or                            |
| Email Address: gpate@placemakers.co.nz                   |

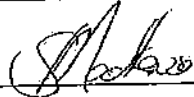
| RECORD OF WORK THAT IS RESTRICTED BUILDING WORK           |                                                                      |                                                                                                                                            |
|-----------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| PRIMARY STRUCTURE                                         |                                                                      |                                                                                                                                            |
| Work that is restricted building work                     | Description of restricted building work                              | Carried out or supervised                                                                                                                  |
| Tick <input checked="" type="checkbox"/>                  | If appropriate, provide details of the restricted building work      | Tick <input checked="" type="checkbox"/> whether you carried out this design work or supervised someone else carrying out this design work |
| Foundations and subfloor framing <input type="checkbox"/> | Dig, Steel, Pour Footings<br>Box & Steel Floor, Supervise floor pour | <input type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                                |
| Columns and beams <input type="checkbox"/>                |                                                                      | <input type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                                |
| Other <input type="checkbox"/>                            |                                                                      | <input type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                                |

| EXTERNAL MOISTURE MANAGEMENT SYSTEMS     |                                                                 |                                                                                                                                            |
|------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Work that is restricted building work    | Description of restricted building work                         | Carried out or supervised                                                                                                                  |
| Tick <input checked="" type="checkbox"/> | If appropriate, provide details of the restricted building work | Tick <input checked="" type="checkbox"/> whether you carried out this design work or supervised someone else carrying out this design work |
| Damp proofing <input type="checkbox"/>   | Damp Proof Membrane Underlab only                               | <input type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                                |

970111

|                                        |                            |                                                                             |
|----------------------------------------|----------------------------|-----------------------------------------------------------------------------|
| Waterproofing <input type="checkbox"/> | Waterproofing to Blockwork | <input type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised |
| Other <input type="checkbox"/>         |                            | <input type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised |

|                                                                                                                                                                                                                                                 |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work:                                                                                          |                           |
| Name: <u>Shane Mackenzie</u>                                                                                                                                                                                                                    | LBP number: <u>102284</u> |
| Class(es) licensed in: <input checked="" type="checkbox"/> Foundations <input checked="" type="checkbox"/> Carpentry <input type="checkbox"/> Roofing <input type="checkbox"/> External Plastering <input type="checkbox"/> Brick & Blocklayers |                           |
| Plumbers, Gasfitters and Drainlayers registration number (if applicable):                                                                                                                                                                       |                           |
| Mailing Address (if different from below):                                                                                                                                                                                                      |                           |
| Street Address/Registered Office: <u>18 Torrcui Way</u>                                                                                                                                                                                         |                           |
| Town/City: <u>Pareparema</u>                                                                                                                                                                                                                    | Postcode:                 |
| Phone number: <u>027 222 5047</u>                                                                                                                                                                                                               | Mobile:                   |
| After hours: <u>027 222 5047</u>                                                                                                                                                                                                                | Fax:                      |
| Email address: <u>landmax@xtra.co.nz</u>                                                                                                                                                                                                        | Website:                  |

|                                                                                                          |                        |
|----------------------------------------------------------------------------------------------------------|------------------------|
| <b>DECLARATION</b>                                                                                       |                        |
| I <u>Shane Mackenzie</u> carried out or supervised the restricted building work identified on this form: |                        |
| Signature: <u></u>    | Date: <u>27, 8, 18</u> |

# Memorandum from licensed building practitioner: Record of Building work [ROOFING]

## Section 88, Building Act 2004

|                                                |
|------------------------------------------------|
| <b>Street Address:</b> Lot 29, 2 Lamont Place, |
| <b>Suburb:</b> FERNDAL                         |

|                                 |
|---------------------------------|
| <b>Building consent number:</b> |
|---------------------------------|

|                                                                  |
|------------------------------------------------------------------|
| <b>Name(s):</b> G. K. Pate Family Trust                          |
| <b>Mailing Address:</b> c/- Geoff Pate , P O Box 84, PARAPARAUMU |
| <b>Phone Number:</b> 027 443 1292 or                             |
| <b>Email Address:</b> gpate@placemakers.co.nz                    |

| PRIMARY STRUCTURE                        |                                                                 |                                                                                                                                            |
|------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Work that is restricted building work    | Description of restricted building work                         | Carried out or supervised                                                                                                                  |
| Tick <input checked="" type="checkbox"/> | If appropriate, provide details of the restricted building work | Tick <input checked="" type="checkbox"/> whether you carried out this design work or supervised someone else carrying out this design work |
| Roof <input type="checkbox"/>            | Roof Battens and Fixings for Battens                            | <input type="checkbox"/> Carried out<br><input checked="" type="checkbox"/> Supervised                                                     |
| Other <input type="checkbox"/>           |                                                                 | <input type="checkbox"/> Carried out<br><input type="checkbox"/> Supervised                                                                |

| EXTERNAL MOISTURE MANAGEMENT SYSTEMS                           |                                                                                                 |                                                                                                                                            |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Work that is restricted building work                          | Description of restricted building work                                                         | Carried out or supervised                                                                                                                  |
| Tick <input checked="" type="checkbox"/>                       | If appropriate, provide details of the restricted building work                                 | Tick <input checked="" type="checkbox"/> whether you carried out this design work or supervised someone else carrying out this design work |
| Damp proofing <input type="checkbox"/>                         | Roof Underlay                                                                                   | <input type="checkbox"/> Carried out<br><input checked="" type="checkbox"/> Supervised                                                     |
| Roof Cladding or roof cladding system <input type="checkbox"/> | Installation of Roof Cladding system. Including Flashings as per manufacturers' specifications. | <input type="checkbox"/> Carried out<br><input checked="" type="checkbox"/> Supervised                                                     |



20 Coventry Street  
PO Box 1087  
Levin 5540, New Zealand  
Phone: 06 367 9480  
Fax: 0800 104000  
sales@quinroofing.co.nz

Dear Horowhenua Kapiti Roofing Ltd

WARRANTY 2 Lamont Place, Ferndale, Waikakane on Invoice 105565

Date of Supply: 17.09.2018

Warranty Terms;

Colorcote ZR8 pre-painted metal products used for Residential Buildings will perform as follows.

|                                                       |                 |
|-------------------------------------------------------|-----------------|
| 1. Resistance to flaking, peeling and excessive fade. | ZR8 - 10 years. |
|-------------------------------------------------------|-----------------|

|                                                |                 |
|------------------------------------------------|-----------------|
| 2. Will not perforate as a result of corrosion | ZR8 - 15 years. |
|------------------------------------------------|-----------------|

Colorcote products will inevitably weather; chalk and fade over time as a result of normal wear and tear.

If the product fails to perform as warranted we will, at our sole option, repair or replace the affected material.

Please note this warranty is subject to the following terms and conditions:

- This warranty will not apply to weathering, chalking or fading over time as a result of normal wear and tear.
- If inappropriate fastenings are used this warranty will not apply.
- Defects caused by faulty design, or method of manufacture of Residential Buildings are not covered by the warranty.
- We must be given the opportunity for inspection on site prior to any remedial action being offered or taken.
- Damage or corrosion resulting from the following are not covered by this warranty:
  - 1) Damage sustained during storage, handling, or installation.
  - 2) Damage sustained after installation.
  - 3) Causes after the product has left our control.
  - 4) Failure to remove debris leading to the accumulation of moisture retaining matter in gutters and downpipes.

Our liability under this warranty shall in all cases be limited to replacing or repairing the defective product as specified above excluding labour. Any repaired or replaced product will be covered by this warranty up to the unexpired portion of the warranty of the original product. Quin Roofing Ltd will not be liable for consequential loss or damage. All claims must be made promptly in writing and accompanied by the original warranty document. This warranty does not in any way affect the rights of a consumer under the Consumer Guarantees Act.

**MINIMUM MAINTENANCE REQUIREMENTS - [www.colorcote.co.nz](http://www.colorcote.co.nz)**

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"><li>1. Washing of Naturally Unwashed Areas every 6 months -e.g. - Wall Cladding.</li><li>2. Removal of Debris from gutters every 6 months.</li><li>3. Any noticeable buildup of salt deposits and/or other contaminants are removed when identified.</li><li>4. When considering overpainting, please consult with your local distributor to ensure correct procedures are undertaken.</li><li>5. Inspection of the roof, including fasteners, repair any damage every 6 months</li><li>6. Manual Wash down of all cladding (Roof &amp; Walls) every 12 months maximum</li></ol> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Yours faithfully

*pp Lynette Shanks*

Bruce Love  
Roofing Manager  
Quin Roofing Ltd



**CAPITAL**  
**Continuous Spouting**  
**0800 775 926**

**Capital Continuous Spouting Ltd  
Guarantee**

31 Montgomery Crescent  
Clouston Park  
Upper Hutt 5018  
<http://www.wellingtonspouting.co.nz>  
[johnathan@wellingtonspouting.co.nz](mailto:johnathan@wellingtonspouting.co.nz)

Job Number: 8879

Installation Date: 25/09/2018

HKR  
2 Lamont Pl,  
Waikanae 5391  
Lot 29

**Thank you for choosing Capital Continuous Spouting Limited**

Capital Continuous Spouting guarantees the installation and workmanship of our products installed at the above address for a period of 10 years from the date of installation. All materials used hold a 10 year warranty.

Failure of our products part or wholly due to the following causes are not covered by this guarantee:

1. All unwashed surfaces must be cleaned every 6 months.
2. Failure to remove debris leading to accumulation of moisture retaining matter in the spouting and downpipes.
3. Mechanical, chemical or other damage sustained subsequent to installation.
4. Storm or tempest or other causes beyond the control of Capital Continuous Spouting Ltd

Regards

Johnathan Leonard  
Managing Director



# Installation Guarantee

## This is to certify

This home has been insulated by PinkFit®,  
the preferred installers of Pink® Batts® insulation.

The PinkFit® Licensee guarantees that, at the time of installation,  
the insulation was installed in accordance with  
New Zealand Standard Energy Efficiency -  
Installing Insulation in Residential Buildings NZS 4246:2016.

Proper installation is essential for insulation to meet the  
durability requirements of NZBC B2.3.1(a) of not less than 50 years.

This guarantee is transferable to subsequent owners of the home.

Please keep this document in a safe place.

Signature:

Glenn Sturgess

Date: 31/10/2018

PinkFit® Licensee Trading As: PinkFit® Wellington

PinkFit® Licensee Company Name: GBS (2015) Limited

## Registration Details

Compliance Number: M100062920

Date Printed: 31/10/2018

Builder Details: G.J. Gardner Homes

Install Date: 24/10/2018

Site Details:

Completion: 31/10/2018

2 Lamont Place

Building Consent No.:

Waikanae

Product Details: PINK BATTS R5.0 ULTRA CEILING 4.2M2, PINK BATTS R4.0 ULTRA WALL 140mm 5.1m2

*The product listed above includes a m<sup>2</sup> rate. This is not the volume of product installed, but rather an indicative area per bale of the product listed*

PinkFit® is a network of independent installers licensed by Tasman Insulation New Zealand Limited. PinkFit®, Pink® and the colour PINK are registered trade marks of Owens Corning used under license by Tasman Insulation. Batts® is the registered trade mark of Tasman Insulation New Zealand Limited.



0800 746 534  
pinkfit.co.nz

Apr. 2017 1071



# Bradnam's

windows & doors nz

2<sup>ND</sup> October 2018

**Attention:**     **G J Gardner Kapiti – M & L**  
M & L Barke Construction Ltd  
P O Box 65  
Paraparaumu, 5254

## PRODUCER STATEMENT

**Project Name:**         **Pate Family Trust**

**Project Address:**     Lot 29, 2 Lamont Place - Ferndale

We certify that the products supplied by our company for this project, meet or exceed the requirements of the New Zealand Building Code, NZS 4211:1985 Performance of Windows and NZS 4223 Glazing in Buildings.

More specifically, we have manufactured the aluminium windows and doors for this project in accordance with the design and manufacturing specifications provided by **NATIONAL ALUMINIUM LTD**, and those required by NZS 4223.

Window and door units manufactured to these specifications have been tested to, and comply with, the wind pressure rating, deflection, weather performance and glazing requirements of the above New Zealand Standards.

The products supplied by our company for this project, can be expected to have a serviceable life of not less than 15 years in accordance with section B2 of the New Zealand Building Code. This relates specifically to the structural elements of the windows and doors.

Over time, even with regular maintenance, decorative elements and non-structural fittings such as handles, fasteners, roller mechanisms, mohair and other similar components may require replacement as they wear out. This process does not contravene the Durability Requirements of section B2 of the New Zealand Building Code or this Producer Statement.

Yours sincerely

Mark Harrison  
Branch Manager



**Bradnam's**  
windows & doors nz

## **Warranty for Bradnam's Aluminium**

The organisations involved in the manufacture of your Bradnam's aluminium joinery warrant the product they have supplied and their workmanship.

### **Fabricator Warranty:**

The joinery supplier who has supplied you with Bradnam's aluminium joinery (the "Fabricator") will, subject to the conditions below, at its option, repair or replace free of charge any Bradnam's aluminium joinery due to a failure in workmanship or installation carried out by the Fabricator within a period of five years from the date of delivery or installation by the Fabricator.

The Fabricator shall not be liable for any defect in materials covered by any other supplier warranty. This Warranty does not affect any applicable statutory consumer rights.

### **NALCO Extrusion Warranty:**

National Aluminium Limited ("NALCO") has supplied the Fabricator with aluminium and will, subject to the conditions below, at its option, repair or replace free of charge any Bradnam's aluminium extrusion supplied by NALCO where it:

- Fails to remain waterproof
- Fails to be durable as defined by the New Zealand Building Code Requirement: Fifteen Years
- Fails to comply with the performance requirements of NZS4211: Specification for windows: within a period of TWO Years from the date of manufacture.

NALCO shall not be liable for any defect in workmanship, fabrication installation or failure of powdercoating paint finish covered by the Powdercoating Warranty or any defect in hardware not manufactured by NALCO.

This warranty does not affect any applicable statutory consumer rights.

### **Conditions of the Fabricator and NALCO Warranty ("the Warrantee"):**

- The Warranties are only applicable to windows and doors fitted to domestic dwellings.
- The Warranties do not apply in the event of:
  - a) Any damage or deterioration arising from causes beyond the control of NALCO or the Fabricator including but not limited to impact, abrasion, earthquake, flood, mechanical damage, neglect, malicious damage, misuse, fire damage, act of God, pollution, abnormal weather, damage caused by geothermal gases, air pollution or severe coastal conditions, excessive heat, exposure to chemicals, or attempted repairs unauthorised by NALCO or the Fabricator.
  - b) Where the defect is caused by the use of adhesive tapes or by the use or failure of sealants or mastics.
  - c) Where the defect is caused by a failure to regularly maintain the surfaces in accordance with the recommended care and maintenance procedures as set out in the Powdercoat Warranty.
  - d) Where the defect is attributable to a defect in the structure to which the joinery has been affixed.

- The obligations under this Warranty are limited to either free replacement of the defective component or repair at the discretion of NALCO or the Fabricator, as the case may be.
- Neither NALCO nor the Fabricator is liable for any additional direct or indirect special consequential or third party claims for loss, damage or expenses.
- The Warranties are not assignable or transferable to subsequent owners without the prior written consent of both NALCO and the Fabricator.
- The liability of NALCO and the Fabricator shall not exceed the original invoice value of the applicable aluminium joinery product at fault.
- No liability shall arise where the purchase price for any product supplied remains unpaid in full, or where payment is not made on the due date for payment.
- No liability shall arise unless a claim is made in writing to the Fabricator or to NALCO within 30 days of the defect arising or being reasonably discoverable by the purchaser.

**Bradnam's Windows and Doors is a registered trademark of National Aluminium Ltd (NALCO)**

49 Business Parade North, East Tamaki, Auckland 2013 Ph: 64 9 272 1700, Fax 64 9 272 1708, Website [www.bradnams.co.nz](http://www.bradnams.co.nz)

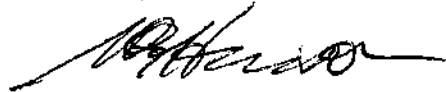
**Customer:** G J Gardner Kapiti – M & L

**Address:** Pate Family Trust - Lot 29, 2 Lamont Place - Ferndale

**Quote Number:** 38878

**Job Number:** 16590

**Signed:.**



**Date:** 2<sup>nd</sup> October 2018

# STATEMENT PIPED SERVICES AND PLUMBING STACKS



## Construction Review

Send or deliver this form to: Kapiti Coast District Council,  
175 Rimu Road, Paraparaumu 5032  
Private Bag 60601, Paraparaumu 5254  
For enquiries, phone 04 296 4700 (Toll Free: 0800 486 486)

### TO BE COMPLETED BY THE INSTALLER

Issued by: Kro Plumbing + Gas Ltd

Registration number: 13440

In respect of Piped Services installed in accordance with G12/AS1 as shown on the approved plans or as per the attached amended plan and Sanitary Plumbing Stacks installed in accordance with G13/AS1 or AS/NZS 3500.2.2

Installed at: 2 Lamont Place, Wairarapa

Building Consent No: 180550

As a certified plumber, currently holding an annual practicing license, certify that I, or personnel under my control, have carried out the installation of the above system and I believe on reasonable grounds that the installation complies with the New Zealand Building Code. Both hot and cold systems have been pressure tested for a period of 15 minutes at a pressure of 1500 kPa.

Name: Bernad Lynd

Signature: [Signature]

Address:

Date: 15/11/19

Phone:

Fax:

Mobile: 021 524823

Email:

### Kāpiti Coast District Council Office Use Only

Statement author authenticated and current registration verified. Verification and Registration checked through public register on [www.pdcb.co.nz](http://www.pdcb.co.nz)

Date:

Name:

Signature:

# STATEMENT DRAINAGE WORK INSTALLED

## Construction Review



Send or deliver this form to: Kapiti Coast District Council,  
175 Rimu Road, Paraparaumu 5032; Private Bag 60601, Paraparaumu 5254  
For enquiries, phone 04 296 4700 (Toll Free: 0800 486 486)

### TO BE COMPLETED BY THE INSTALLER

Issued by:

West Coast Plumbing

Registration number:

19014

Tick applicable



In respect of: Stormwater Drains installed in accordance with E1 AS1 as shown on the approved plans or as per the attached amended plan.



In respect of: Private Sewer Drains installed in accordance with G13 AS2 or AS/NZS 3500 .2.2 as shown on the approved plans or as per the attached amended plan.

Installed at:

2 Lamont Place, Waikanae

Building Consent No:

180550

As a certified drainlayer, currently holding an annual practicing license, I certify that I, or personnel under my control, have carried out the installation of the above system and I believe on reasonable grounds that the installation complies with the New Zealand Building Code.

Name:

Scott Tither

Signature:

*[Handwritten Signature]*

Address:

Date:

15/1/19

Phone:

Fax:

Mobil:

021 524 545

Email:

**Note:** Fully dimensioned as built drain plan to be supplied.(scale 1:100)  
Drains may be laid and backfilled without inspection provided that the drain is left under test with a min of 1.0 m head and the inspection at the lateral left exposed.

### Kāpiti Coast District Council Office Use Only

Statement author authenticated and current registration verified. Verification and Registration checked through public register on [www.pgdb.co.nz](http://www.pgdb.co.nz).

Name:

Signature:

Date:

| Department                             | ✓<br>For Referral | Comments               | Approving Officer / Date |
|----------------------------------------|-------------------|------------------------|--------------------------|
| Resource Consents<br>(refer PIM Sheet) | ✓                 |                        |                          |
| Plumbing and Drainage<br>BC2           | ✓                 | RFI sent 21/7/2018. JM | 30/7/18                  |
| Building<br>BC2                        | ✓                 | RFI sent 11/07/18      |                          |
| Fire Design<br>BC8                     |                   |                        |                          |
| Compliance Schedule<br>BC2 & BI6       |                   |                        |                          |
| Environmental Health                   |                   |                        |                          |
| Other                                  |                   |                        |                          |
| Reviews required<br>BC2 and BC5        |                   |                        |                          |
| NOTES:                                 |                   |                        |                          |

## APPLICATION WORKFLOW COVERSHEET (Blue Folder)

|                         |                                                                                              |
|-------------------------|----------------------------------------------------------------------------------------------|
| Building Consent No.    | 180550                                                                                       |
| Building Project        | New dwelling, 3 bedrooms & study, 2 bathrooms, 1 living area. Double internal access garage. |
| Location (Site Address) | 2 Lamont Place, Waikanae                                                                     |
| Building Category       | Circle appropriate category <b>R1</b> R2 R3 C1 C2 C3                                         |

Received:

RECEIVED  
25 JUN 2018  
BY:

Note: A signature confirms that the application contains sufficient information to enable compliance with the building code to be assessed.

|                                                                                                                  | Name           | Date       |
|------------------------------------------------------------------------------------------------------------------|----------------|------------|
| Vetted and formally received BC1                                                                                 | Heather Wright | 25/06/2018 |
| Payment taken and receipted by CSO BC1                                                                           |                |            |
| Data entered and invoiced by CSO BC1                                                                             | Yingjun        | 27/06/18   |
| Documentation prepared/scanned                                                                                   |                |            |
| Plan production and invoicing BC3                                                                                |                |            |
| Building Consent signed BC1                                                                                      | Sumi           | 31/7/2018  |
| BC, Approved plans and appropriate paperwork sent to applicant or agent with receipt by CSO BC3                  | Yingjun        | 31/07/18   |
| Inspection envelope prepared by CSO with endorsed plans and other appropriate paperwork and filed to cabinet BC3 |                |            |

## CONSENT DATA INPUT REQUIREMENTS

Please circle

|     |    |                            |
|-----|----|----------------------------|
| Yes | No | Compliance Schedule        |
| Yes | No | Restricted building work   |
| Yes | No | Owner Builder              |
| Yes | No | Certificate for Public Use |

Owner Builder register: ED2526609

[illegible]

## Documents selected for building packet

Form 123 Application Workflow Coversheet (Blue Folder) (405007) \_\_v8 (AD1, BC1, BC2, BC3, BC10) February 2018 Page 1

G.J. Gardner Homes Kapiti/Wellington  
PO Box 65  
Paraparaumu 5254

31 July 2018

Dear Building Consent Applicant / Building Owner

**Approval of Building Consent – Detached Residential / Outbuilding: 180550**

**Location:** 2 Lamont Place, Waikanae  
**Legal Description:** LOT 29 DP 409302 C/T 434083  
**Description:** New dwelling, 3 bedrooms & study, 2 bathrooms, 1 living area. Double internal access garage.

I am pleased to inform you that the above building consent application has been approved. The building consent documents have been issued and are enclosed.

The building consent attached to this letter is consent under the Building Act 2004 to undertake building work in accordance with the plans and specifications that accompanied your application. Under section 49 of that Act, Council is satisfied that the provisions of the building code would be met if the proposed building work were completed in accordance with those plans and specifications. This consent does not affect any duty or responsibility under any other Act or permit any breach of any other Act.

This building consent does not give or imply any rights to transgress beyond your legal boundaries. Any work that is required beyond your legal boundaries can only be undertaken with the permission of the affected owner/s.

**Before starting any work please read ALL the building consent documents carefully and in full so that you, as the owner, understand the conditions under which the consent has been issued.**

**Please note that this building consent includes restricted building work, the details of this are included in this letter.**

**Owner responsibilities**

The owner is responsible for ensuring:

- building work starts within 12 months of the approval of the building consent and that work progresses at a reasonable pace.
- written notice of every licensed building practitioner undertaking restricted building work is provided to Council before that work commences, and any changes are advised in writing

- the approved building consent documents are kept on site during construction and available for the District inspector at inspections
- all required inspections are completed and that a Code Compliance Certificate is obtained once the work has been completed. The list of supporting documentation required before issue of the Code Compliance Certificate and information on filling out the application form for code compliance certificate is attached. Failure to obtain a final inspection and a code compliance certificate may affect your insurance cover and could affect future re-sale of your property.
- a Corridor Access Request is made and a Works Access permit is obtained before undertaking work in the legal road/road reserve, including installing a vehicle access crossing from the public road into your property. The process to be followed and the forms can be found on the Council website under Council Services/Roads or Council Services/Frequently asked questions/Access & Transport.
- before any excavations are undertaken a "Before U Dig" inquiry is made to check for locations of any underground services.
- no work with noisy equipment is to be carried out before 7.30 a.m. or after 6 p.m. Monday to Saturday. During the week there may be workers on site from 6.30 a.m. quietly preparing for work. Work with noisy equipment is not permitted on Sundays and public holidays.
- all loose materials that are capable of being carried by the wind are either secured or removed from the site. All activities must be carried out in a manner that keeps to a minimum the dust nuisance to adjacent properties.
- no damage occurs to public property, for example footpaths, water meters or retaining structures. Should damage occur you will be required to pay for any repairs.
- obtaining an amendment to the building consent for any changes to the approved building consent, prior to that work being undertaken.
- meeting the requirements of any easements, consent notices, covenants, and like listings registered on the title.
- the development contributions invoiced, if any, must be paid before a code compliance certificate can be issued.

### **General requirements**

**Note:** Your attention is drawn to the notes contained in the 'Addendum to the Consent' and guidance documents referred to.

The following information is relevant to this building consent:

1. The Building Inspector is to be given 24 hours' notice before carrying out the inspections on the attached list. To arrange for inspections by the District Inspector, please contact the building inspectorate on 04 296 4700 between the hours of 8.00am and 4.30pm.
2. Refer to the list of inspections required. Under section 90 of the Building Act 2004 agents authorised by the Council (acting as a Building Consent Authority) 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 that building site; and
  - c. any building.
3. You are responsible for the safety of visitors to the work site including those undertaking building inspections. You must provide safe access to parts of the construction necessary for inspection. Ladder access must be securely founded and tied. Scaffold access and roof edge protection is generally required.
  4. If required inspections, including those by designers of specifically designed elements, are not undertaken you may experience difficulty in obtaining a Code Compliance Certificate for the project. We suggest that at the time of the first inspection you discuss the inspection requirements with the inspecting officer.
  5. This building consent will lapse and be of no effect if the building work concerned has not been commenced within 12 calendar months after the date of issue, or within such further period as the territorial authority allows.
  6. The contractor is to leave the site clear of all demolition materials and in a tidy state.
  7. Easements, consent notices, covenants, and like listings registered on the title are the responsibility of the applicant.
  8. Note and comply with endorsements on approved plans.

### **Restricted Building Work**

The following building work associated with this building consent is restricted building work [Section 7 and 402(1)(n) of the Building Act 2004 and Building (Definition of Restricted Building Work) Order 2011]:

| Description of restricted building work including design work that is restricted building work |
|------------------------------------------------------------------------------------------------|
| <b><i>Primary structure</i></b>                                                                |
| Foundations and subfloor framing                                                               |
| Walls                                                                                          |
| Roof                                                                                           |
| Columns and beams                                                                              |
| Bracing                                                                                        |
| Other                                                                                          |
| <b><i>External moisture management systems</i></b>                                             |
| Damp proofing                                                                                  |
| Roof cladding or roof cladding system                                                          |
| Ventilation system (for example subfloor or cavity)                                            |
| Wall cladding or wall cladding system                                                          |
| Waterproofing                                                                                  |
| Other                                                                                          |

Please note that the design work and restricted building work must be supervised or carried out by a licensed building practitioner who is licensed to carry out or supervise that kind of building work.

You or your agent will need to provide their details to the Council in writing prior to commencement of the building work. If after the restricted building work commences the named licensed building practitioner(s) ceases to be engaged to carry out or supervise the restricted building work under the building consent, this must also be advised in writing as must also the details of any other licensed building practitioner(s) subsequently engaged to carry out or supervise the restricted building work (Section 87 of the Building Act 2004). A form "Advice of licensed building practitioner(s)" is enclosed for you to use to advise the Council of licensed building practitioner details.

Please also note that it is an offence to engage another person to carry out or supervise restricted building work who is not a licensed building practitioner (Section 86 of the Building Act 2004).

#### **Other reference material**

- Guide for completing an application for code compliance,  
<http://www.kapiticoast.govt.nz/globalassets/regulatory/building/form-278a-guide-for-ccc-application.pdf>
- A guide to the inspection process  
[http://www.kapiticoast.govt.nz/globalassets/regulatory/building/form\\_559\\_a\\_guide\\_to\\_the\\_inspection\\_process.pdf](http://www.kapiticoast.govt.nz/globalassets/regulatory/building/form_559_a_guide_to_the_inspection_process.pdf)

If you have any questions regarding your building consent or your responsibilities, please contact Kapiti Coast District Council on 04 296 4700 or toll free on 0800 486 486.

## Relevant Information

Issued in accordance with Building Consent No. 180550

1. Both hot and cold water pipes are to be tested to 1500kPa pressure.
2. Earthworks (used regardless as to whether it complies with the District Plan or not): Should a waahi tapu or other cultural site be unearthed during earthworks, the operator and/or owner shall: 1) Cease operations; 2) Inform local Iwi; 3) Inform the New Zealand Historic Places Trust (NZHPT) and apply for an appropriate authority; and 4) Take appropriate action, after discussion with NZHPT, Council and Tangata Whenua, to remedy damage and/or restore the site. NB: In accordance with the Historic Places Act 1983, where an archaeological site is present (or uncovered), authority from the NZHPT is required if the site is to be modified in anyway.
3. Any external cladding system must be completed before a pre-lining inspection for the affected wall can take place.
4. The owner/builder is responsible for clearly defining the site boundary lines and pegs. This may require a survey. NOTE: established fences are not necessarily on the boundary.
5. Plan notes take precedence over general specifications.
6. All work is to be undertaken in accordance with a section 221 consent notice imposed under the Resource Management Act. Resource Consents relevant to this property are listed.
7. RM070273

**Building Consent**  
[Form 5, Building (Forms) Regulations 2004]  
**180550**  
**Section 51, Building Act 2004**

**The building**

*Street address of building:* 2 Lamont Place, Waikanae  
*Legal description of land where building is located:* LOT 29 DP 409302 C/T 434083  
*Valuation number:* 1494126530  
*Building name:* N/A  
*Location of building within site/ block number:*  
*Level/unit number:*

**The owner**

*Name of owner:* G K Pate Trust  
*Contact person:* As above  
*Mailing address:* C/- PO Box 65, Paraparaumu 5254  
*Street address/registered office:* 11 Kodex Place, Paraparaumu  
*Phone numbers:*  
*Landline:* 04 296 1248 *Mobile:* -  
*After hours:* - *Fax number:* -  
*Email address:* kapiti@gjgardner.co.nz  
*Website:* -  
*First point of contact for communications with the council/building consent authority:*  
Full Name: G.J. Gardner Homes Kapiti/Wellington  
Mailing Address: PO Box 65, Paraparaumu 5254  
Phones: 04 296 1248  
Email: kapiti@gjgardner.co.nz

**Building work**

The following building work is authorised by this building consent:  
New dwelling, 3 bedrooms & study, 2 bathrooms, 1 living area. Double internal access garage.

Residential Dwelling

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

### Conditions of building consent

### Compliance schedule

A compliance schedule is not required for the building.

### Attachments

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

- List of required inspections and supporting documentation required
- Building Consent Addendum
- Plans and specifications
- Advice of licensed building practitioners

**Note:** The cover letter and all attachments to this building consent should be read fully to ensure you understand all conditions of this consent.

Signature

Position

On behalf of: KAPITI COAST DISTRICT COUNCIL

Date: 30/07/18

## Building Consent Addendum to 180550

| Application                          | Building Consent No. 180550 |
|--------------------------------------|-----------------------------|
| G.J. Gardner Homes Kapiti/Wellington |                             |
| PO Box 65                            |                             |
| Paraparaumu 5254                     |                             |

| Project            |                                                                                                                                                                                                            |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Description:       | New (& prebuilt) House, Unit, Bach, Crib, Town House etc.<br><br>Being Stage 1 of an intended 1 Stages<br><br>New dwelling, 3 bedrooms & study, 2 bathrooms, 1 living area. Double internal access garage. |
| Intended Life:     | Indefinite, but not less than 50 years                                                                                                                                                                     |
| Intended Use:      | Residential Dwelling                                                                                                                                                                                       |
| Estimated Value:   | \$500,000                                                                                                                                                                                                  |
| Location:          | 2 Lamont Place, Waikanae                                                                                                                                                                                   |
| Legal Description: | LOT 29 DP 409302 C/T 434083                                                                                                                                                                                |
| Valuation No:      | 1494126530                                                                                                                                                                                                 |

Designer: Coastal Architecture Ltd PO Box 65, Paraparaumu 5254 : 04 296 1248

Drainlayer: West Coast Plumbing Ltd 57 Olive Terrace, Paraparaumu : 021 524 545

Plumber: Pro Plumbing & Gas Ltd 319 Mazengarb Road, Paraparaumu : 021 524 823

Contractor: Hamish Wells Ltd PO Box 188, Otaki : 027 445 9757

Contractor: G J Gardner Homes Kapiti PO Box 65, Paraparaumu 5254 : 021 150 0390 / 04 296 1248

### Specific requirements

- Names and registration numbers of the plumber and drainlayer are required before work commences.
- The inspection of all specific design components covered by a producer statement design (PS1), where the designer has recommended construction monitoring, is the

responsibility of the Design Engineer who is also required to supply a written report (PS4) to the Council. It is the Design engineer's responsibility to confirm design assumptions.

3. A certifying plumber/drainlayer is to complete the attached producer statement forms and return to Council. Also provide a neat 'as built' drainage plan showing sewer, stormwater and water.

## KAPITI COAST DISTRICT COUNCIL LIVE ENVIRONMENT

Consent No: 180550

Building Category: R1

Site Address: 2 Lamont Place, Waikanae

Owner/Agent: G.J. Gardner Homes Kapiti/Wellington

---

### Inspections

The following inspections are required:

- 1 Pre-Slab Building
- 1 Pre-Slab Plumbing
- 1 Drainage
- 1 Preline Building
- 1 Postline / Wet area Pre Application
- 1 Pre Wrap
- 1 Pre Clad
- 1 Brick Veneer
- 1 Wet Area Pre-application
- 1 Wet Area Post-application
- 1 Preline Plumbing
- 1 Final Inspection
- 12 Total Inspections

### Support Documentation

Application for CCC  
Electrical safety certificate  
Gas safety certificate  
As-built drainage plan  
Drainage (Form 126) for stormwater installation  
Drainage (Form 127) for private sewer installation  
Plumbing (Form 125) for pressure test and installation piped services  
Construction review PS4 statement for structural engineering  
Membrane applicator certificates - internal wet area  
Timber framing and truss certification  
Record of Work  
Water tank warranty

### Licensed Building Practitioners

Designer 1  
Designer 2  
Carpentry 1  
Foundations 1

**Bricklaying and Blocklaying 1**  
**Roofing 1**

# PROPOSED DWELLING

FOR G.K PATE FAMILY TRUST  
2 LAMONT PLACE, FERNDAL, WAIKANA

## CONTENTS:

- 1 - SITE PLAN
- 2 - DRAINAGE PLAN
- 3 - FLOOR PLAN
- 4 - FOUNDATION PLAN
- 5 - ROOF PLAN
- 6 - ELEVATIONS
- 7 - SECTION
- 8 - BRACING PLAN
- 9 - ELECTRICAL PLAN
- 10 - DETAILS
- 11 - DETAILS
- 12 - DETAILS
- 13 - DETAILS
- 14 - E2 MATRIX

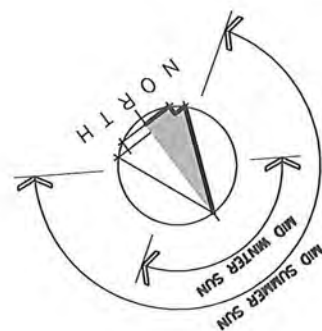
## NOTES:

CAUTION - PLANS HAVE BEEN DIGITALLY  
REPRODUCED & MAY NOT BE TO SCALE.

ALL WORK CARRIED OUT TO CONFORM TO  
RELEVANT BUILDING CODE & STANDARDS FOR  
LIGHT TIMBER FRAMED CONSTRUCTION.

ALL WORK CARRIED OUT UNDER JURISDICTION OF  
PRODUCER STATEMENT TO MEET THE ENGINEER  
REQUIREMENTS FULLY.

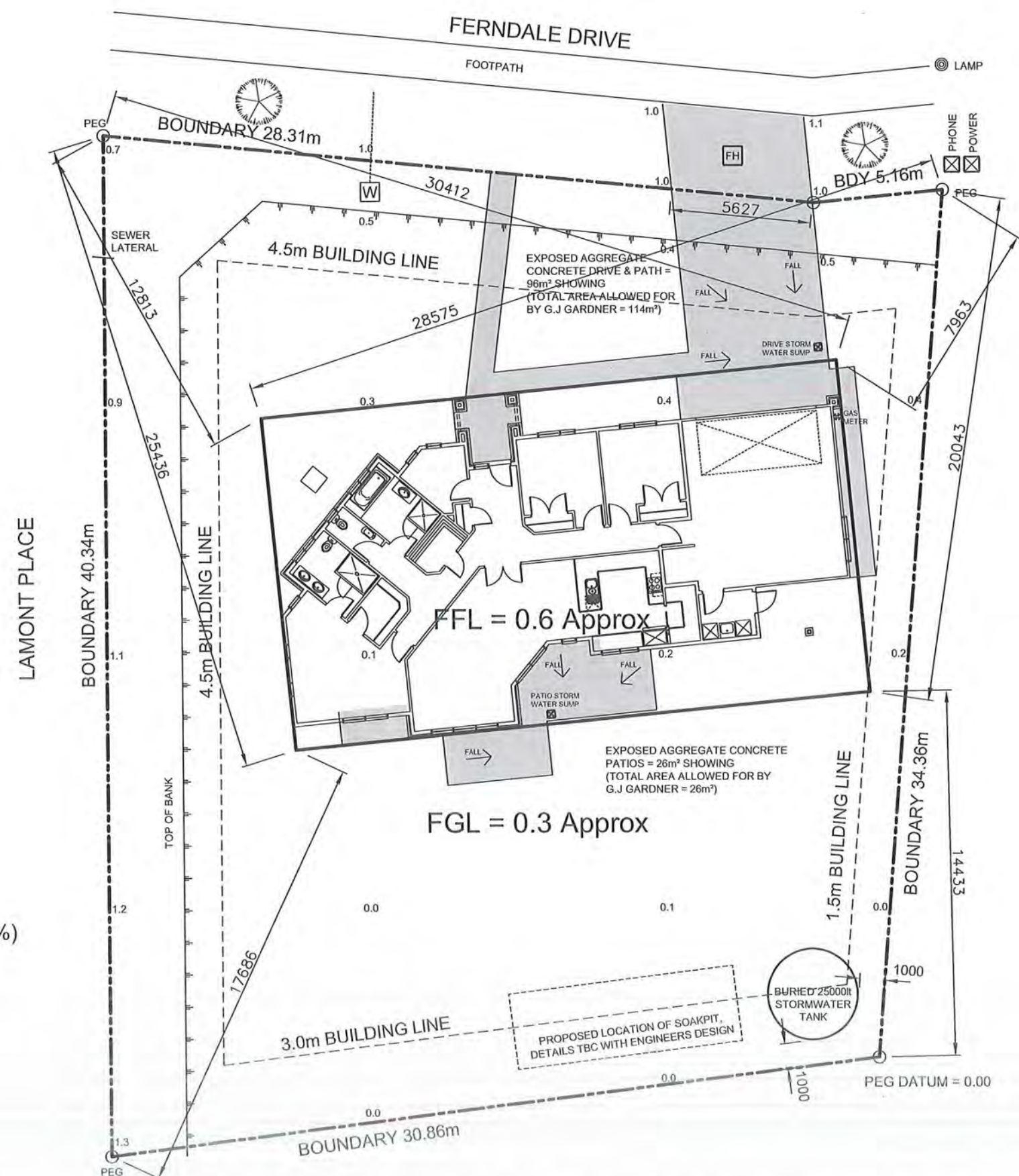




LOT 29  
DP 409302  
SITE AREA = 1177m<sup>2</sup>  
DWELLING = 200m<sup>2</sup>  
COVERAGE = 17% (MAX 30%)

HIGH WIND ZONE  
CORROSION ZONE C

PERMEABLE AREA = 837m<sup>2</sup> = 71% (MIN 40%)



APPROVED BY  
PLANNING  
nancyg  
24/07/2018

NOTE:  
GREY WATER  
SYSTEM INCLUDED

# SITE PLAN

SCALE 1:200

NOTE: SITE CONCEPT ONLY. SUBJECT TO ENGINEERING APPROVAL



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Revisions:

|                |       |
|----------------|-------|
| MAY 31 / 2017  | rev A |
| JULY 6 / 2017  | rev B |
| JULY 13 / 2017 | rev C |

## CONSENT PLANS

Client: GK PATE FAMILY TRUST

LOT 29 FERNDAL  
WAIKANAE

Drawing Title:  
**SITE PLAN**

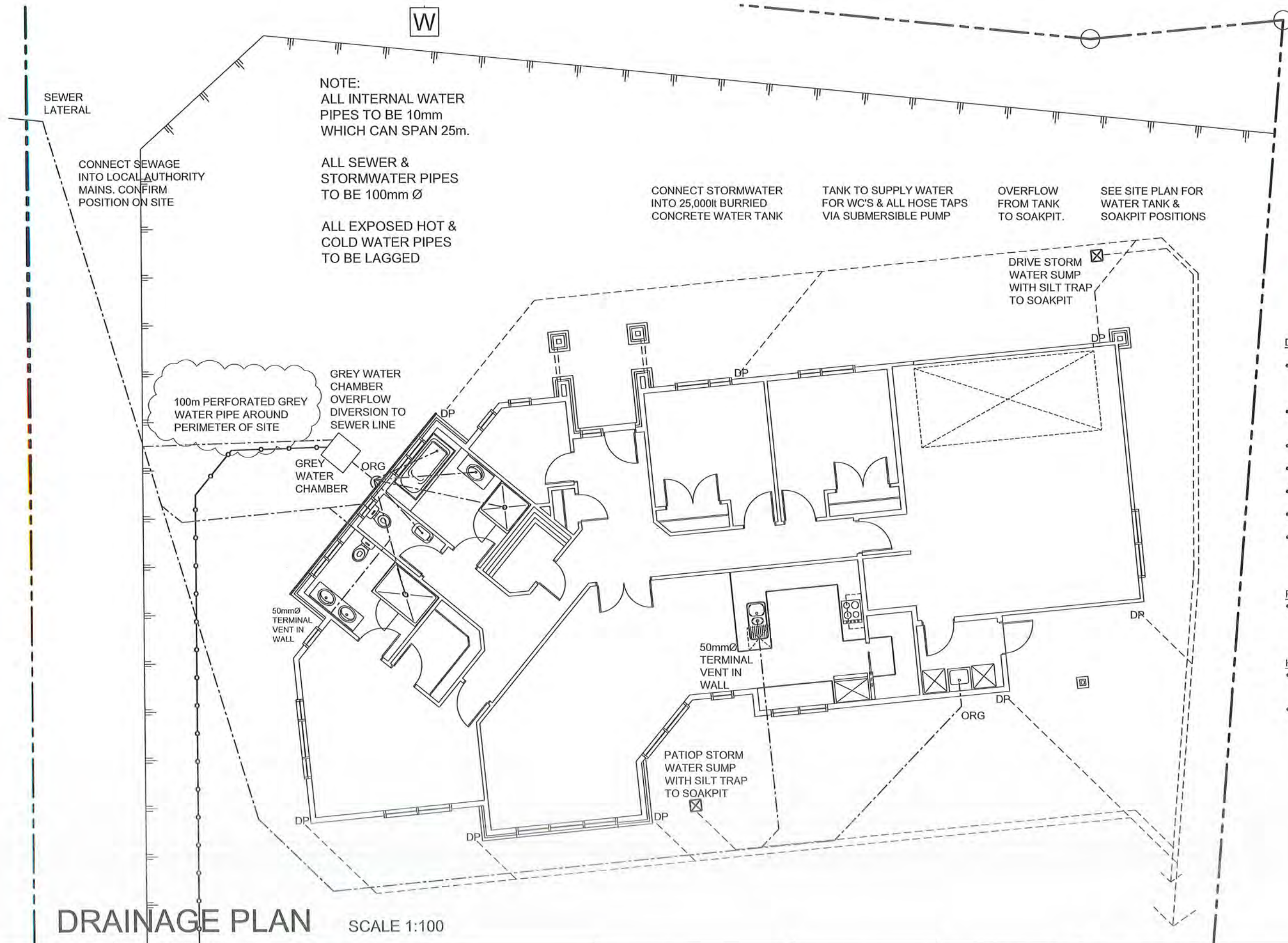
Designer:

**C O A S T A L**  
ARCHITECTURE LTD.

11 Kodex Place  
Paraparaumu  
New Zealand

Tel: 04 296 1248  
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|         |              |  |        |          |  |
|---------|--------------|--|--------|----------|--|
| Design: | G.J Gardners |  | Drawn: | bf       |  |
|         |              |  | Scale: | as shown |  |
| Job:    | Page of:     |  | Rev:   |          |  |
| 970111  | 1            |  |        | C        |  |



BC180550  
Further Information Received  
30/07/2018

#### DRAINAGE PLAN NOTES:

- All Plumbing and Drainage to be in accordance with AS/NZS 3500.2 for ground floor systems and for single stack systems
- Plumber/drainlayer to fill out producer statement and return to council with an as built drainage plan
- Check PIM information for service connections
- pipes to be inspected before covering with sand
- A tempering valve is required to be installed on the hot water service
- No pipes at any point exceed 10m in length from dn 100 vented drain
- Non-potable supply appropriately protected from cross connection hazards & is identified by appropriate signage

#### PIPE GRADIENTS

- Minimum grades for drains and discharge pipes  
65Ø & less = 1 in 40  
80Ø & 100Ø = 1 in 60

#### HOT & COLD WATER

- All hot & cold water pipes in house to be run in Dux Secura Polybutylene plumbing system
- 20mm for Main, to bath and to HWC
- 15mm to all other branches
- 15mm to exterior taps

## DRAINAGE PLAN SCALE 1:100



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|----------------|-------|
| MAY 31 / 2018  | rev A |
| JUNE 15 / 2018 | rev B |
| JULY 6 / 2018  | rev C |
| JULY 13 / 2018 | rev D |

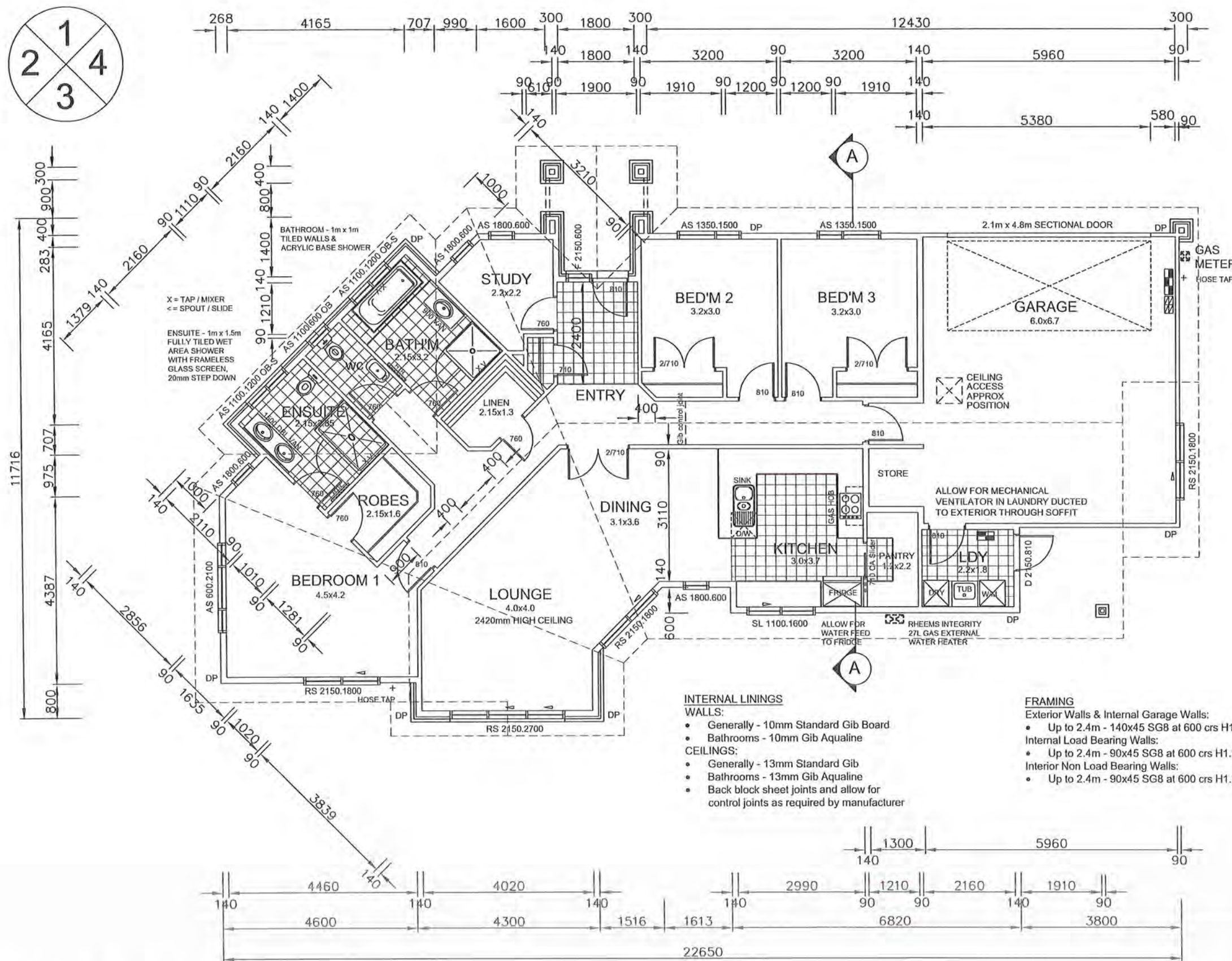
#### CONSENT PLANS

Client:  
GK PATE FAMILY TRUST  
  
LOT 29 FERNDAL  
WAIKANAE

Drawing Title:  
**DRAINAGE PLAN**

Designer:  
**COASTAL ARCHITECTURE LTD.**  
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|                          |               |
|--------------------------|---------------|
| Design:<br>G.J. Gardners | Drawn:<br>bf  |
| Job:<br>970111           | Page of:<br>2 |
| Rev:<br>D                |               |



#### NOTES:

- EXTERIOR FRAMING 140x45 SG8
- R4.0 ULTRA INSULATION TO EXTERIOR WALLS (Excluding Garage)
- R5.0 INSULATION TO CEILING (Excluding Garage)
- ALLOW FOR GAS CENTRAL HEATING
- ALLOW FOR SECURITY SYSTEM
- COLOURSTEEL DOWNPIPES
- ALL INTERNAL DOORS TO BE 'V' GROOVE AVON STYLE
- PV SOLAR IS INCLUDED

#### GENERAL NOTES:

- All work must be carried out to conform to relevant sections of the New Zealand Building Code and New Zealand Standards - in particular NZS 3604, NZS 3602 & NZS 4218. All references to Standards shall be taken as reference to the latest revision including amendments.
- Ground bearing must be reconfirmed on site following excavation but prior to placing concrete and reinforcing.
- Confirm site boundaries with licenced surveyor. Fences may not necessarily be on the legal boundary.
- All work to be carried out to best trade practice.
- All habitable rooms have a min of 5% of their floor area as opening windows or approved alternative to achieve ventilation requirements.
- All habitable rooms have windows providing a min 10% of their floor area as natural light. At least 50% of the glazed area providing natural light is clear glazing falling within the visual awareness zone.
- Garage spaces within or attached to the building envelope shall have:
- A - Openings provided with a 50mm min total level change between the interior & exterior paving
- B - Provision to drain water away from the threshold of the opening.
- refer to E2 fig 65 & table 18 for overall level change requirements
- Do Not Scale off Building Consent Documentation issued from TA's as the plans may have been scanned and the scale distorted.
- Preamble framing and truss manufacturer to provide lintel sizes and provide a producer statement for framing, window lintels and trusses.
- Window openings to be 20mm larger than window sizes (10mm tolerance each side)
- All bottom plates and framing to shower areas to be H3.1. All framing in other at risk areas such as parapets and enclosed balconies to comply with NZS 3602 for particular situation.
- Allow for dwangs to fix fittings as required by owner.
- Wall junctions shall be framed up with not less than 2 studs blocked and nailed.
- Maximum diameter hole in 90mm stud to be 25mm or 35mm diameter where not more than 3 consecutive studs are drilled.
- Lintels supporting rafters or trusses shall be secured against uplift as per clause 8.6.1.8 & figure 8.12, NZS 3604:2011. 25x1mm strap with 6/30x2.5mm nails into both lintel & stud & 25x1mm strap taken under plate & up 150mm each side of stud fixed with 6/30x2.5mm nails into each side of stud
- Confirm building wrap is able to be used with timber treatment.
- Builders on site to comply with F5 of the building code (Health & Safety)

## FLOOR PLAN

SCALE 1:100 AREA = 197.2m<sup>2</sup> (200m<sup>2</sup> OVER BRICK)



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#### Revisions:

MAY 31 / 2018  
JUNE 15 / 2018  
JULY 6 / 2018  
JULY 13 / 2017  
JULY 23 / 2017

rev A  
rev B  
rev C  
rev D  
rev E

#### CONSENT PLANS

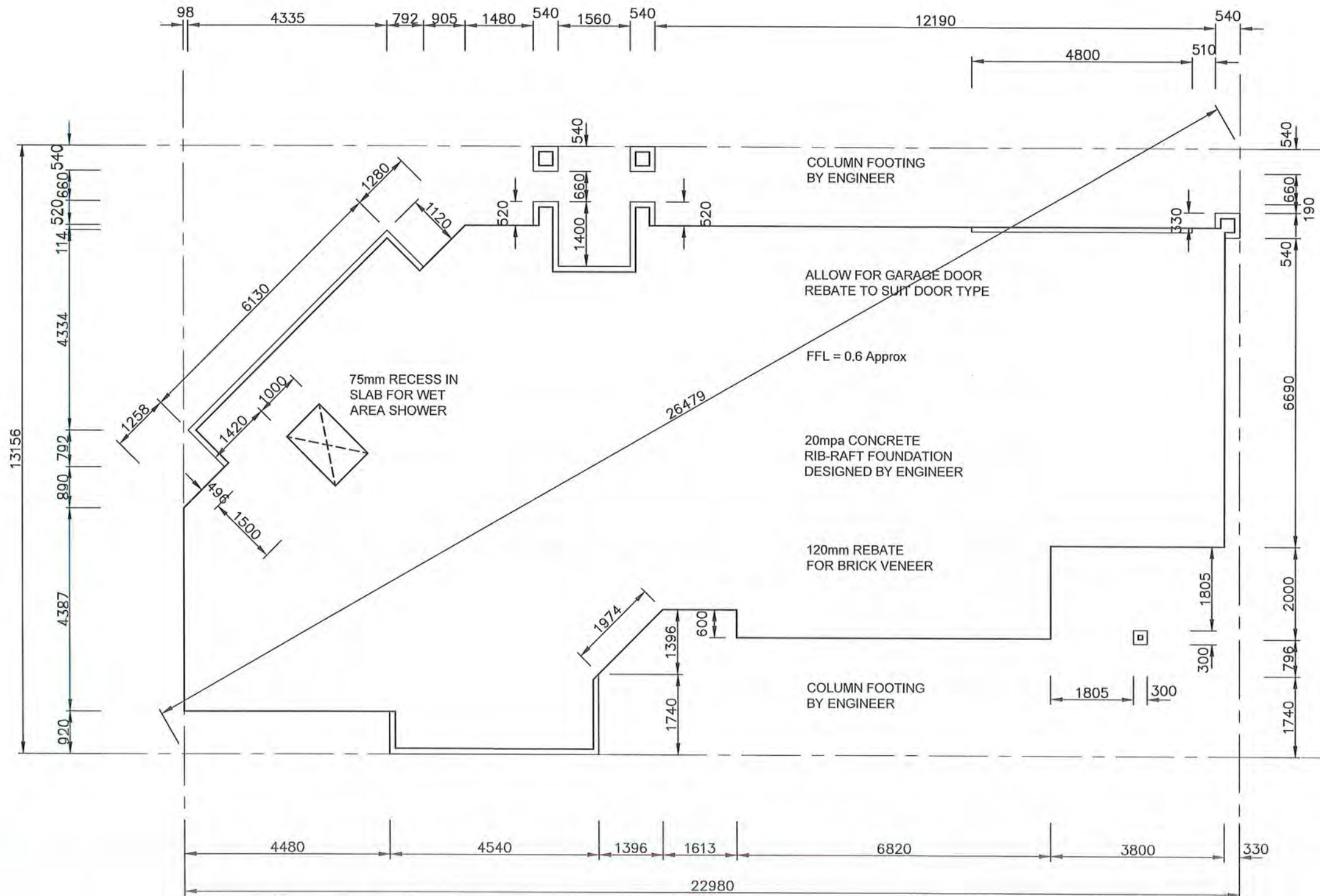
Client:  
GK PATE FAMILY TRUST  
LOT 29 FERNDAL  
WAIKANAE

Drawing Title:  
FLOOR PLAN

Designer:  
**COASTAL**  
ARCHITECTURE LTD.  
11 Kodex Place  
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Tel: 04 296 1248  
e-mail: coastalarchdesign@gmail.com

Design:  
G.J. Gardners  
Drawn:  
bf  
Scale:  
as shown

Job: 970111  
Page of: 3  
Rev: E



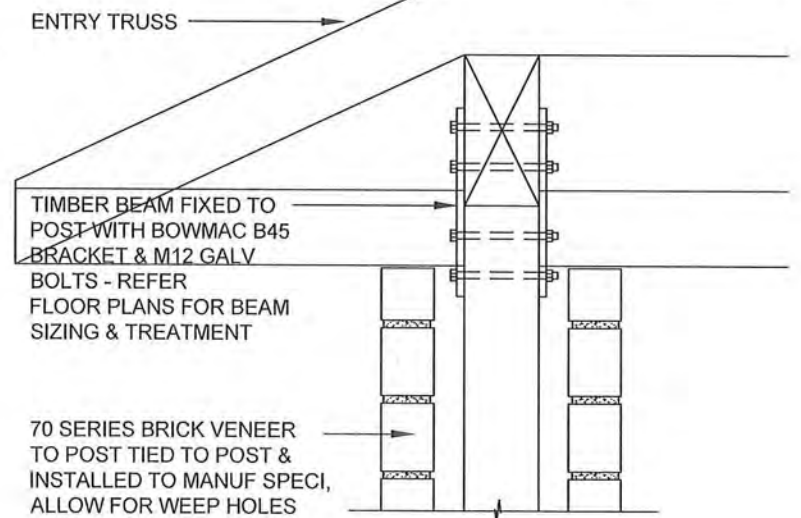
PROPRIETARY ANCHORS SHALL BE WITHIN 150mm OF EACH END & SPACED AT A MAX OF 900mm CRS OR 600mm CRS WHEN USED ON SLAB EDGES FORMED BY MASONRY HEADER BLOCKS

AREA OF FOUNDATION (OVER BRICK) = 217m<sup>2</sup>

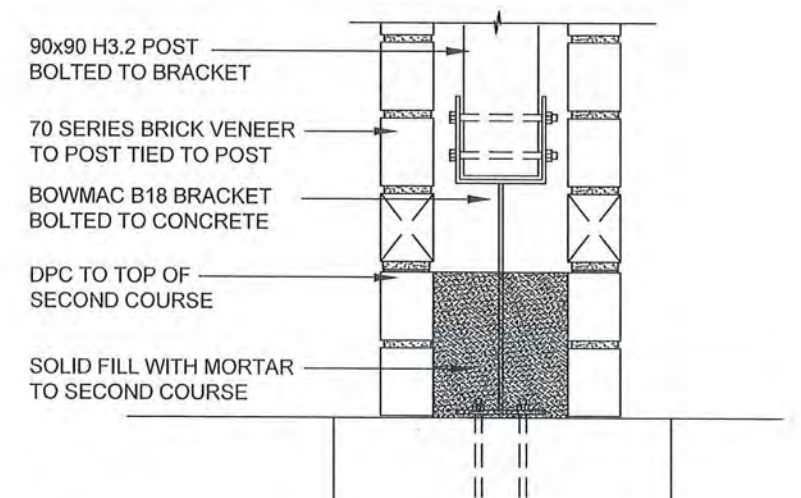
## FOUNDATION PLAN SCALE 1:100

### MINIMUM FLOOR HEIGHT

PROTECTED GROUND  
100MM BRICK VENEER  
150MM OTHER CLADDINGS  
UNPROTECTED GROUND  
150MM BRICK VENEER  
225MM OTHER CLADDINGS  
HEIGHTS AS PER NZS3604 1999 SECTION 7



## BEAM FIXING DETAIL SCALE 1:10



## POST FIXING DETAIL SCALE 1:10



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MAY 31 / 2017 rev A

CONSENT  
PLANS

Client:  
GK PATE FAMILY TRUST  
LOT 29 FERNDAL  
WAIKANAE

Drawing Title:  
FOUNDATION  
PLAN

Designer:  
**COASTAL**  
ARCHITECTURE LTD.  
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Paraparaumu  
New Zealand  
Tel: 04 296 1248  
e-mail: coastarchdesign@gmail.com

Design:  
G.J. Gardners  
Job: 970111  
Page of: 4  
Rev: A

NOTES

**TRUSSES**  
DO NOT SUPPORT BOTTOM CHORD OF TRUSS AT POINTS OTHER THAN THOSE DESIGNATED BY THE TRUSS MANUFACTURER

ALL ROOF FRAMING TO BE H1.2

**SOFFITS**  
UNFINISHED HARDIES SOFFITS MUST BE PAINTED TO COMPLY WITH NZBC DURABILITY REQUIREMENTS

**SPOUTING**  
FRONT EDGE OF SPOUTING TO BE 20mm BELOW TOP EDGE OF FASCIA

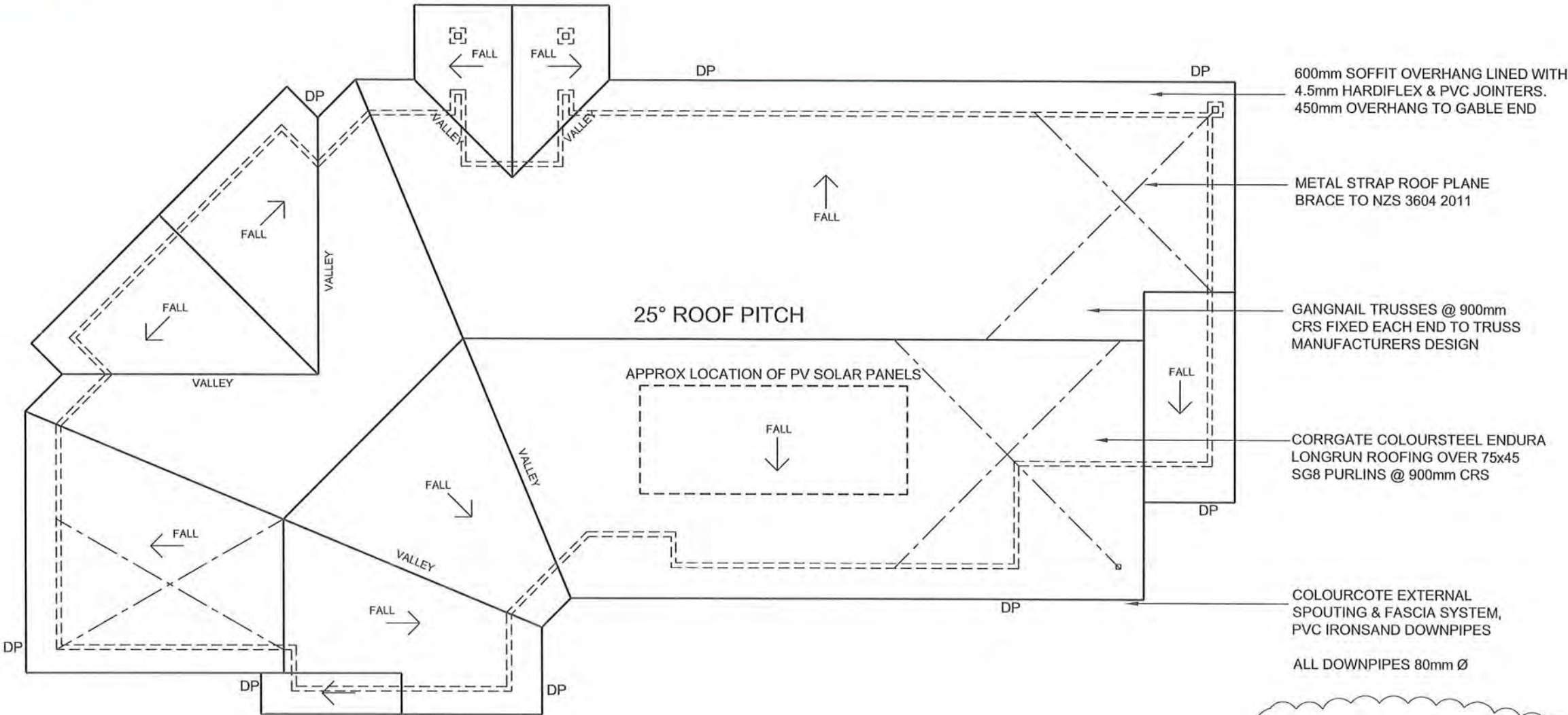
**DOWNPINES**  
ALL 80mm Ø PVC

**ROOF FRAMING FIXINGS**  
TRUSSES  
FIXINGS FOR A ROOF TRUSS AT ITS SUPPORT SHALL BE AS GIVEN BY THE TRUSS MANUFACTURERS DESIGN BUT **SHALL BE NOT LESS THAN:** 2/90x3.15 SKEWED NAILS & STRAP FIXING (see figure 10.6 NZS 3604 2011)

**PURLINS TO TRUSSES**  
1/10g SELF DRILLING SCREW, 80mm LONG (2.4kN FIXING CAPACITY)

SUPPLY COPY OF RELEVANT WARRANTIES FOR ROOFING, MEMBRANE SYSTEMS & FASCIA / GUTTER SYSTEMS AS APPROPRIATE TO COUNCIL

**ROOFING MATERIAL** TO BE INSTALLED TO MANUFACTURERS REQUIREMENTS IN PARTICULAR, FIXING & MINIMUM PITCH (REFERENCE ALSO SECT 8 OF E2 NZ BUILDING CODE)

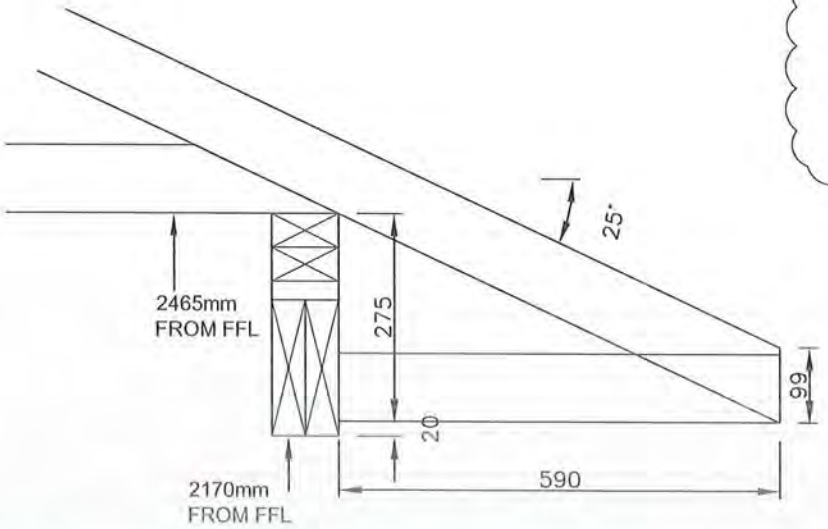


**RAINWATER CALCULATION**

- Roof Catchment Area = 246m<sup>2</sup> / 21° x 1.2 = 295m<sup>2</sup>
- Colorsteel gutter = Catchment capacity = 4880mm<sup>2</sup>
- Downpipe Size = 80Ø Marley
- Downpipe Catchment Area = 100m<sup>2</sup>

Roof Catchment/Downpipe Catchment = 295/100 = 3 DP's

ROOF PLAN SCALE 1:100



DETAIL TO SUIT 2150mm HIGH JOINERY



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MAY 31 / 2017  
JULY 6 / 2018  
JULY 23 / 2018  
rev A  
rev B  
rev C

CONSENT  
PLANS

Client:  
GK PATE FAMILY TRUST  
LOT 29 FERNDAL  
WAIKANAE

Drawing Title:  
ROOF PLAN

Designer:  
**COASTAL**  
ARCHITECTURE LTD.  
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e-mail : coastarchdesign@gmail.com

Design:  
G.J. Gardners  
Job: 970111  
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Rev: C  
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bf  
Scale:  
as shown

**SOUTH ELEVATION 1**  
SCALE 1:100

**EAST ELEVATION 2**  
SCALE 1:100

**NORTH ELEVATION 3**  
SCALE 1:100

**WEST ELEVATION 4**  
SCALE 1:100

BUILDING WRAP - TEKTON  
THERMAKRAFT 215 ROOFING UNDERLAY

INSULATION: (Excluding Garage)  
R5.0 BATTS TO CEILINGS  
R4.0 BATTS TO EXTERIOR WALLS

FIRTH DEVONSTONE BRICK  
VENEER EXTERIOR  
CLADDING, STACK BOND

POWDER COATED ALUMINIUM  
JOINERY TO SUIT 140x45 FRAMING

CORRGATE COLOURSTEEL  
ENDURA LONGRUN ROOFING OVER  
75x45 SG8 PURLINS @ 900mm CRS

600mm SOFFIT OVERHANG LINED  
WITH 4.5mm HARDIFLEX & PVC  
JOINTERS.  
450mm OVERHANG TO GABLE END

COLOURCOTE EXTERNAL  
SPOUTING & FASCIA SYSTEM,  
PVC IRONSAND DOWNPIPES

LINEA WEATHERBOARD  
CLADDING ON CAVITY  
SYSTEM TO FEATURE WALLS

BC180550  
Further Information Received  
30/07/2018

NOTE:  
ALL CLADDINGS, ROOFING & SPOUTING SYSTEMS  
TO BE MAINTAINED BY OWNER IN ACCORDANCE  
TO MANUFACTURERS RECOMMENDATIONS &  
WARRANTEE REQUIREMENTS

CLADDING TO BE INSTALLED TO  
MANUFACTURERS REQUIREMENTS IN  
PARTICULAR FIXING & GROUND  
CLEARANCE.  
ALSO REFER TO NZBC, CLAUSE E2/AS1,  
EXTERNAL MOISTURE FOR CLARITY



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Revisions:  
MAY 31 / 2018 rev A  
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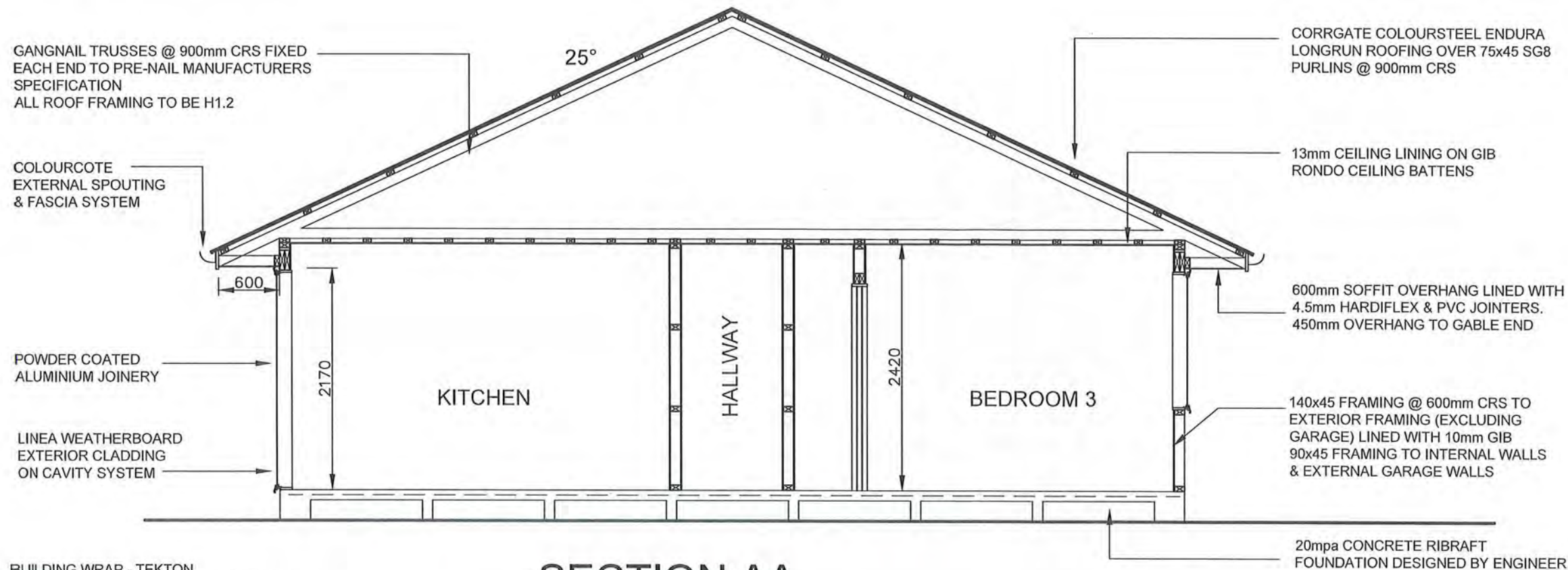
CONSENT  
PLANS

Client:  
GK PATE FAMILY TRUST  
  
LOT 29 FERNDAL  
WAIKANAE

Drawing Title:  
ELEVATIONS

Designer:  
**COASTAL**  
ARCHITECTURE LTD.  
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Design:  
G.J. Gardners  
Drawn:  
bf  
Scale:  
as shown  
  
Job: 970111  
Page of: 6  
Rev: C



BUILDING WRAP - TEKTON  
THERMAKRAFT 215 ROOFING UNDERLAY

INSULATION: EXCLUDING GARAGE  
R5.0 BATTS TO CEILINGS  
R4.0 BATTS TO EXTERIOR WALLS

ALLOW FOR 140x45 DOUBLE TOP PLATE

ALL CONSTRUCTION TO COMPLY WITH THE NZBC, NZS 3604:2011, NZS 3602:2003 AND BEST TRADE PRACTICE.

RESTRICTOR STAYS TO LIMIT SASH OPENING TO MAX 100mm MUST BE FITTED WHERE EVER SILL HEIGHT IS LESS THAN 760mm & THE DIFFERENCE IN LEVELS ARE 1m OR GREATER. REFER F4 NZBC

SAFETY GLASS AS REQUIRED BY NZS 4223 PT 3 2016 VERSION TO BE PROVIDED TO ALL WET AREA JOINERY, GLAZED DOORS, SIDE PANELS, FULL HEIGHT WINDOWS & WINDOWS WITH SILLS LESS THAN 500mm FROM FFL.

SILL SUPPORTS TO MANUFACTURERS SPECIFICATIONS & DETAILS

GLAZING TO CONFORM NZS 4223 PT 1, 2 & 3 2016 VERSION FOR HIGH WIND ZONE

THE SUPPLIER AND THE MAIN CONTRACTOR SHALL CHECK ALL DIMENSIONS ON SITE AND CONFIRM PRIOR TO MANUFACTURE.

## SECTION AA

SCALE 1:50

### CROSS SECTION NOTES

- CLADDING TO BE INSTALLED TO MANUFACTURERS REQUIREMENTS IN PARTICULAR FIXING AND GROUND CLEARANCE

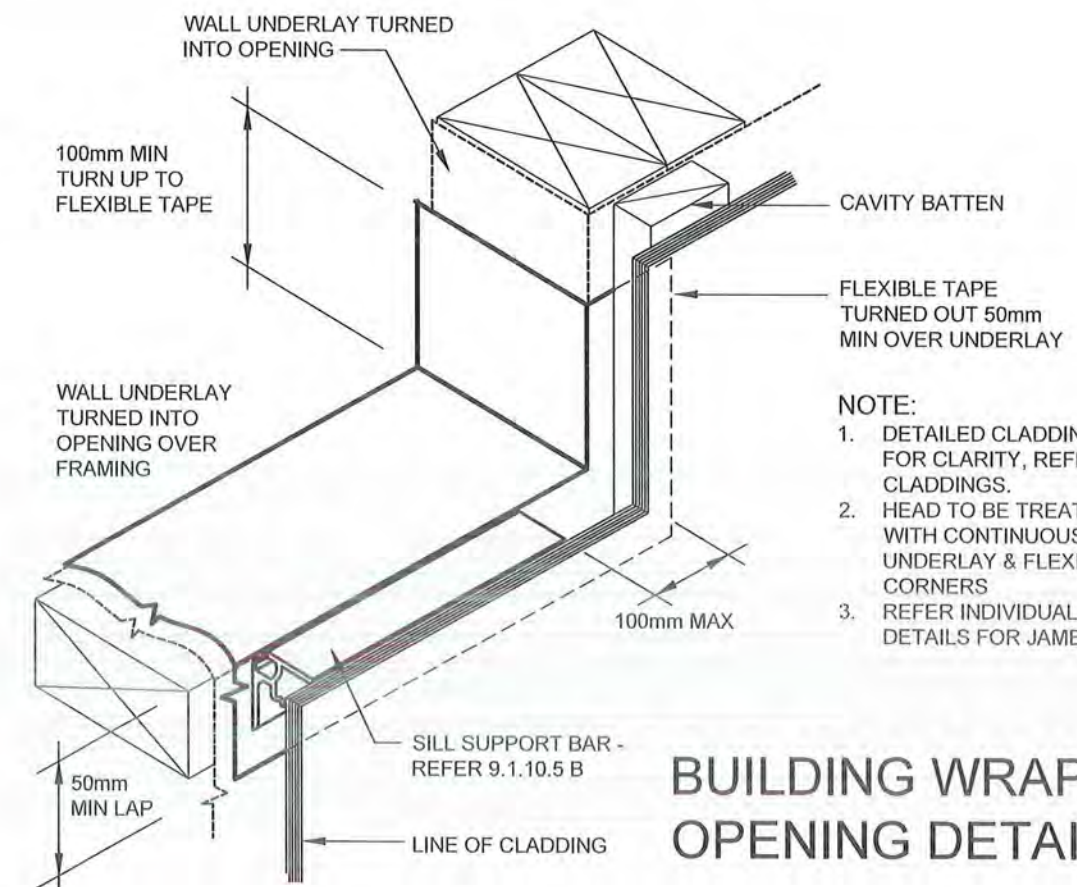
### INTERNAL LININGS

#### WALLS:

- GENERALLY - 10mm STANDARD GIB BOARD
- BATHROOMS - 10mm GIB AQUALINE

#### CEILINGS:

- GENERALLY - 13mm STANDARD GIB
- BATHROOMS - 13mm GIB AQUALINE
- BACK BLOCK SHEET JOINTS AND ALLOW FOR CONTROL JOINTS AS REQUIRED BY MANUFACTURER



### NOTE:

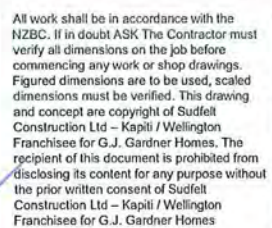
- DETAILED CLADDING OMITTED FOR CLARITY, REFER TO SPECIFIC CLADDINGS.
- HEAD TO BE TREATED SIMILARLY WITH CONTINUOUS WALL UNDERLAY & FLEXIBLE TAPE AT CORNERS
- REFER INDIVIDUAL CLADDING DETAILS FOR JAMB FLASHINGS

## BUILDING WRAP OPENING DETAIL n.t.s



- THIS SITE IS A HIGH WIND ZONE
- BRACING TO BE INSTALLED TO MANUFACTURERS SPECIFICATIONS - WINSTONES GIB EZYBRACE SYSTEMS 2011
- BRACING DISTRIBUTION TO NZS 3604 CLAUSE 5.5.3

## SCALE 1:100



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Revisions:  
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## CONSENT PLANS

Client:  
GK PATE FAMILY TRUST

LOT 29 FERNDAL  
WAIKANAE

Drawing Title:  
**BRACING  
PLAN**

Designer:

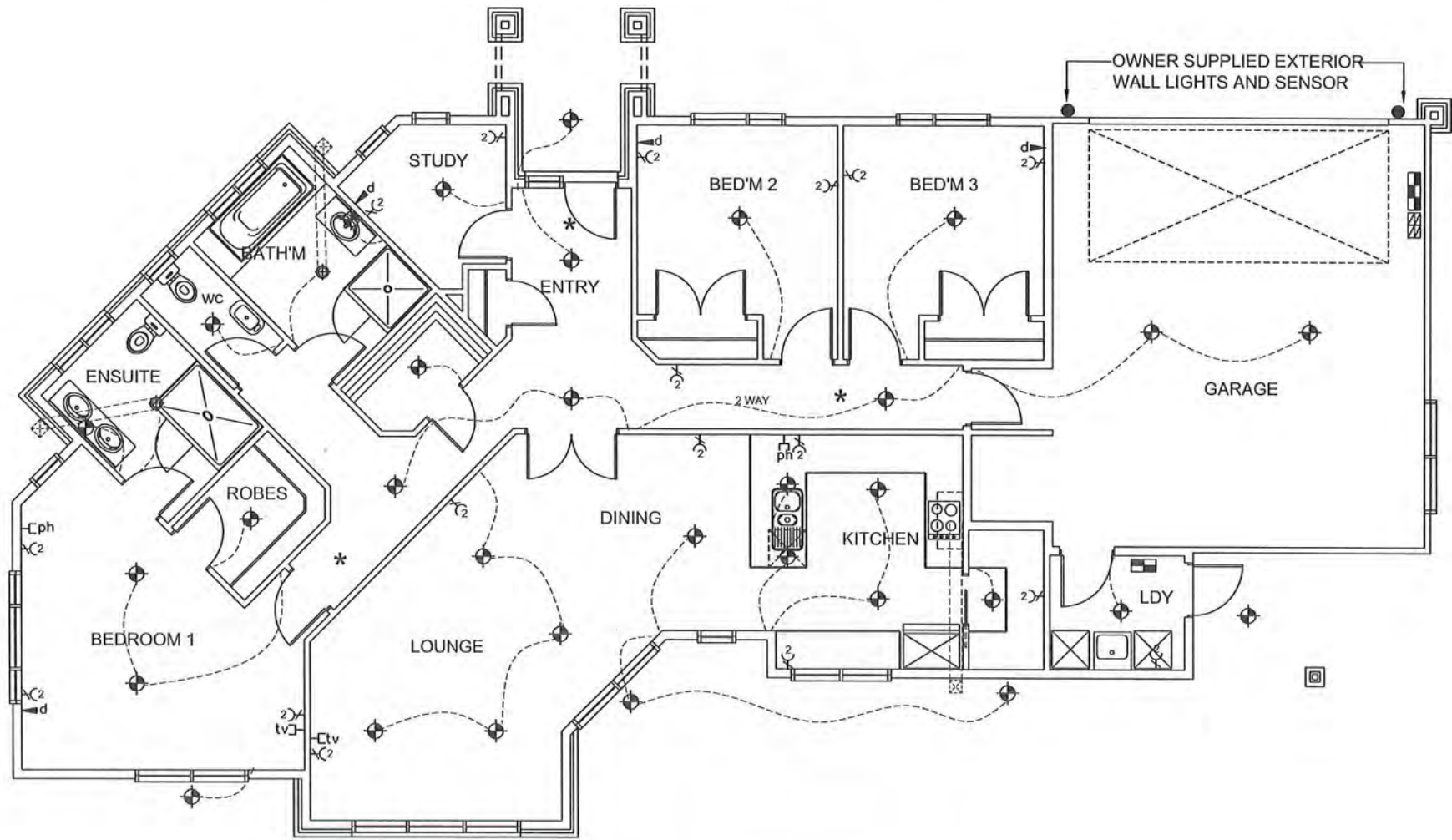
**COASTAL**  
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|                         |                    |
|-------------------------|--------------------|
| Design:<br>G.J Gardners | Drawn:<br>bf       |
|                         | Scale:<br>as shown |
| Job:<br>970111          | Page of:<br>8      |
|                         | Rev:<br>A          |

NOTE: SUGGESTED LAYOUT ONLY, TBC ON SITE WITH ELECTRICIAN & OWNER



NOTE:

- Allow for security system
- 1 x Key pad
- 1 x Security controller
- 1 x Internal siren
- 1 x External siren
- 3 x Infrared PIR detectors
- 1 x Backup battery

ELECTRICAL NOTES:

RECESSED DOWNLIGHTS (IF USED) SHALL BE INSTALLED TO PREVENT TRANSFER OF MOISTURE INTO CEILING SPACE & MAINTAIN MIN CLEARANCE FROM INSULATION AS REQUIRED BY NZECP 54:2001

PROVIDE ELECTRICAL CERTIFICATE AFTER COMPLETION & PRIOR TO CODE COMPLIANCE CERTIFICATE BEING ISSUED

HARD WIRE SMOKE DETECTORS

| ELECTRICAL LEGEND |                               |  |                                |
|-------------------|-------------------------------|--|--------------------------------|
|                   | Recessed LED                  |  | Power Point (2 denotes double) |
|                   | Manrose 3 in 1 Bathroom light |  | Phone Point                    |
|                   | Smoke detector                |  | Television Point               |
|                   | Meter Board                   |  | Data Point                     |
|                   | Switch Board                  |  | Starbox                        |
|                   | Extractor Fan                 |  |                                |

ELECTRICAL PLAN SCALE 1:100

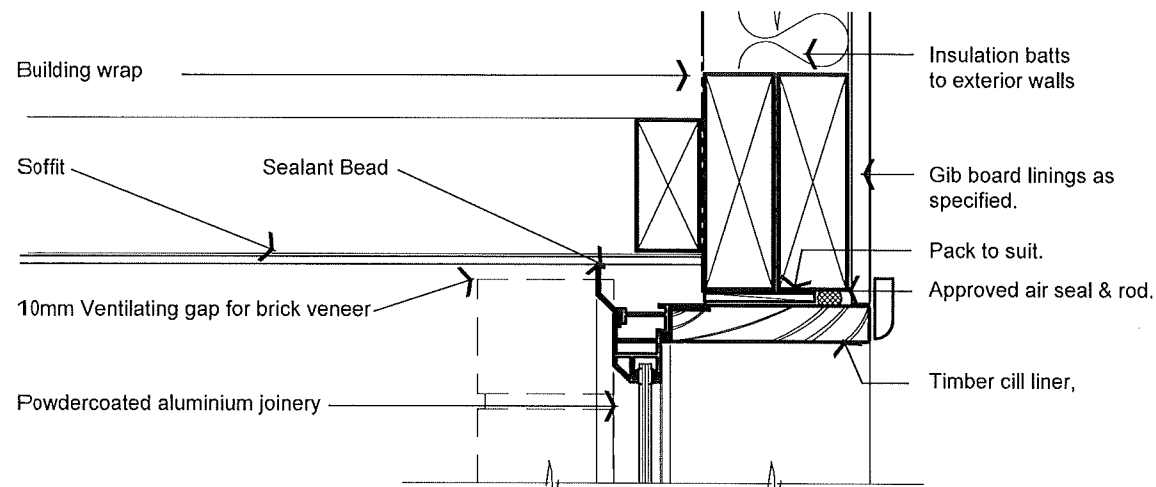


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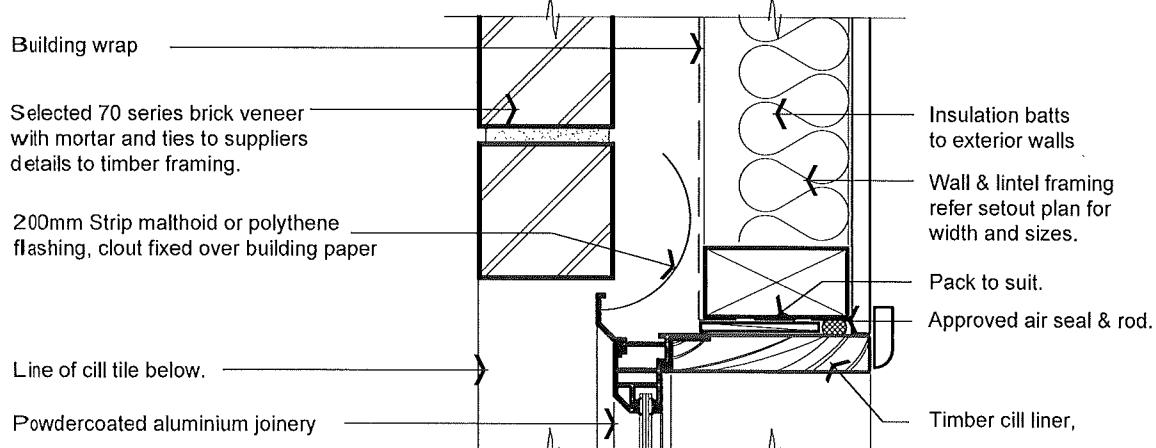
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|-----------------------------------|---------------|--------------------------------------------------------------|-----------------------------------|----------------------------|--------------------------|--------------------|
| Revisions:<br>MAY 31 / 2017 rev A | CONSENT PLANS | Client:<br>GK PATE FAMILY TRUST<br>LOT 29 FERNDAL<br>WAIKANA | Drawing Title:<br>ELECTRICAL PLAN | Designer:<br>G.J. Gardners | Design:<br>G.J. Gardners | Drawn:<br>bf       |
|                                   |               |                                                              |                                   |                            |                          | Scale:<br>as shown |
|                                   |               |                                                              |                                   |                            | Job:<br>970111           | Page of:<br>9      |
|                                   |               |                                                              |                                   |                            |                          | Rev:<br>A          |

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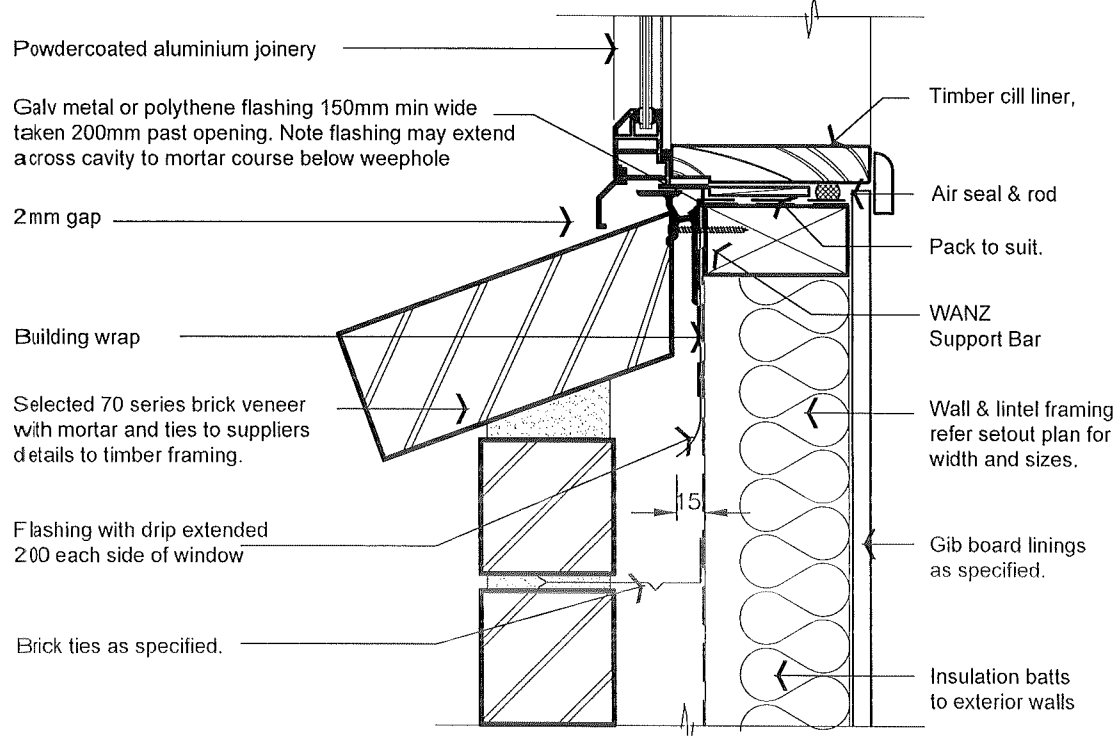
BRICK WINDOW HEAD DETAIL

SCALE 1:5



BRICK WINDOW JAMB DETAIL

SCALE 1:5



BRICK WINDOW SILL DETAIL

SCALE 1:5

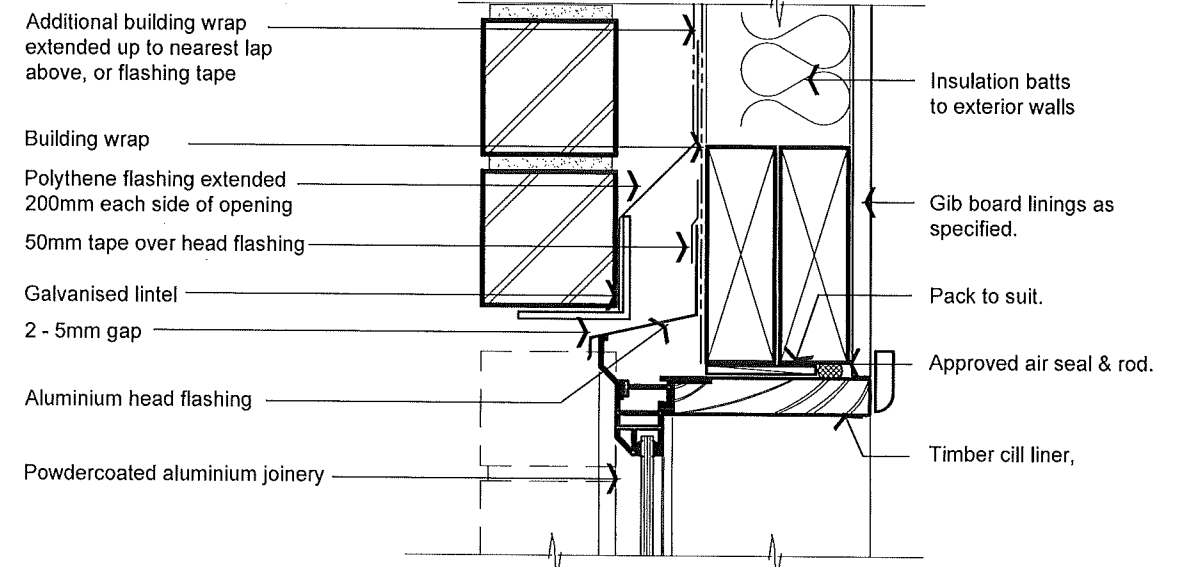
MASONARY NOTES:

THE CAVITY BETWEEN THE MASONARY VENEER & THE EXTERIOR FACE OF TIMBER STUD WALL SHALL BE NOT LESS THAN 40mm NOR MORE THAN 75mm. PIPES & SERVICES SHALL NOT BE PLACED IN THE CAVITY.

THE BRICK VENEER CAVITY SHALL BE VENTILATED TO THE OUTSIDE AIR WITH TOP & BOTTOM OPENINGS. THE BOTTOM OPENINGS SHALL SERVE AS WEEP HOLES TO DRAIN MOISTURE TO THE OUTSIDE

85mm OR 110mm GALV BRICK TIES POSITIONED 600mm HORIZONTALLY & 400mm VERTICALLY, WITHIN 300mm AROUND OPENINGS, WITHIN THE TOP 2 MORTAR COURSES, WITHIN THE BOTTOM 400mm OF VENEER & IN THE 2 COURSES WHERE A BOND BREAKER HAS BEEN USED

Weepholes at 800mm centres on openings over 1200mm

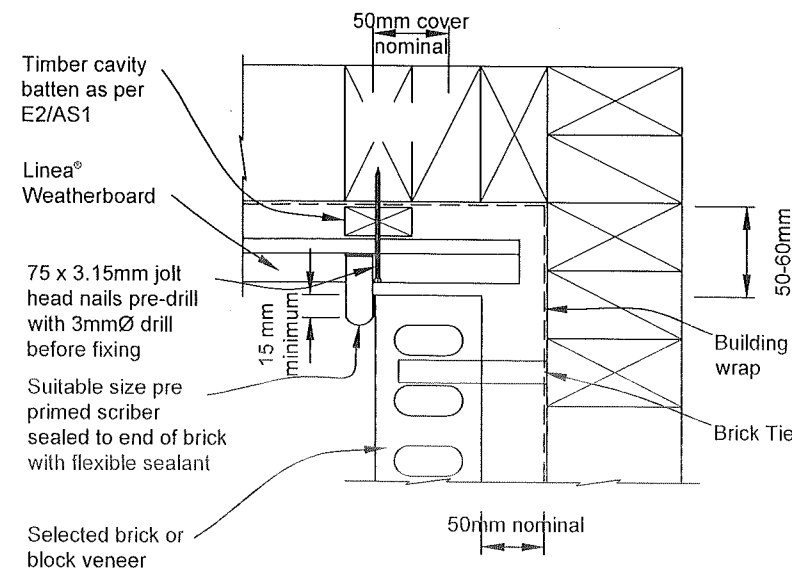


BRICK WINDOW HEAD DETAIL

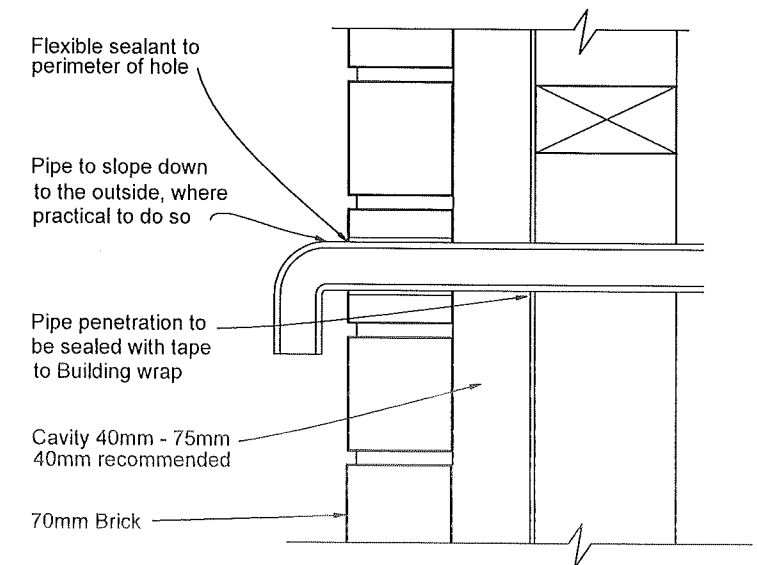
SCALE 1:5

BC180550  
Further Information Received  
30/07/2018

LINEA TO BE INSTALLED & NAILED OFF COMPLETELY PRIOR TO BRICK LAYING TO ENSURE BRICK TIES ARE NOT VIBRATED LOSE



INTERNAL BRICK TO WEATHERBOARD DETAIL



All work shall be in accordance with the NZBC. If in doubt ASK The Contractor must verify all dimensions on the job before commencing any work or shop drawings. Figured dimensions are to be used, scaled dimensions must be verified. This drawing and concept are copyright of Sudfelt Construction Ltd - Kapiti / Wellington Franchisee for G.J. Gardner Homes. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Sudfelt Construction Ltd - Kapiti / Wellington Franchisee for G.J. Gardner Homes

**G.J. Gardner. HOMES**  
New Zealand's favourite home builders

Revisions:  
MAY 31 / 2017 rev A

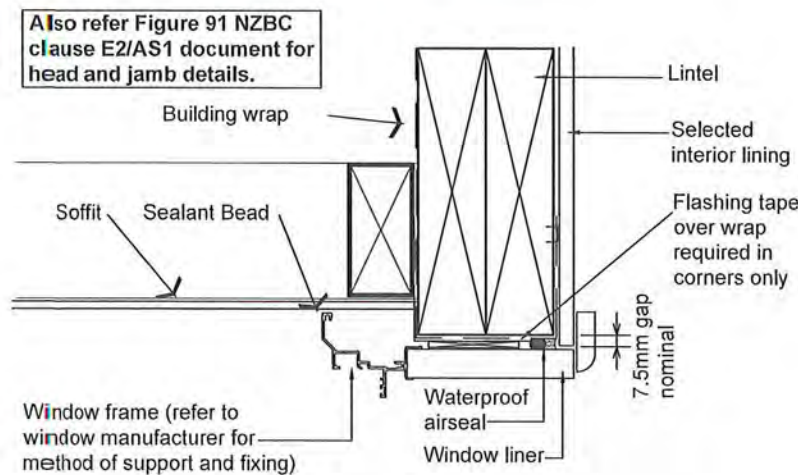
CONSENT  
PLANS

Client:  
GK PATE FAMILY TRUST  
LOT 29 FERNDAL  
WAIKANAE

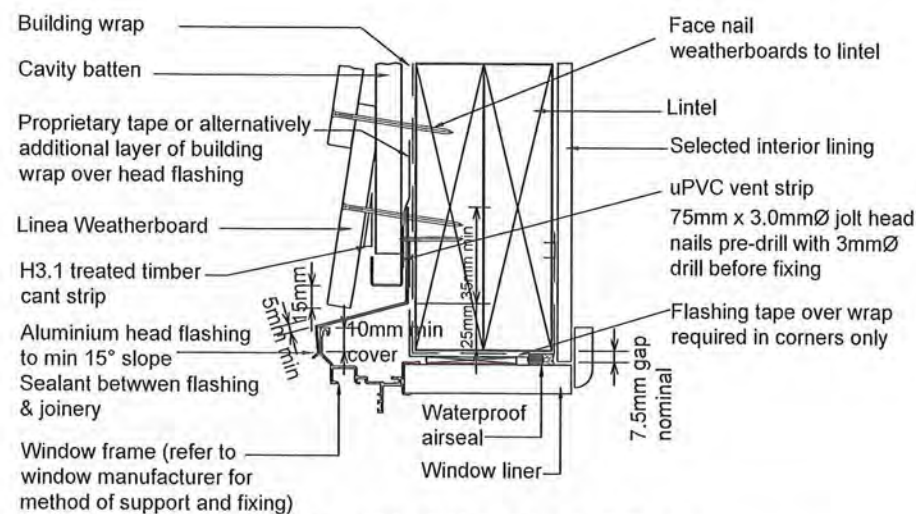
Drawing Title:  
DETAILS

Designer:  
**COASTAL**  
ARCHITECTURE LTD.  
11 Kodex Place  
Paraparaumu  
New Zealand  
Tel: 04 296 1248  
e-mail : coastarchdesign@gmail.com

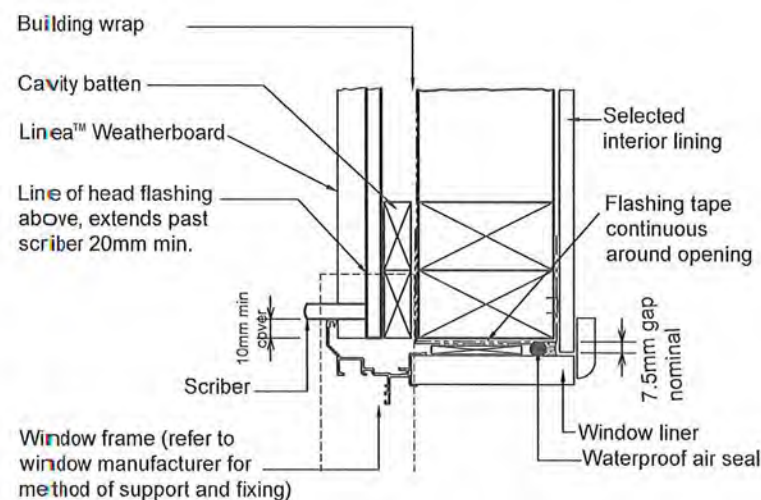
Design:  
G.J. Gardners  
Drawn:  
bf  
Scale:  
as shown  
Job: 970111 Page of: 10 Rev: A



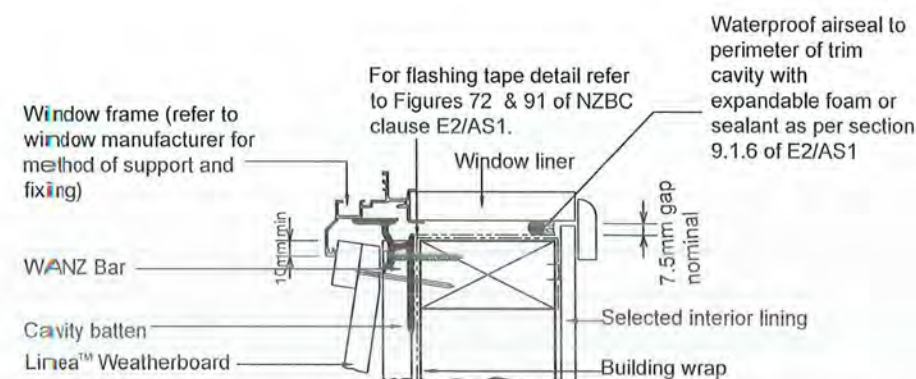
WINDOW HEAD DETAIL Scale 1:5



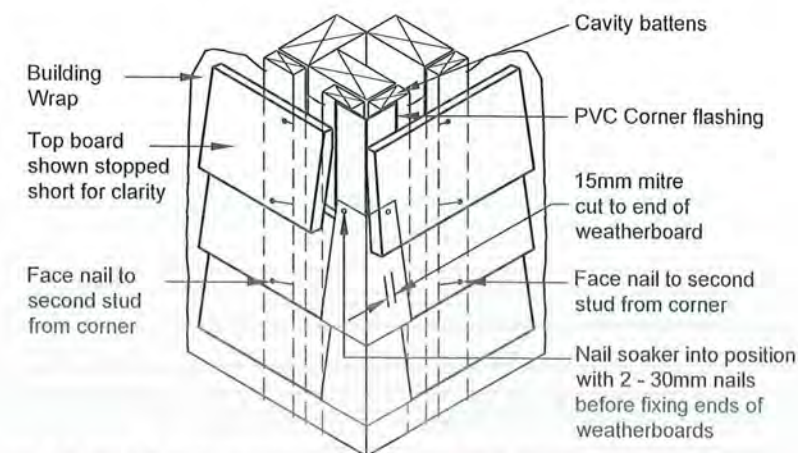
GABLE WINDOW HEAD DETAIL Scale 1:5



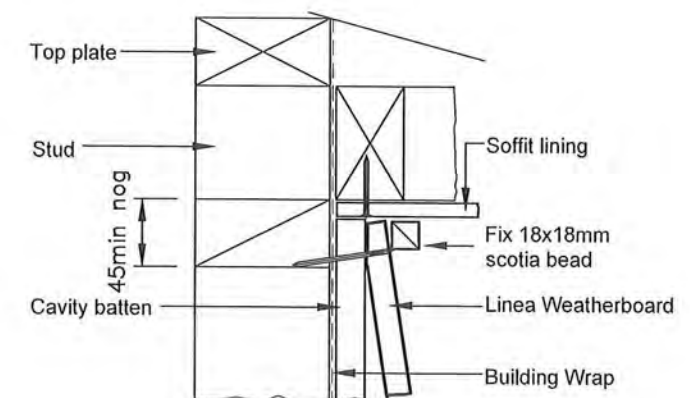
WINDOW JAMB DETAIL Scale 1:5



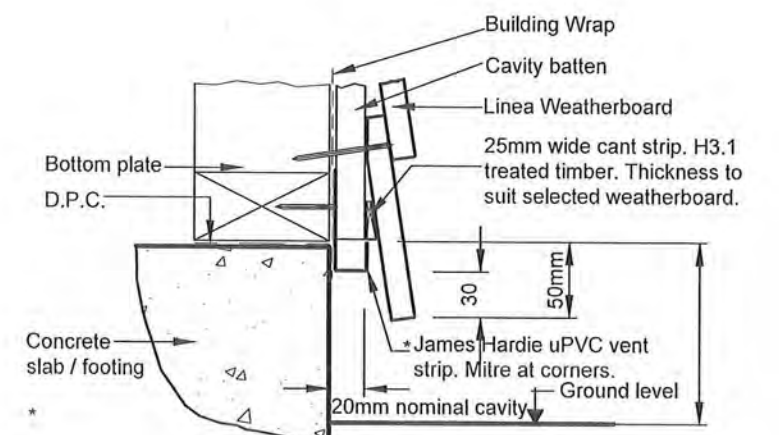
WINDOW SILL DETAIL Scale 1:5



CAVITY EXTERNAL CORNER SOAKER



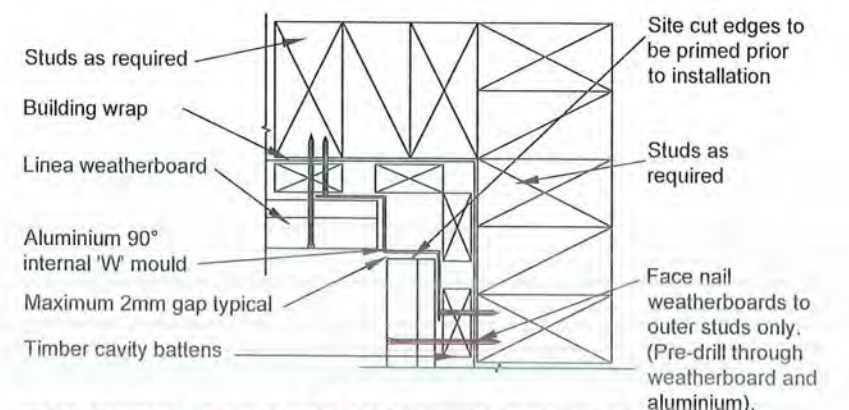
CAVITY SOFFIT DETAIL



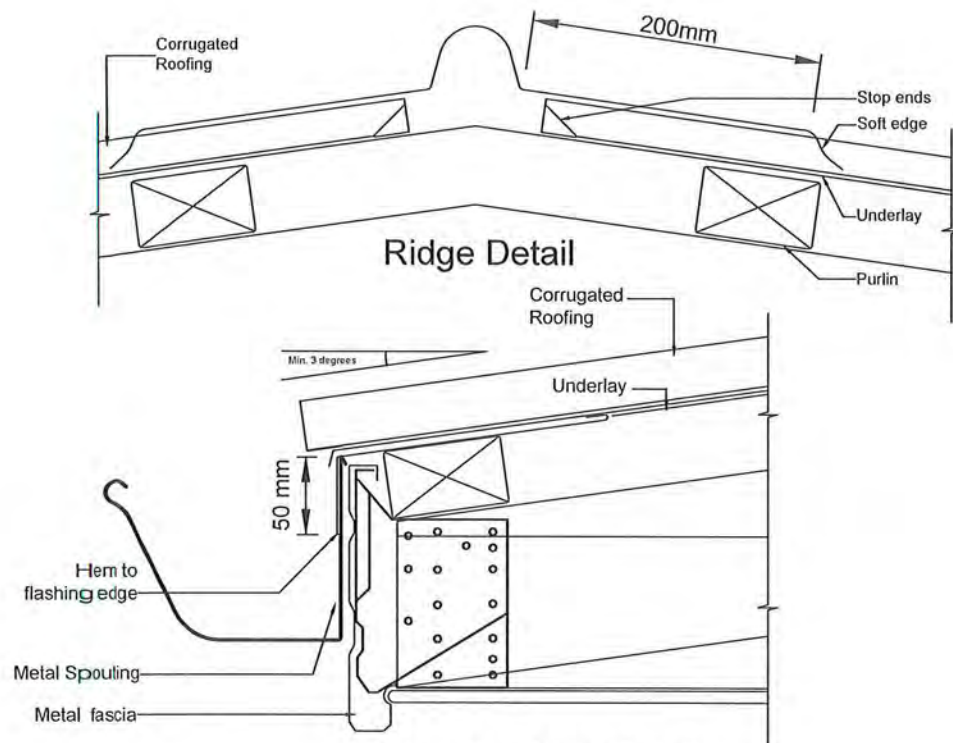
Drain holes in James Hardie uPVC vent strip are sufficient to achieve ventilation openings of 1000mm<sup>2</sup> per lineal metre

150mm min to permanent paving or 225mm min to unpaved ground to clause 9.1.3 of E2/AS1

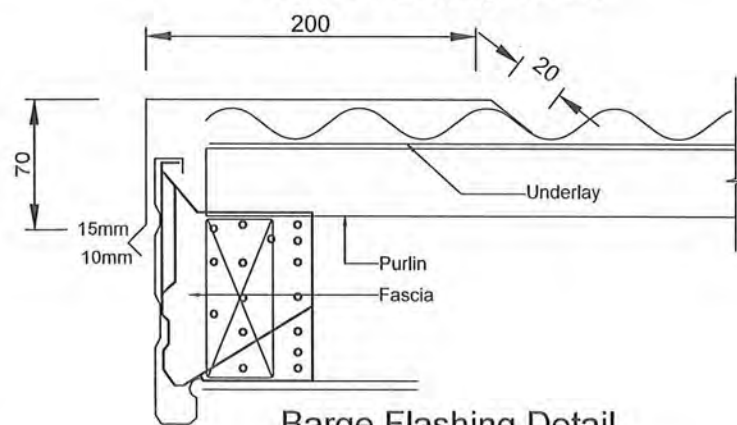
CAVITY FOUNDATION DETAIL



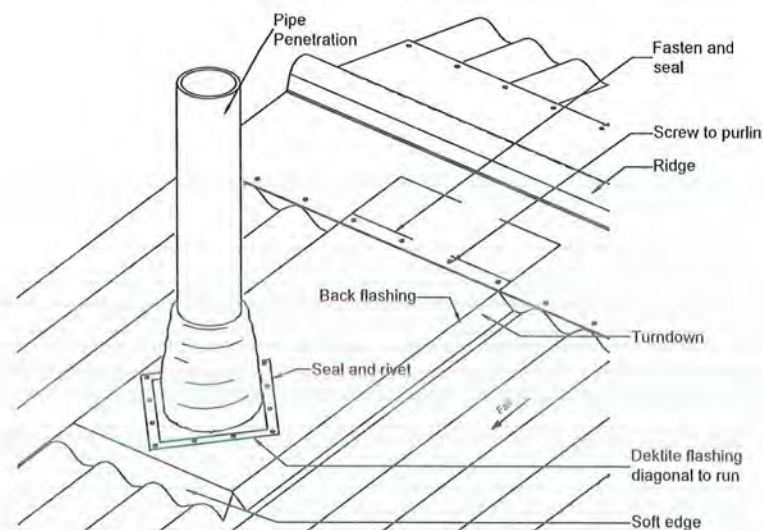
TIMBER CAVITY INTERNAL CORNER



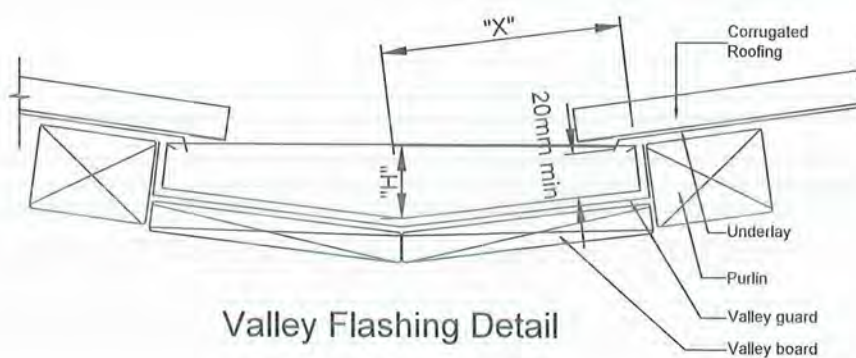
Gutter Flashing Detail



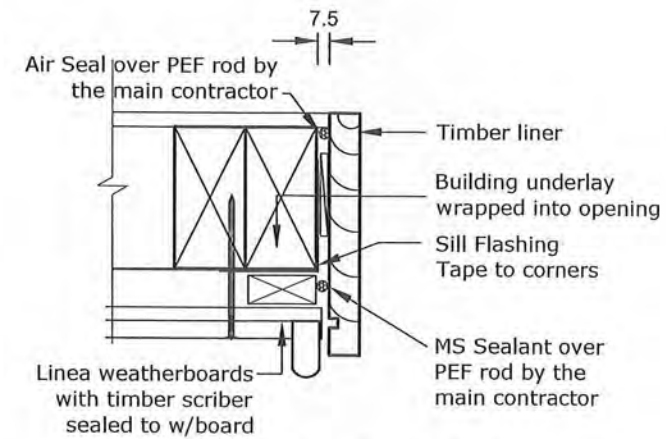
Barge Flashing Detail



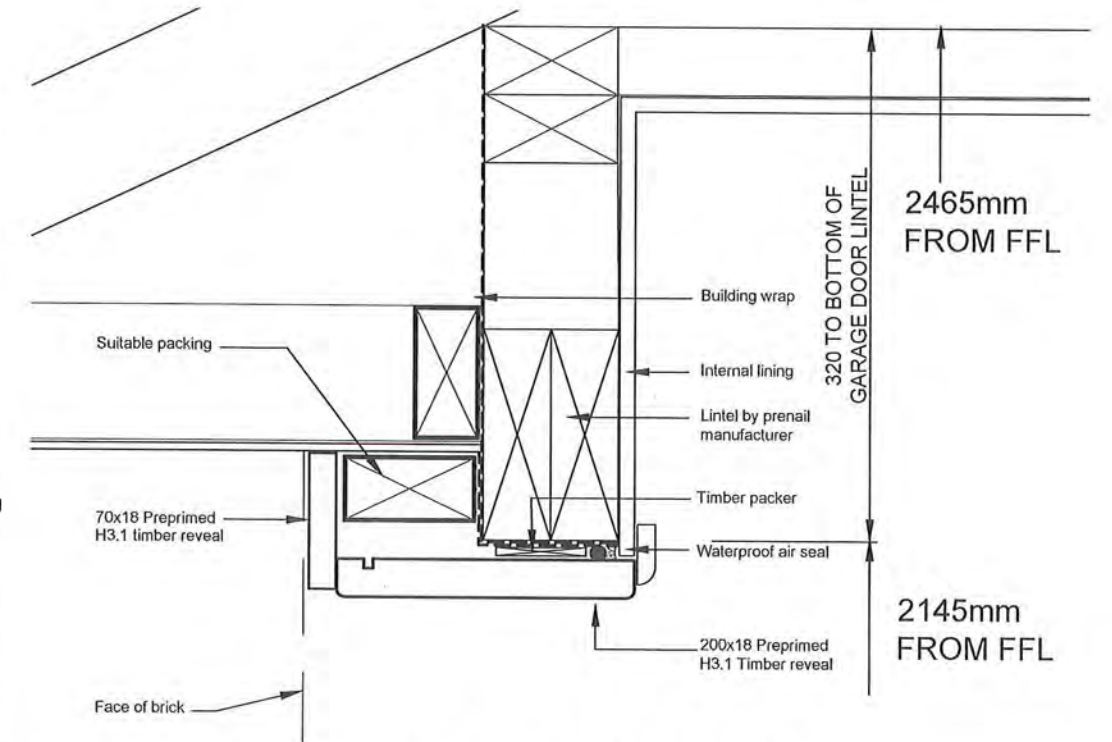
Pipe Penetration Flashing Detail



Valley Flashing Detail



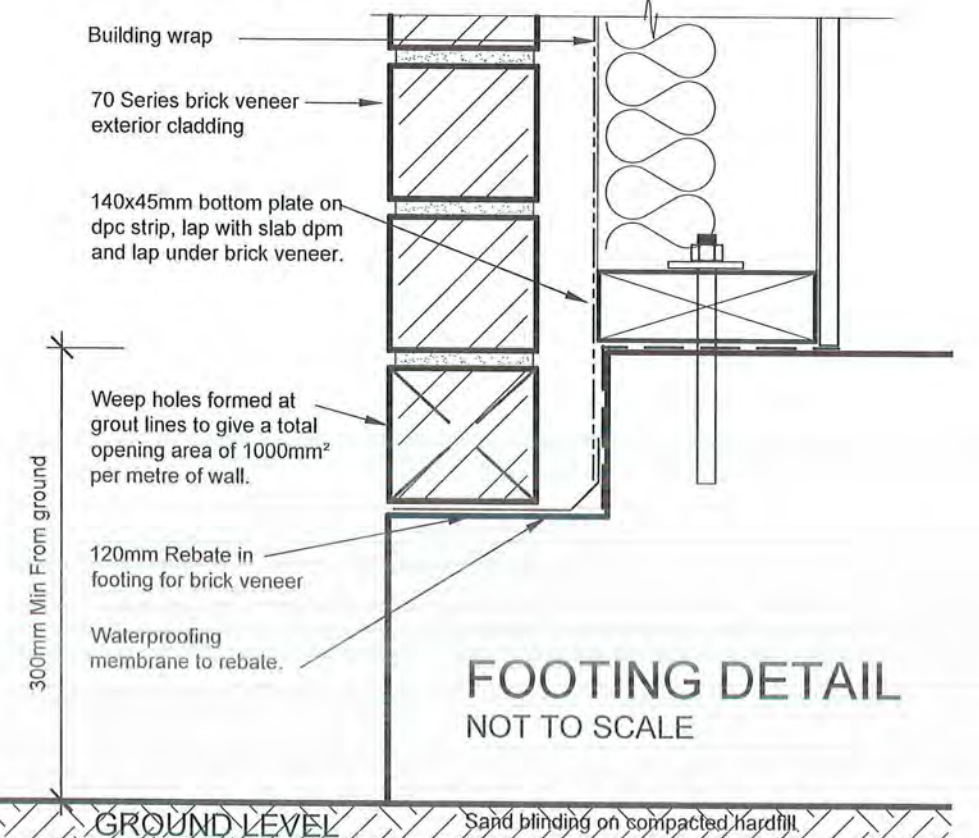
GARAGE DOOR JAMB DETAIL



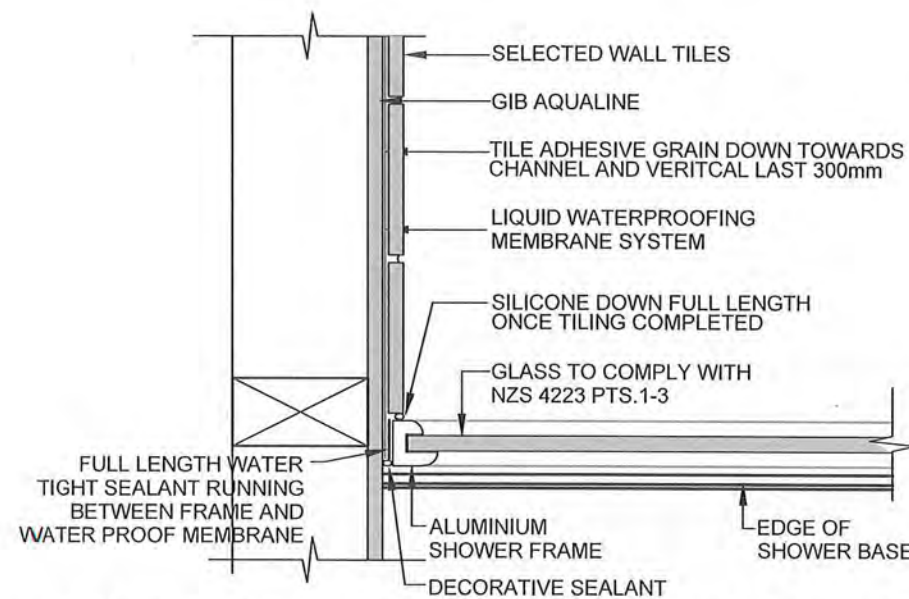
GARAGE DOOR HEAD DETAIL

SCALE 1:5

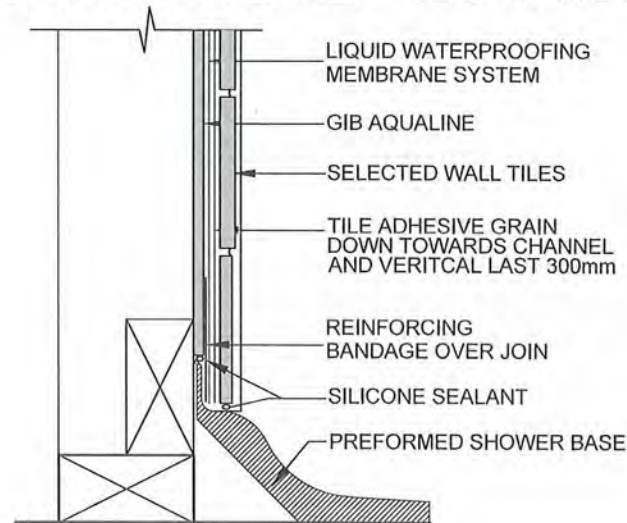
'Powers' BTG10140 10mm x 140mm blue tip screw bolt anchors shall be within 150mm of each end & spaced at a max of 900mm crs giving 15kn fixing in accordance with NZS 3604 clause 7.5.12.3 & 7.5.12.4



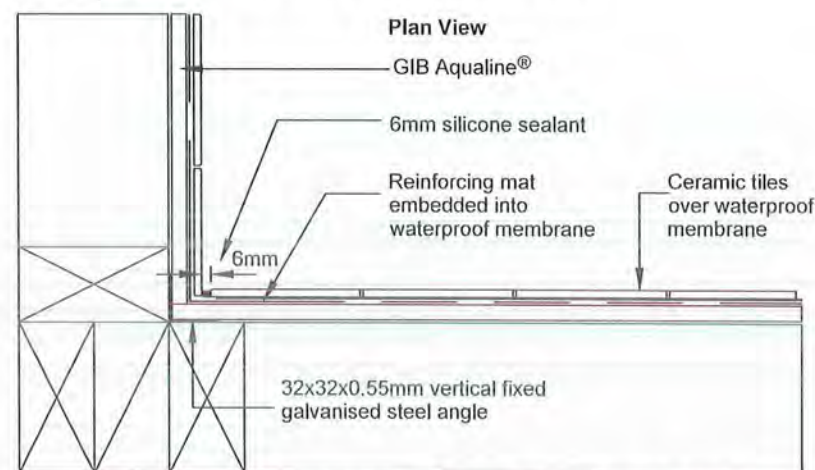
FOOTING DETAIL  
NOT TO SCALE



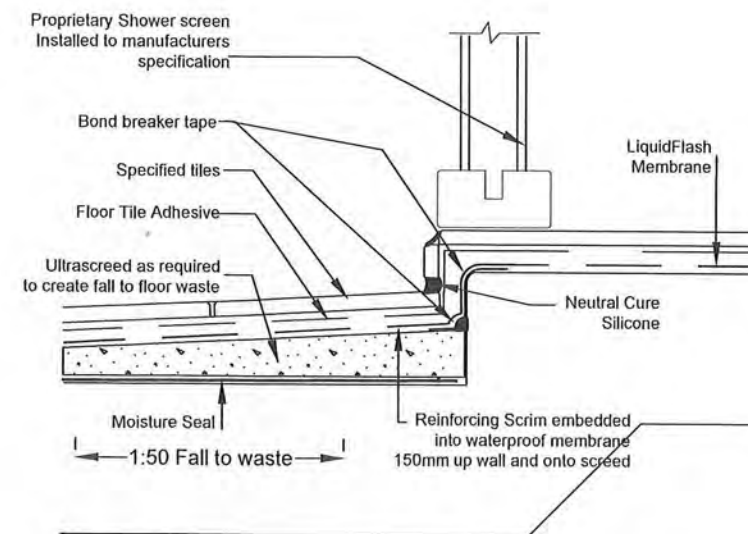
ACRYLIC SHOWER BASE/TILED WALL EDGE DETAIL



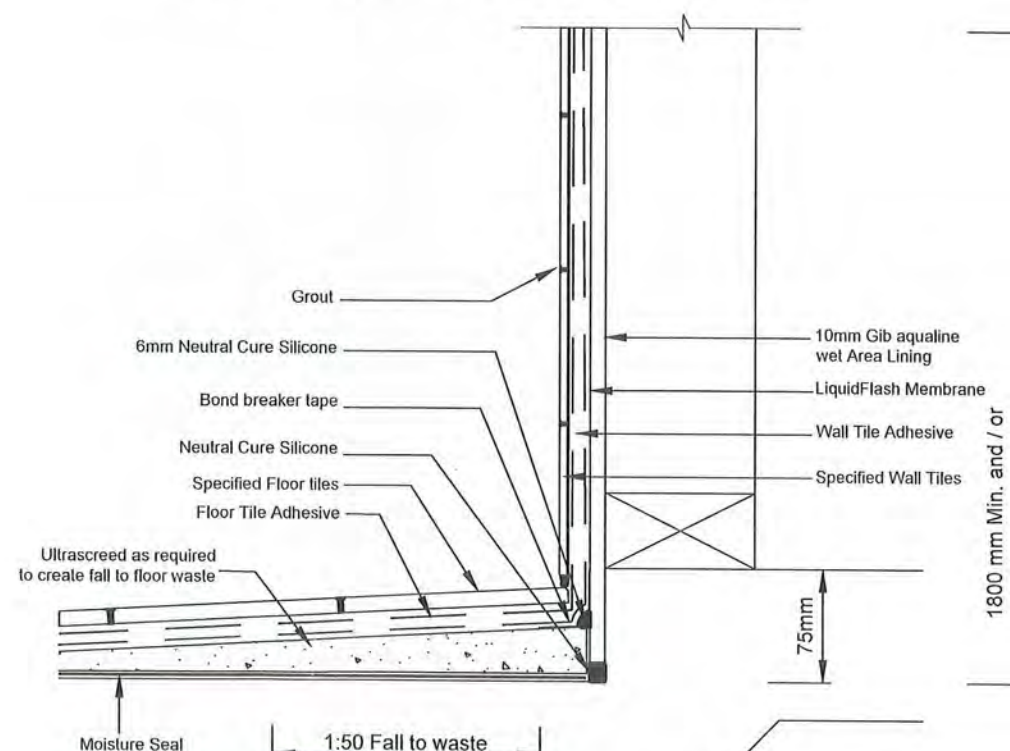
ACRYLIC SHOWER BASE/TILED WALL, CONC FLOOR DETAIL



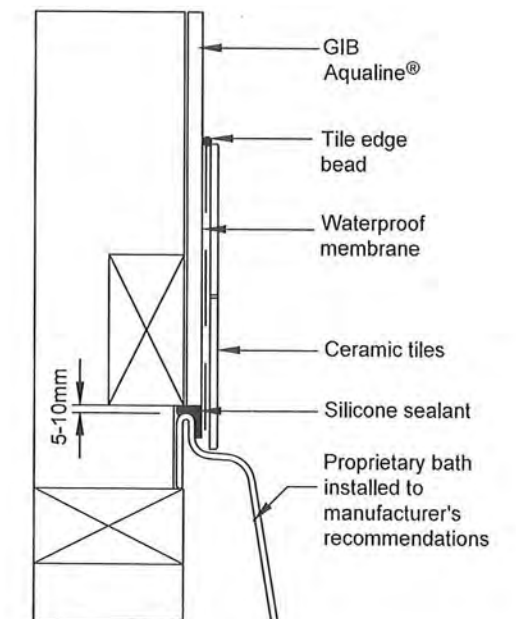
ACRYLIC SHOWER BASE/TILED WALL, INTERNAL CORNER DETAIL



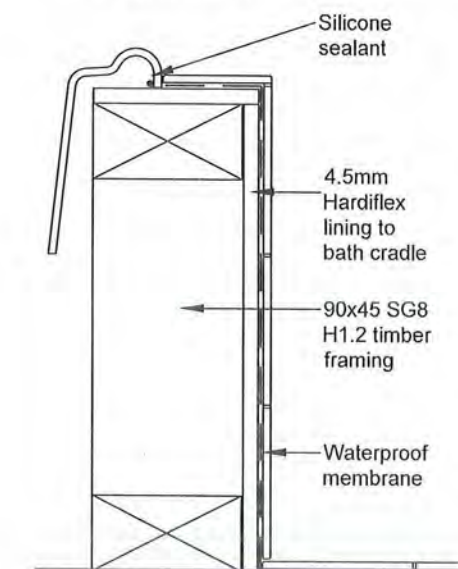
Ensuite Shower Step Down Detail



Ensuite Shower - Tiled Walls and Base Detail



Bath/Wall Detail



Bath Plinth Detail

## E2/AS1 : Building Envelope Risk Matrix.

### Project Details.

Name NAME GK PATE FAMILY TRUST  
Street/No. STREET 2 LAMONT PLACE, FERNDAL  
Lot/DP/No. LOT LOT 29  
City/Town/District. CITY WAIKANAE

### Definition of Risk [table 1 from E2/AS1]

| Factor                                   | Risk   | Detail                                                                                                                                          |
|------------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| A<br>Wind Zone                           | LOW    | LOW wind zone as described by NZS 3604                                                                                                          |
|                                          | MEDIUM | MEDIUM wind zone as described by NZS 3604                                                                                                       |
|                                          | HIGH   | HIGH wind zone as described by NZS 3604                                                                                                         |
|                                          | V.HIGH | VERY HIGH wind zone as described by NZS 3604                                                                                                    |
| B<br>No. of storeys                      | LOW    | One storey                                                                                                                                      |
|                                          | MEDIUM | Two storey in part                                                                                                                              |
|                                          | HIGH   | Two storey's                                                                                                                                    |
|                                          | V.HIGH | More than two storey's                                                                                                                          |
| C<br>Roof / Wall intersection<br>Design. | LOW    | Roof / wall intersection - Fully protected.<br>[eg. hip / gable roof with eaves.]                                                               |
|                                          | MEDIUM | Roof / wall intersection - Partly exposed.<br>[eg. hip / gable roof with NO eaves.]                                                             |
|                                          | HIGH   | Roof / wall intersection - Fully exposed. [eg. Parapets<br>or eaves greater than 90° vertical with soffit linings.]                             |
|                                          | V.HIGH | Roof elements finished within the boundaries formed by<br>exterior walls [eg. lower ends of aprons, chimney's etc.]                             |
| D<br>Eaves width<br>(1.)                 | LOW    | Greater than 600mm at first floor level.                                                                                                        |
|                                          | MEDIUM | 450 - 600mm at first floor level, or 600mm at second floor level                                                                                |
|                                          | HIGH   | 100-450mm at first floor level, or 450-600mm at second floor level                                                                              |
|                                          | V.HIGH | 0 -100mm at first floor level, or 100-450mm at second floor level<br>or 450 - 600mm at third floor level                                        |
| E<br>Envelope<br>Complexity              | LOW    | Simple rectangular, L, T, or boomerang shape with single cladding type                                                                          |
|                                          | MEDIUM | Complex angular or curved shape [eg. Y or arrow head]<br>with single cladding type.                                                             |
|                                          | HIGH   | More complex angular or curved shape [eg. Y or arrow head ]<br>with multiple cladding type.                                                     |
|                                          | V.HIGH | As for high risk, but with junctions not covered in C or F on this Table<br>[eg. box windows, pergola's, multi storey re - entrant shapes etc.] |
| F<br>Deck design.                        | LOW    | None or timber slat deck or porch at ground level                                                                                               |
|                                          | MEDIUM | Fully covered in plan by roof, or timber slat deck attached<br>at first or second floor level.                                                  |
|                                          | HIGH   | Enclosed deck exposed in plan or cantilevered at first floor level                                                                              |
|                                          | V.HIGH | Enclosed deck exposed in plan or cantilevered at second floor level<br>or above.                                                                |

NOTES  
1. Eaves width measured from external face of the wall cladding to  
outer edge of overhang including gutters and fascias  
2. Balustrades and parapets count as 0 mm eaves.

### Risk Severity by Face

| North Elevation.                    |     |       |     |       |      |       |        |       |                                  |
|-------------------------------------|-----|-------|-----|-------|------|-------|--------|-------|----------------------------------|
| RISK FACTOR                         | LOW | Score | MED | Score | HIGH | Score | V.HIGH | Score | Sub totals for each risk factor. |
| Wind Zone as NZS 3604               | 0   |       | 0   |       | 1    | ✓     | 2      |       | 1                                |
| No. of storey's                     | 0   | ✓     | 1   |       | 2    |       | 4      |       | 0                                |
| Roof / Wall intersection            | 0   | ✓     | 1   |       | 3    |       | 5      |       | 0                                |
| Eaves width.                        | 0   |       | 1   |       | 2    | ✓     | 5      |       | 2                                |
| Envelope Complexity                 | 0   | ✓     | 1   |       | 3    |       | 6      |       | 0                                |
| Deck design.                        | 0   | ✓     | 2   |       | 4    |       | 6      |       | 0                                |
| Total Risk Score for this Elevation |     |       |     |       |      |       |        |       | 3                                |

| South Elevation.                    |     |       |     |       |      |       |        |       |                                  |
|-------------------------------------|-----|-------|-----|-------|------|-------|--------|-------|----------------------------------|
| RISK FACTOR                         | LOW | Score | MED | Score | HIGH | Score | V.HIGH | Score | Sub totals for each risk factor. |
| Wind Zone as NZS 3604               | 0   |       | 0   |       | 1    | ✓     | 2      |       | 1                                |
| No. of storey's                     | 0   | ✓     | 1   |       | 2    |       | 4      |       | 0                                |
| Roof / Wall intersection            | 0   | ✓     | 1   |       | 3    |       | 5      |       | 0                                |
| Eaves width.                        | 0   |       | 1   |       | 2    | ✓     | 5      |       | 2                                |
| Envelope Complexity                 | 0   | ✓     | 1   |       | 3    |       | 6      |       | 0                                |
| Deck design.                        | 0   | ✓     | 2   |       | 4    |       | 6      |       | 0                                |
| Total Risk Score for this Elevation |     |       |     |       |      |       |        |       | 3                                |

| East Elevation.                     |     |       |     |       |      |       |        |       |                                  |
|-------------------------------------|-----|-------|-----|-------|------|-------|--------|-------|----------------------------------|
| RISK FACTOR                         | LOW | Score | MED | Score | HIGH | Score | V.HIGH | Score | Sub totals for each risk factor. |
| Wind Zone as NZS 3604               | 0   |       | 0   |       | 1    | ✓     | 2      |       | 1                                |
| No. of storey's                     | 0   | ✓     | 1   |       | 2    |       | 4      |       | 0                                |
| Roof / Wall intersection            | 0   | ✓     | 1   |       | 3    |       | 5      |       | 0                                |
| Eaves width.                        | 0   |       | 1   |       | 2    | ✓     | 5      |       | 2                                |
| Envelope Complexity                 | 0   | ✓     | 1   |       | 3    |       | 6      |       | 0                                |
| Deck design.                        | 0   | ✓     | 2   |       | 4    |       | 6      |       | 0                                |
| Total Risk Score for this Elevation |     |       |     |       |      |       |        |       | 3                                |

| West Elevation.                     |     |       |     |       |      |       |        |       |                                  |
|-------------------------------------|-----|-------|-----|-------|------|-------|--------|-------|----------------------------------|
| RISK FACTOR                         | LOW | Score | MED | Score | HIGH | Score | V.HIGH | Score | Sub totals for each risk factor. |
| Wind Zone as NZS 3604               | 0   |       | 0   |       | 1    | ✓     | 2      |       | 1                                |
| No. of storey's                     | 0   | ✓     | 1   |       | 2    |       | 4      |       | 0                                |
| Roof / Wall intersection            | 0   | ✓     | 1   |       | 3    |       | 5      |       | 0                                |
| Eaves width.                        | 0   |       | 1   |       | 2    | ✓     | 5      |       | 2                                |
| Envelope Complexity                 | 0   | ✓     | 1   |       | 3    |       | 6      |       | 0                                |
| Deck design.                        | 0   | ✓     | 2   |       | 4    |       | 6      |       | 0                                |
| Total Risk Score for this Elevation |     |       |     |       |      |       |        |       | 3                                |

### Selected Cladding Resulting from Risk Assessment

|                  | Risk score from tables above. | Cladding Selected from table 3<br>[ from tables on page 30 E2/AS1 ] | TICK SELECTED OPTION |                |
|------------------|-------------------------------|---------------------------------------------------------------------|----------------------|----------------|
|                  |                               |                                                                     | DIRECT FIXED         | DRAINED CAVITY |
| North Elevation. | 3                             | Brick Veneer / Linea Weatherboard                                   |                      | ✓              |
| South Elevation. | 3                             | Brick Veneer / Linea Weatherboard                                   |                      | ✓              |
| East Elevation.  | 3                             | Brick Veneer / Linea Weatherboard                                   |                      | ✓              |
| West Elevation.  | 3                             | Brick Veneer / Linea Weatherboard                                   |                      | ✓              |



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

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

**THE BUILDING**

|                 |                |           |  |
|-----------------|----------------|-----------|--|
| Street address: | 2 Lamont Place |           |  |
| Suburb:         | Ferndale       |           |  |
| Town/City       | Waikanae       | Postcode: |  |

**THE OWNER**

|                  |             |                     |                                 |
|------------------|-------------|---------------------|---------------------------------|
| Name(s):         | G.J Gardner |                     |                                 |
| Mailing address: |             |                     |                                 |
| Suburb:          |             | PO Box/Private Bag: |                                 |
| Town/City:       |             | Postcode:           |                                 |
| Phone number:    |             | Email address:      | julianne.mollet@gjgardner.co.nz |

**BASIS FOR PROVIDING THIS MEMORANDUM**

|                                                                                           |                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I am providing this memorandum in my role as the: Please tick the option that applies (✓) |                                                                                                                                                                                                                                                       |
| <input type="checkbox"/>                                                                  | <b>sole</b> designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design myself – no other person will be providing any additional memoranda for the project                                                   |
| <input type="checkbox"/>                                                                  | <b>lead</b> designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and no other person will be providing any additional memoranda for the project |
| <input type="checkbox"/>                                                                  | <b>lead</b> designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the other designers will provide their own memoranda relating to their specific RBW design           |
| <input checked="" type="checkbox"/>                                                       | <b>specialist</b> designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work                                                |

**IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK (RBW)**

I, Hamish Tennent Wells carried out / supervised the following design work that is restricted building work

**PRIMARY STRUCTURE: B1**

| Design work that is restricted building work | Description                                                       | Carried out/ supervised                                                                | Reference to plans and specifications |
|----------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------|
| Tick(✓) if included<br>Cross (X) if excluded | [If appropriate, provide details of the restricted building work] | [Specify whether you carried out this design work or supervised someone else carrying] | [If appropriate, specify references]  |

|                                    |                                     |                              |                                                                   |
|------------------------------------|-------------------------------------|------------------------------|-------------------------------------------------------------------|
|                                    |                                     | <i>out this design work]</i> |                                                                   |
| <b>Primary structure</b>           |                                     |                              |                                                                   |
| All RBW Design work relating to B1 | <input checked="" type="checkbox"/> |                              | ( ) Carried out<br>( ) Supervised                                 |
| Foundations and subfloor framing   | <input checked="" type="checkbox"/> | RibRaft Foundation           | ( ) Carried out<br><input checked="" type="checkbox"/> Supervised |
| Walls                              | <input checked="" type="checkbox"/> |                              | ( ) Carried out<br>( ) Supervised                                 |
| Roof                               | <input checked="" type="checkbox"/> |                              | ( ) Carried out<br>( ) Supervised                                 |
| Columns and beams                  | <input checked="" type="checkbox"/> |                              | ( ) Carried out<br>( ) Supervised                                 |
| Bracing                            | <input checked="" type="checkbox"/> |                              | ( ) Carried out<br>( ) Supervised                                 |
| Other                              | <input checked="" type="checkbox"/> |                              | ( ) Carried out<br>( ) Supervised                                 |

#### EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2

|                                                      |                                     |  |                                   |
|------------------------------------------------------|-------------------------------------|--|-----------------------------------|
| All RBW design work relating to E2                   | <input checked="" type="checkbox"/> |  | ( ) Carried out<br>( ) Supervised |
| Damp proofing                                        | <input checked="" type="checkbox"/> |  | ( ) Carried out<br>( ) Supervised |
| Roof cladding or roof cladding system                | <input checked="" type="checkbox"/> |  | ( ) Carried out<br>( ) Supervised |
| Ventilation system (for example, subfloor or cavity) | <input checked="" type="checkbox"/> |  | ( ) Carried out<br>( ) Supervised |
| Wall cladding or wall cladding system                | <input checked="" type="checkbox"/> |  | ( ) Carried out<br>( ) Supervised |
| Waterproofing                                        | <input checked="" type="checkbox"/> |  | ( ) Carried out<br>( ) Supervised |
| Other                                                | <input checked="" type="checkbox"/> |  | ( ) Carried out<br>( ) Supervised |

#### FIRE SAFETY SYSTEMS: C1 – C6

|                                                                                                              |                                     |  |                                   |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------|--|-----------------------------------|
| Emergency warning systems, evacuation and fire service operation systems, suppression or control systems, or | <input checked="" type="checkbox"/> |  | ( ) Carried out<br>( ) Supervised |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------|--|-----------------------------------|

|       |  |  |  |
|-------|--|--|--|
| other |  |  |  |
|-------|--|--|--|

**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.

## WAIVERS AND MODIFICATIONS

Waivers or modifications of the building code are required ( ) Yes ☒ No

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

| Clause                                                 | Waiver/modification required                                       |
|--------------------------------------------------------|--------------------------------------------------------------------|
| <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: Hamish Tennent Wells                                                                                                             | LBP or Registration number: 186323 |
| The practitioner is a: ( ) Design LBP ( ) Registered architect ( <input checked="" type="checkbox"/> ) Chartered professional engineer |                                    |
| Design Entity or Company (optional): Hamish Wells Civil Engineer                                                                       |                                    |
| Mailing address (if different from below): P O Box 188 Otaki 5512                                                                      |                                    |
| Street address / Registered office: 202 Otaki Gorge Road Otaki 5582                                                                    |                                    |
| Suburb: NA                                                                                                                             | Town/City: Otaki                   |
| PO Box/Private Bag: 188                                                                                                                | Postcode: 5512                     |
| Phone number: 0274 459 757                                                                                                             | Mobile: 0274 459 757               |
| After Hours:                                                                                                                           | Fax: none                          |
| Email address: engendr@xtra.co.nz                                                                                                      | Website: none                      |

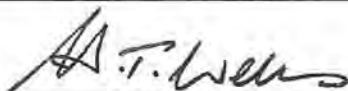
## DECLARATION

I Hamish Tennent Wells *[name of practitioner]*, LBP,

state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code; or
- Complies with the building code subject to any waiver or modification of the building code recorded on this form.

Signature:



Date: 15/06/2018

Building Code Clause(s) B1 & 2**PRODUCER STATEMENT – PS1 – DESIGN**

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

ISSUED BY: Hamish Wells Consulting Civil Engineer  
(Design Firm)TO: G.J Gardner  
(Owner/Developer)TO BE SUPPLIED TO: Kapiti Coast District Council  
(Building Consent Authority)IN RESPECT OF: RibRaft Foundations  
(Description of Building Work)AT: 2 Lamont Place, Ferndale  
Waikanae (Address) LOT 29 DP 409302 SOWe have been engaged by the owner/developer referred to above to provide Design & supervision  
services in respect of the requirements of  
Clause(s) B1 & 2 (Extent of Engagement)All ☐ or Part only ☒ (as specified in the attachment to this statement), of the proposed building work.

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

- ☒ Compliance Documents issued by the Ministry of Business, Innovation & Employment VM 1 & 4 or  
(verification method / acceptable solution)
- ☐ Alternative solution as per the attached schedule.

The proposed building work covered by this producer statement is described on the drawings titled G.J. Gardner RibRaft  
design at 2 Lamont Place, Ferndale, Waikanae and numbered 1 - 7  
together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:

- (i) Site verification of the following design assumptions ground as per report
- (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, Hamish Tennent Wells am: ☒ CPEng 186323 #  
(Name of Design Professional)☐ Reg Arch ..... #I am a Member of: ☒ IPENZ ☐ NZIA and hold the following qualifications: NZCE Civil REA

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 ..... ON BEHALF OF Hamish Wells  
(Design Firm)Date 16/06/2018 (signature) A.T. Wells

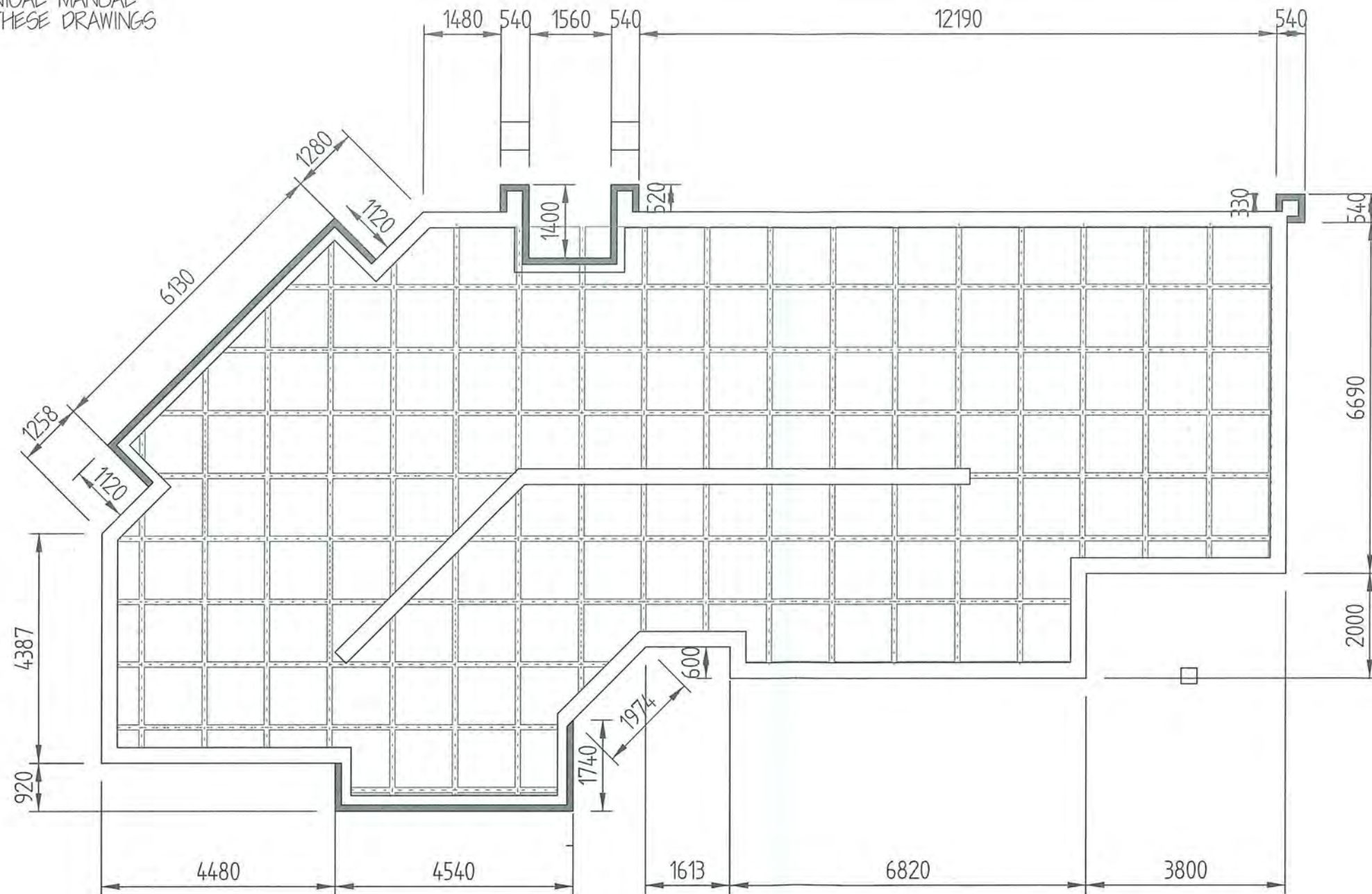
Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in 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

2) ANY DISCREPANCY IS TO BE REPORTED TO THE ENGINEER AND THE ARCHITECT IMMEDIATELY AND NO FURTHER WORK CARRIED OUT UNTIL THE ISSUE IS RESOLVED

3) ALL WORK IS TO COMPLY WITH THE  
FIRTH RIBRAFT TECHNICAL MANUAL  
JANUARY 2012 AND THESE DRAWINGS



## RIB RAFT FOUNDATION DESIGN

HAMISH WELLS  
CONSULTING CIVIL ENGINEER  
MIPENZ OPENING # 186323  
0274 459 757  
5582 NZ  
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engmr@xtra.co.nz

GU GARDER HOMES RIB RAFT  
2 LAMONT PLACE  
FERNDALE WAIKANAĒ

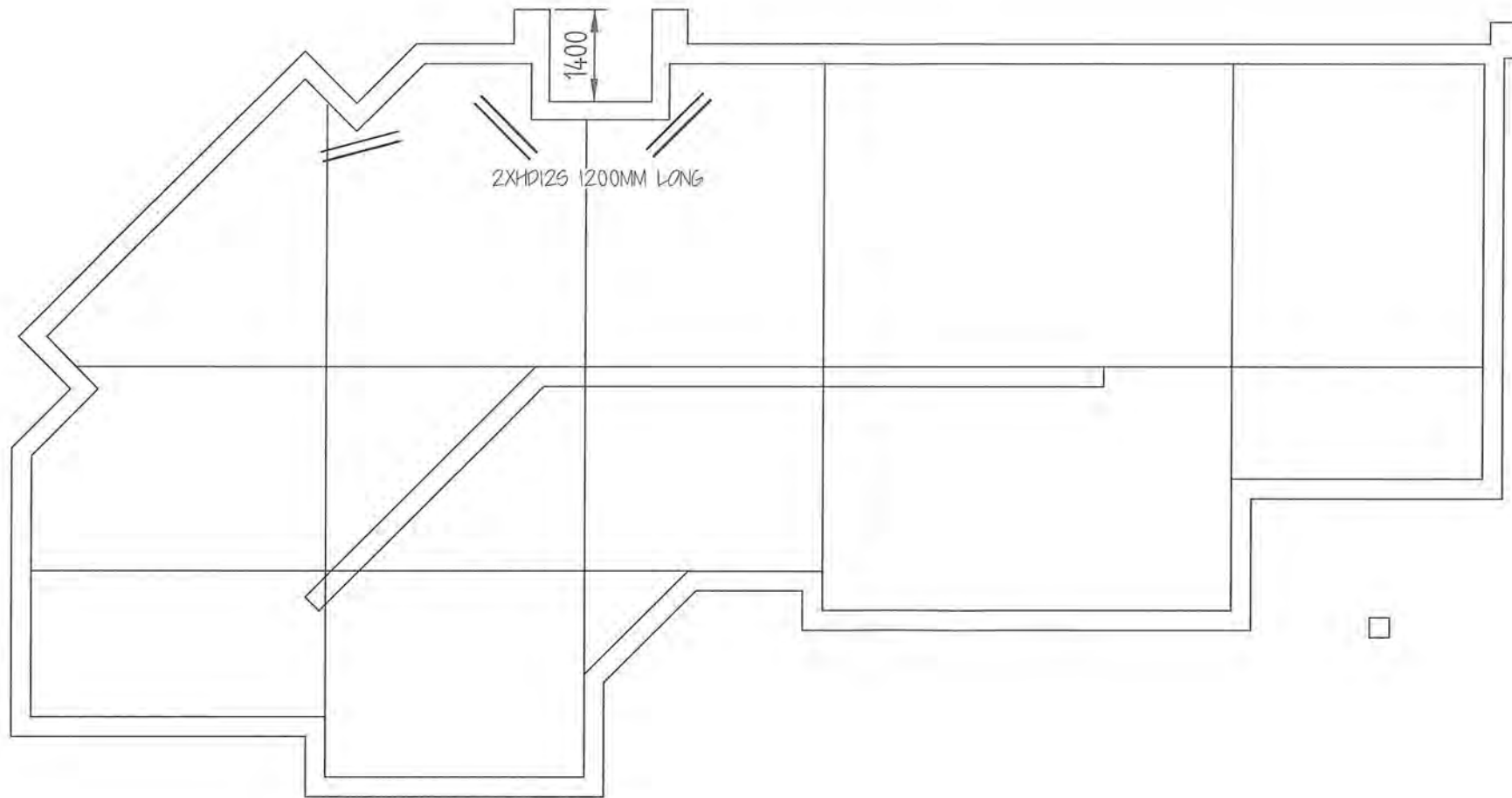
|                                                                                                         |   |      |            |          |                   |
|---------------------------------------------------------------------------------------------------------|---|------|------------|----------|-------------------|
| NO.                                                                                                     | 0 | DATE | 16/02/2016 | APPROVAL | FOR CONSENT ISSUE |
| DRAWN BY: MF<br>CHK'D BY: HW<br>DRAWING SCALE: 100 @A3<br>SHEET TITLE: TRIB RAFT DESIGN<br>SHEET 1 OF 6 |   |      |            |          |                   |

1) ALL DIMENSIONS MUST BE CHECKED AGAINST THE ARCHITECTURAL PLANS

2) ANY DISCREPANCY IS TO BE REPORTED TO THE ENGINEER AND THE ARCHITECT IMMEDIATELY AND NO FURTHER WORK CARRIED OUT UNTIL THE ISSUE IS RESOLVED

3) ALL WORK IS TO COMPLY WITH THE  
FIRTH RIBRAFT TECHNICAL MANUAL  
JANUARY 2012 AND THESE DRAWINGS

SHRINKAGE CONTROL JOINTS  
SHRINKAGE CONTROL JOINTS SHALL BE SAW CUT AFTER HARDENING.  
THE SAW CUT SHALL BE CUT TO A DEPTH OF 25MM AND SHALL BE  
CUT NO LATER THAN 24HRS IN SUMMER, OR 48HRS IN THE WINTER.  
THE SAW CUT SHALL BE PLACED OVER 100MM WIDE INTERNAL RIBS  
WHEREVER POSSIBLE. WHERE A SHRINKAGE CONTROL JOINT RUNS ALONG  
THE LINE OF A 300MM WIDE LOAD BEARING RIB THEN THE JOINT SHALL  
BE LOCATED DIRECTLY ABOVE ONE EDGE OF THE 300MM RIB.  
SUPPLEMENTARY REINFORCING BARS SHALL NOT BE PLACED ACROSS ANY  
SHRINKAGE CONTROL JOINTS. NOTE THAT CUTTING THE SLAB REDUCES THE RISK OF  
UNCONTROLLED CRACKING BUT DOES NOT ELIMINATE THE RISK. SHOULD ADDITIONAL ASSURANCE  
AGAINST CRACKING BE REQUIRED. PLEASE REFER TO HAMISH WELLS LTD FOR ADVICE.



RIB RAFT FOUNDATION SAW CUT PLAN

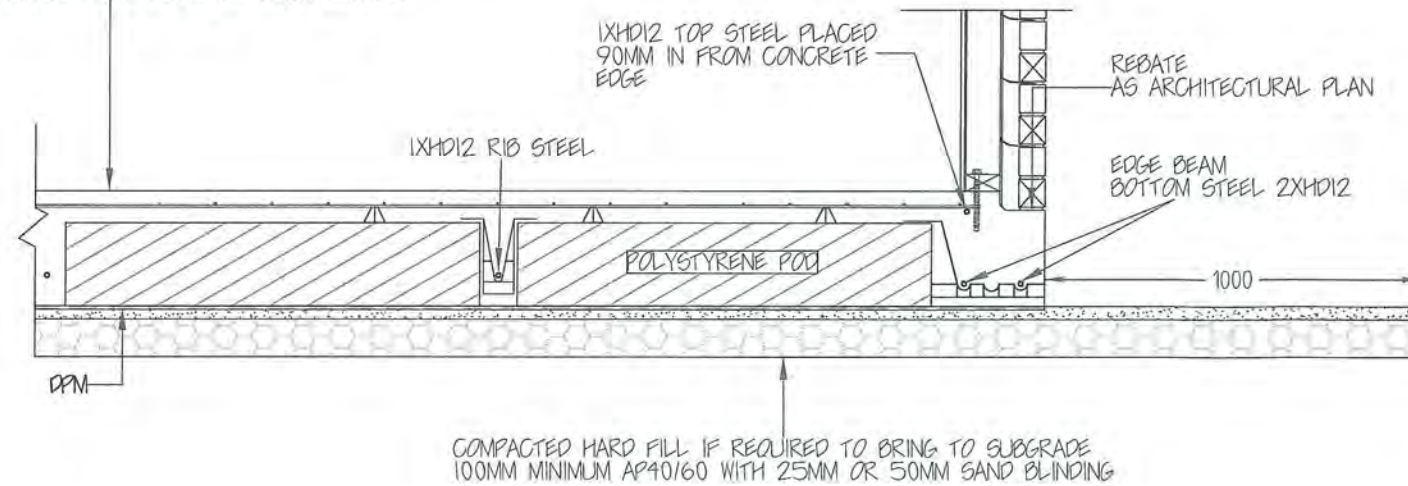
HAMISH WELLS  
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NIPENZ CPENG # 186323

GJ GARDER HOMES RIB RAFT  
2 LAMONT PLACE  
FERNDALE WAIKANAĒ

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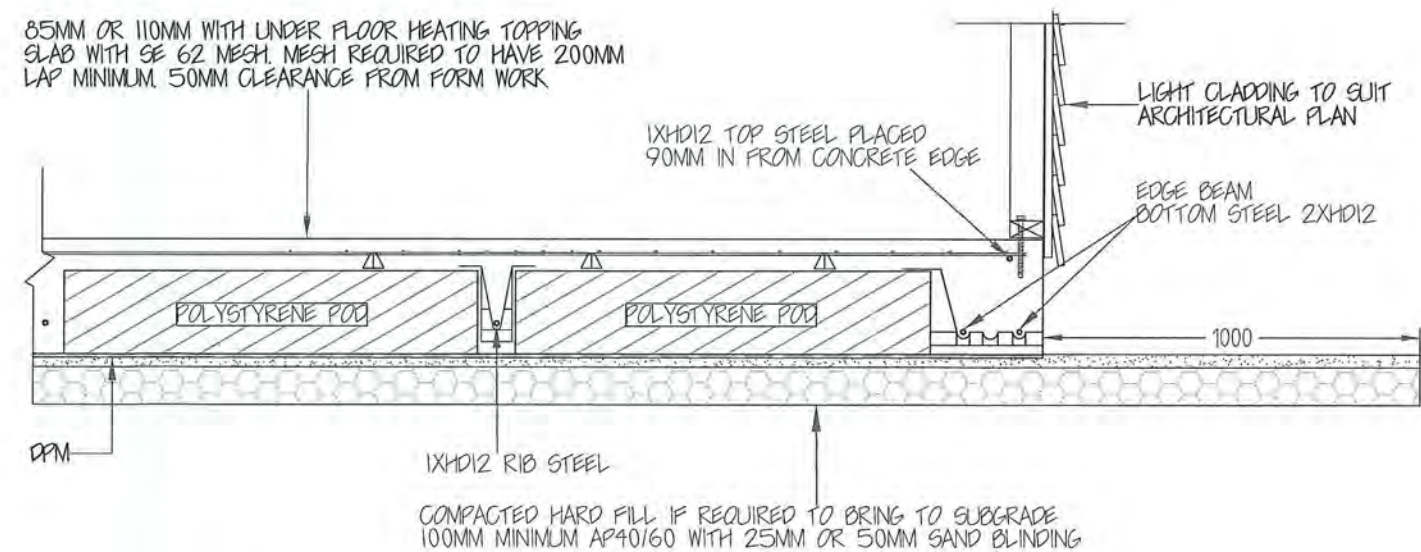


85MM OR 110MM WITH UNDER FLOOR HEATING TOPPING  
SLAB WITH SE 62 MESH. MESH REQUIRED TO HAVE 200MM  
LAP MINIMUM. 50MM CLEARANCE FROM INSIDE OF BRICK REBATE.



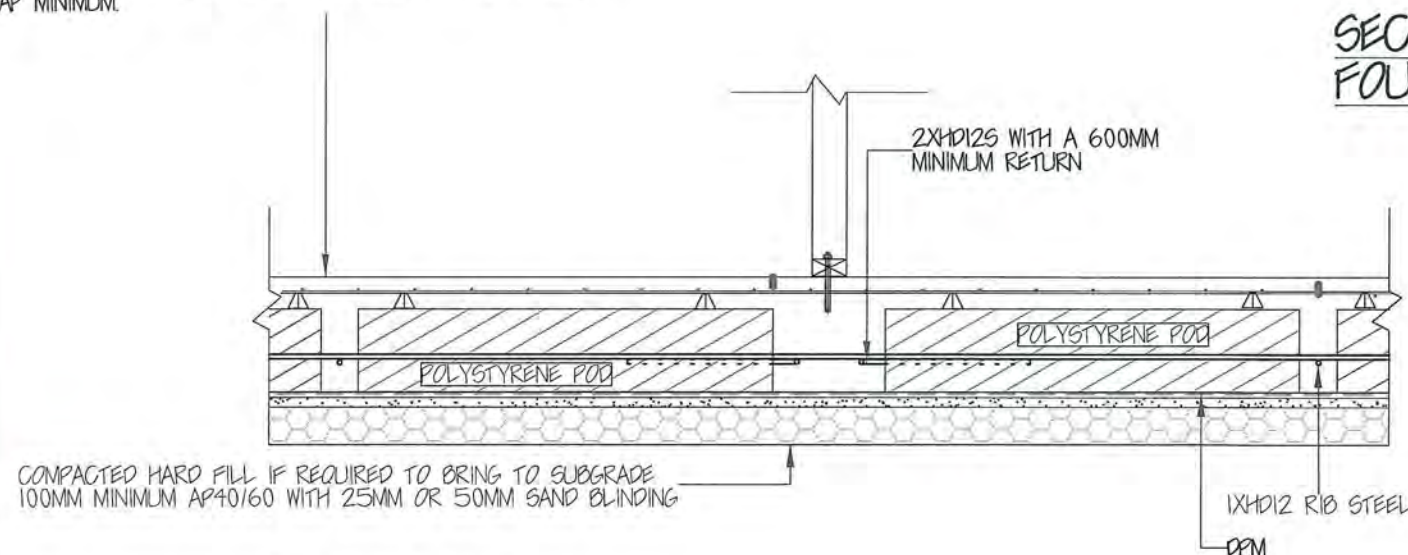
SECTION A-A  
FOUNDATION DETAIL - WHERE BRICK VENNER OR SCHIST IS USED - GOOD GROUND

85MM OR 110MM WITH UNDER FLOOR HEATING TOPPING  
SLAB WITH SE 62 MESH. MESH REQUIRED TO HAVE 200MM  
LAP MINIMUM. 50MM CLEARANCE FROM FORM WORK



SECTION A-A  
FOUNDATION DETAIL - LIGHTING CLADDING - GOOD GROUND

85MM OR 110MM WITH UNDER FLOOR HEATING TOPPING  
SLAB WITH SE 62 MESH. MESH REQUIRED TO HAVE 200MM  
LAP MINIMUM.



SECTION B-B  
FOUNDATION DETAIL GROUND OR LOAD BEARING BEAMS - GOOD GROUND

Ductile Plus 62 & 62L Mesh

- SE62 Plus — Easy to transport size 5.03 x 2.02
- SE62L — Larger 6.05 x 2.42 mesh size to maximise handling and lapping

SE62 500E MESH 200MM LAP REQUIRED



500E MESH GRADE SE62DE WITH FIRTH RAFTMIX RAFTMIX PUMP. RAFTMIX 25. OR RAFTMIX PUMP 25. CONCRETE WHERE WITHIN 500M OF THE SHORE OR ON AN OFF SHORE ISLAND OR WHERE SLAB CRACKING IS OF CONCERN IE. TILED AREAS OR EXPOSED CONCRETE

ELSEWHERE 20MPA RAFTMIX MAYBE USED

PARTICULAR ATTENTION - IS TO BE PAID TO THE REQUIREMENTS OF 3.10.1 FRR MANUAL - PLACING - "THE CONCRETE SHALL BE POURED IN SUCH A WAY AS TO ENSURE THAT THE PODS REMAIN IN POSITION DURING PLACING..." FAILURE TO ENSURE THE PODS DON'T MOVE WILL RESULT IN A WEAKENED STRUCTURE AND AT WORST, IF THE PODS FLOAT ON THE CONCRETE, A SUB 85MM THICK SLAB THAT MAY FAIL UNDER DESIGN POINT LOADS

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GU GARDER HOMES RIB RAFT  
2 LAMONT PLACE  
FERNDAL WAIKANA

| DATE          | DESCRIPTION      | FOR | CONSENT | ISSUE |
|---------------|------------------|-----|---------|-------|
| 16/02/2016    |                  |     |         |       |
| REV           | 0                |     |         |       |
| JOB           | BROWN            |     |         |       |
| DRAWN BY      | MF               |     |         |       |
| CHK'D BY      | HW               |     |         |       |
| DRAWING SCALE | 1:20             |     |         | @A3   |
| SHEET TITLE   | RIB RAFT DETAILS |     |         |       |
| SHEET 4 OF 6  |                  |     |         |       |

Diagram illustrating the cross-section of a concrete slab on edge beam, showing reinforcement and insulation details:

- 1XHD12 RIB STEEL**: Reinforcement bar within the slab.
- POLYSTYRENE POL**: Polystyrene insulation layer.
- 1XHD12 TOP STEEL PLACED 90MM IN FROM CONCRETE EDGE**: Reinforcement bar near the top edge.
- EDGE BEAM BOTTOM STEEL 2XHD12**: Reinforcement bars within the edge beam.
- COMPACTED HARD FILL IF REQUIRED TO BRING TO SUBGRADE 100MM MINIMUM AP40/60 WITH 25MM OR 50MM SAND BLINDING**: Subgrade preparation below the slab.
- FGF**: Finished Ground Floor level.

TIE WIRE, TIE FROM TOP MESH TO BOTTOM STEEL ALONG GARAGE DOOR REBATE

EDGE BEAM  
BOTTOM STEEL 2X4012

POLYSTYRENE POC

FGL

100 1100 400

COMPACTED HARD FILL IF REQUIRED TO BRING TO SUBGRADE  
100MM MINIMUM AP40/60 WITH 25MM OR 50MM SAND BLINDING

Technical drawing of a column base connection. The drawing shows a column section above a base plate, which is anchored into a concrete foundation. The column is supported by a base plate with four anchor bolts. The drawing includes the following dimensions and notes:

- Dimensions:**
  - Column diameter: 550
  - Base plate width: 550
  - Base plate thickness: 150
  - Anchor bolt length: 400
  - Concrete depth below base plate: 150
- Notes:**
  - POSTS AS SPECIFIED IN ARCHITECTURAL DETAILS AND APPROPRIATE B14 BOWMAC BRACKET WITH AS 12150WGM20
  - ALL STEEL IN THE CONCRETE IS HD25 WITH THE SAME CONCRETE AS THE FLOOR SYSTEM (20 OR 25MPa SEE CONCRETE NOTES)

300 DIA CONCRETE PILE DRILLED TO  
SOLID WITH BOMAG BRACKET  
WITH CONCRETE AS  
THE FLOOR SYSTEM (20 OR 25MPA  
SEE CONCRETE NOTES)

PARTICULAR ATTENTION - IS TO BE PAID TO THE REQUIREMENTS OF 3.10.1 FRR MANUAL - PLACING - "THE CONCRETE SHALL BE POURED IN SUCH A WAY AS TO ENSURE THAT THE PODS REMAIN IN POSITION DURING PLACING..." FAILURE TO ENSURE THE PODS DON'T MOVE WILL RESULT IN A WEAKENED STRUCTURE AND AT WORST, IF THE PODS FLOAT ON THE CONCRETE, A SUB 85MM THICK SLAB THAT MAY FAIL UNDER DESIGN POINT LOADS

- SE62 Plus — Easy to transport size 5.03 x 2.02
- SE62L — Larger 6.05 x 2.42 mesh size to maximise handling and lapping

SE62 500E MESH 200MM LAP REQUIRED

**HAMISH WELLS**  
CONSULTING CIVIL ENGINEER

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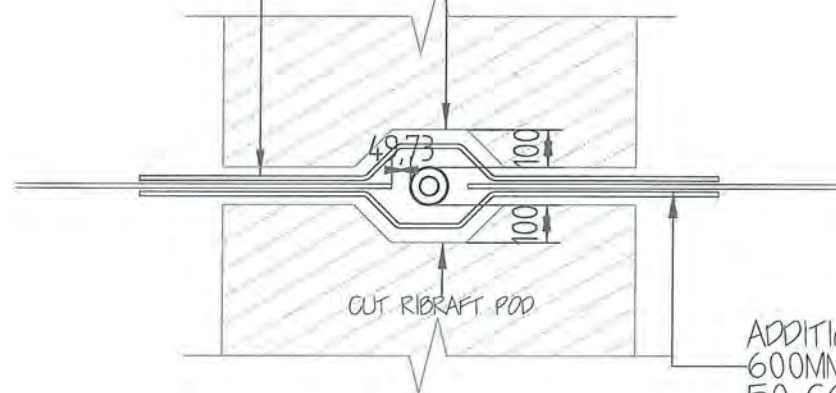
NIPENZ OPEN: # 186323

GU GARDER HOMES RIB RAFT  
2 LAMONT PLACE  
FERNDALE WAIKANA E

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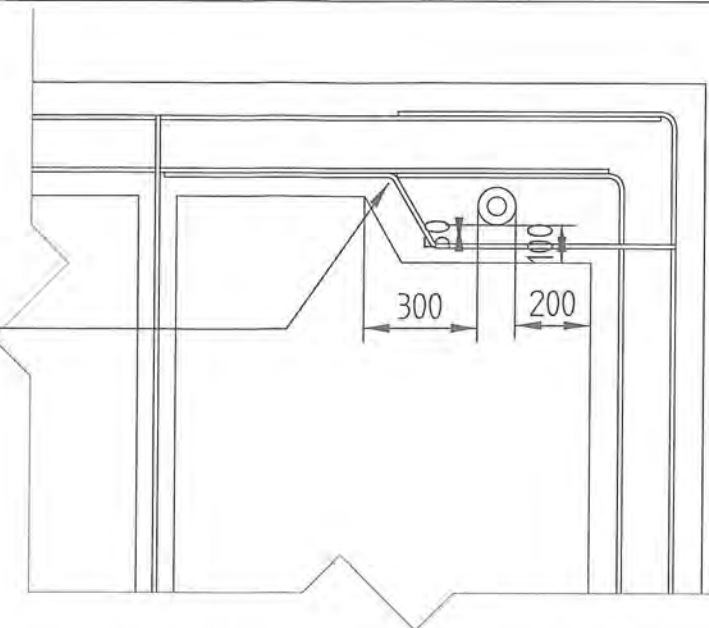
600MM MINIMUM  
LAP REQUIRED

CUT RIBRAFT POD



PLAN VIEW: WITHIN RIB

ADDITIONAL HD12 CRANKED AROUND  
PIPE MIN. 600 LAP WITH EDGE BAR

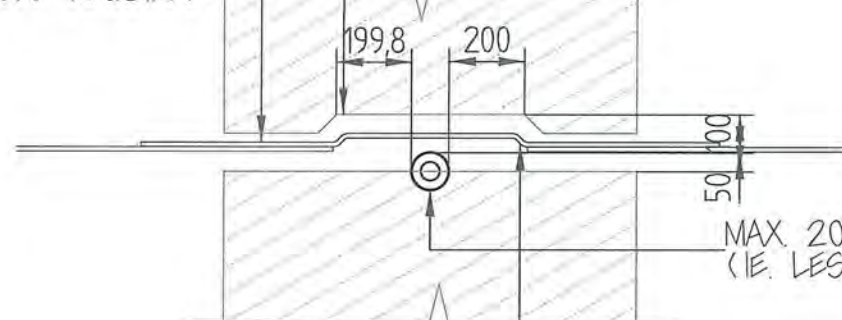


PLAN VIEW AT OPEN CORNER

DIAMETER OF SLEEVE CAPPED WITH INTERNAL  
PIPE COMING UP THROUGH CAP TO ALL SERVICES.

600MM MINIMUM  
LAP REQUIRED

CUT RIBRAFT POD



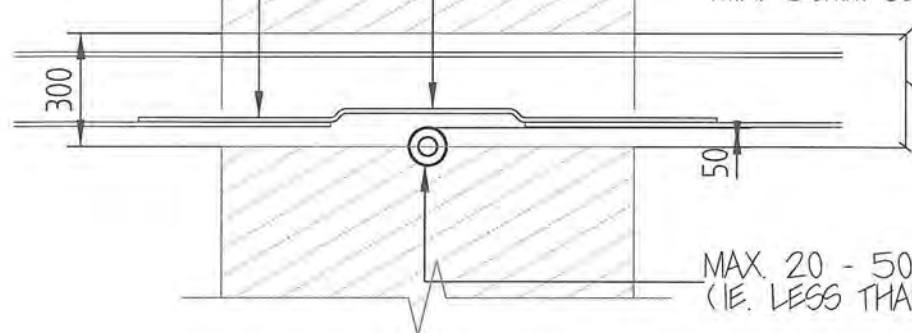
PLAN VIEW: AT RIB EDGE

MAX. 20 - 50MM  
(IE. LESS THAN 20MM. NOT REQUIRED)

ADDITIONAL HD12 CRANK AROUND LAP MIN  
600MM AT BOTH ENDS WITH RIB BARS MIN.  
50 COVER TO PIPE

600MM MINIMUM  
LAP REQUIRED

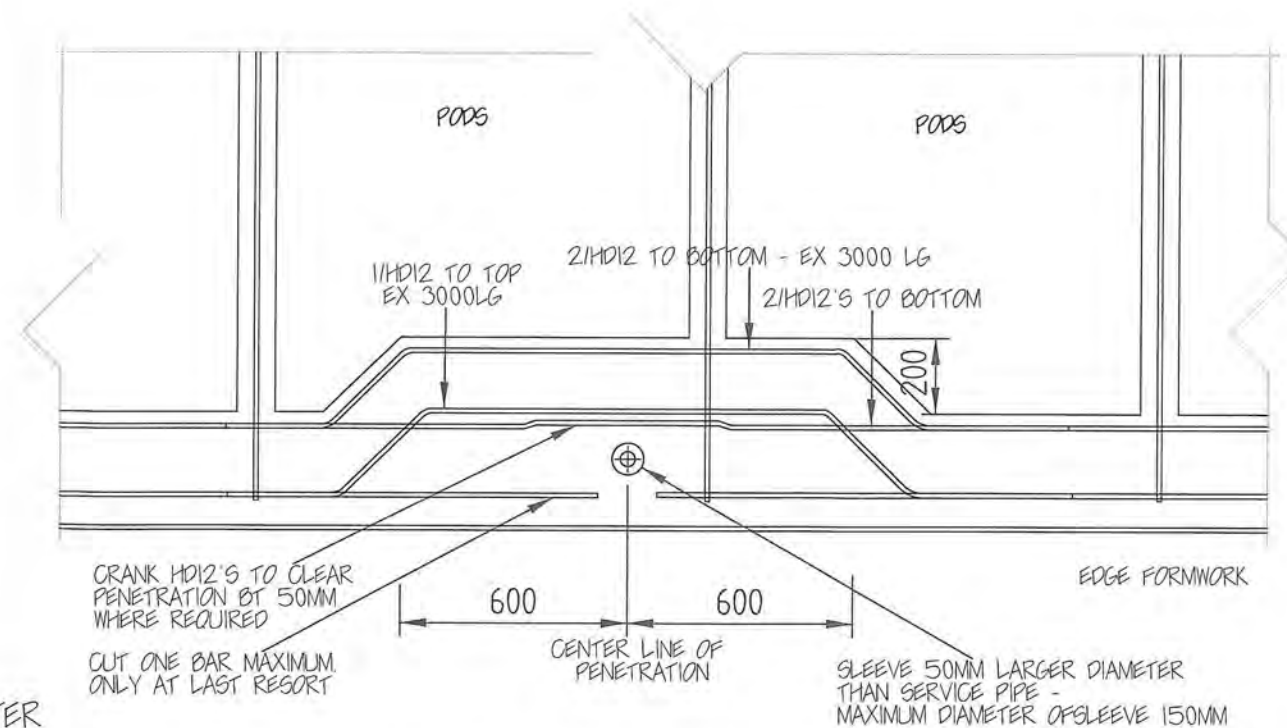
CRANK THICKENING BAR AROUND  
MIN. 50MM COVER TO PIPE



PLAN VIEW: AT THICKENING EDGE

TYPICALLY 300MM OR GREATER

MAX. 20 - 50MM  
(IE. LESS THAN 20MM. NOT REQUIRED)



SLEEVED SERVICES.

SERVICE TO BE PLACED CENTRALLY IN DUCTS WITH ID  
50MM LARGER THAN SERVICE OD. DUCTS TO BE FIRMLY  
EMBEDDED IN SAND AND SECURLY FIXED AND TAPED TO  
PREVENT DISPLACEMENT DURING CONCRETING.

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GW GARDER HOMES RIB RAFT  
2 LAMONT PLACE  
FERNDAL WAIKANA

| DATE          | DESCRIPTION | FOR | CONSENT | ISSUE |
|---------------|-------------|-----|---------|-------|
| 16/02/2018    |             |     |         |       |
| REV           | 0           |     |         |       |
| JOB           | BROWN       |     |         |       |
| DRAWN BY      | MF          |     |         |       |
| CHK'D BY      | HW          |     |         |       |
| DRAWING SCALE | 1:20        |     |         |       |
| SHEET TITLE   | PLUMBING    |     |         |       |
| SHEET         | 6 OF 6      |     |         |       |

FOUNDATION  
CALCULATION  
SPREADSHEET

|          |                          |                   |                        |
|----------|--------------------------|-------------------|------------------------|
| Client   | GJ Gardner Homes         | Number of storeys | Single                 |
| Site     | Lot 29 Ferndale Waikanae | soil class        | D&E (deep , very soft) |
| Designer | MF                       | location          | Waikanae               |
| Date     | 15/06/2018               |                   |                        |

ROOF

|                                     |                        |        |          |
|-------------------------------------|------------------------|--------|----------|
| Roof type                           | Steel Galvanized 0.8mm | 0.10   | Kpa      |
| Roof Tributary width (Max)          | 4.00                   | 4.00   | m        |
| Roof pitch (Deg)                    | 25.00                  | 25.00  | Deg      |
| Roof area                           | 253.00                 | 253.00 |          |
| Roof above the eaves                | 1.50                   |        |          |
| Effective roofing length            |                        | 4.41   | m        |
| Adjusted roof weight                |                        | 0.44   | KN/m run |
| Roof supporting structure allowance |                        | 0.15   |          |
| Roof weight line load               |                        | 1.04   | KN/m run |
| Roof weight total                   |                        | 65.87  | KN       |

UNDER ROOF  
CEILING

|                                    |                      |       |          |
|------------------------------------|----------------------|-------|----------|
| Ceiling Type                       | Gypsum Plaster, 13mm | 0.13  |          |
| Ceiling supporting structure Y / N | No                   | 0.00  | Timber   |
| Ceiling Tributary width (m)        | 3.00                 | 3.00  |          |
| 1st floor ceiling weight           |                      | 0.39  | KN/m run |
| 1st floor ceiling weight total     |                      | 25.92 | KN       |

GROUND FLOOR  
WALLS

|                                |             |        |          |
|--------------------------------|-------------|--------|----------|
| Wall type                      | Timber Stud | 0.05   |          |
| Cladding Type                  | Brick 70mm  | 1.33   |          |
| Cladding Weight                | Heavy       |        |          |
| Stories Height (m)             | 2.40        | 2.40   |          |
| Total external wall length     | 72.30       | 72.30  |          |
| Ground floor wall weight       |             | 3.31   | KN/m run |
| Ground floor wall weight total |             | 239.46 | KN       |

FOUNDATION

|                                         |                |         |          |
|-----------------------------------------|----------------|---------|----------|
| Foundation type                         | Ribraft (85mm) |         |          |
| Width (m)                               | 0.30           | Edge Wt | 2.15     |
| Depth (m) (total)                       | 0.31           | Slab Wt | 4.07     |
| Slab Thickness (m)                      | 0.085          |         |          |
| Length along                            | 22.6           |         |          |
| Width across                            | 11.9           |         |          |
| Foundation total slab area              | 199.4          |         |          |
| Foundation Perimeter length             | 76.0           |         |          |
| Ground beam length                      | 12.0           |         |          |
| Foundation weight edge (inc 1m of slab) |                | 3.62    | KN/m run |
| Foundation weight Total                 |                | 994.55  | KN       |

IMPOSED LOADS

|                           |      |     |
|---------------------------|------|-----|
| Imposed load roof         | 0.25 | Kpa |
| Imposed load first floor  | 2.00 | Kpa |
| Imposed load Ground floor | 2.00 | KPa |

OUTPUT

Foundation  
Edge Load

|                                                         |       |          |
|---------------------------------------------------------|-------|----------|
| Total un-factored dead load on edge foundation beam     | 10.40 | KN/m run |
| Total un-factored Imposed loads on edge foundation beam | 13.32 | KN/m run |

Total  
Building Weight

|                                |        |    |
|--------------------------------|--------|----|
| Total un-factored dead load    | 1325.8 | KN |
| Total Un-factored imposed load | 656.1  | KN |

Wind  
Snow

|                 |      |       |     |
|-----------------|------|-------|-----|
| Wind zone       | High | 235.3 | KN  |
| Snow Load allow | 0.00 | Kpa   | 0.0 |

NOTES

# Hamish Wells

Engineer Ltd

Civil Engineer  
MIPENZ CPEng 186323

CIVIL  
STRUCTURAL  
INFRASTRUCTURE  
LAND DEVELOPMENTS  
ENVIRONMENTAL

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Hamish Wells  
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## Unit Weights

Client GJ Gardner Homes Date 15/06/2018  
Site Lot 29 Ferndale Waikanae Designer MF

### UNITS LOADS FROM NZS1170.1:2002

#### ROOF

| Roof type                | Kpa   |
|--------------------------|-------|
| 0 None                   | 0.00  |
| 1 Steel Galvanized 0.8mm | 0.10  |
| 2 Concrete tiles         | 0.53  |
| 3 Other                  | 10.00 |

#### UNDER ROOF CEILING

| Ceiling Types          | Kpa   |
|------------------------|-------|
| 0 None                 | 0.00  |
| 1 Fibrous Plaster 10mm | 0.09  |
| 2 Gypsum Plaster, 13mm | 0.13  |
| 3 Lime Plaster, 13mm   | 0.24  |
| 4 Other                | 10.00 |

#### WALLS

| Wall and Cladding Types |       |
|-------------------------|-------|
| 0 None                  | 0.00  |
| 1 Timber Stud           | 0.05  |
| 2 Brick 70mm            | 1.33  |
| 3 20 Series Block       | 1.82  |
| 4 15 Series Block       | 1.51  |
| 5 10 Series Block       | 1.20  |
| 6 Ply (10mm)            | 0.12  |
| 7 Weather Board         | 0.15  |
| 8 Integra               | 0.45  |
| 9 Other                 | 10.00 |

#### 1ST FLOOR

| Floor Types and Coverings      |       |
|--------------------------------|-------|
| 0 None                         | 0.00  |
| 1 Timber                       | 0.12  |
| 2 Interspan                    |       |
| 4 Ply / wood / T and G, (20mm) | 0.09  |
| 5 Carpet                       | 0.10  |
| 6 Other                        | 10.00 |

#### Timber joist weight calculator

|         |        |        |
|---------|--------|--------|
| width   | 45     | mm     |
| Depth   | 190    | mm     |
| Spacing | 400    | mm     |
|         | 540.00 | KG/M^3 |
|         | 11.54  | KG/M^2 |
|         | 0.11   | Kpa    |

#### Foundation

|                   | Edge Beam<br>Width | Depth | Slab<br>Thickness | Edge weight<br>KN/M run | Slab Weight<br>KN/M^2 |
|-------------------|--------------------|-------|-------------------|-------------------------|-----------------------|
| 0 None            | 0.00               | 0     | 0                 | 0                       | 0                     |
| 1 Maxraft (100mm) | 0.450              | 0.200 | 0.100             | 2.160                   | 2.400                 |
| 1 Maxraft (120mm) | 0.450              | 0.200 | 0.120             | 2.430                   | 2.880                 |
| 2 Ribraft (85mm)  | 0.300              | 0.305 | 0.085             | 2.154                   | 4.073                 |
| 2 Ribraft (110mm) | 0.300              | 0.330 | 0.110             | 2.331                   | 4.921                 |
| 3 Slab 85mm       | 0.300              | 0.450 | 0.085             | 3.240                   | 2.040                 |
| 4 Slab 100mm      | 0.300              | 0.450 | 0.100             | 3.240                   | 2.400                 |
| 5 Slab 125mm      | 0.300              | 0.450 | 0.125             | 3.240                   | 3.000                 |
| 6 SED Slab 150    | 0.400              | 0.300 | 0.150             | 2.880                   | 3.600                 |

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## SLAB CALCULATIONS

Client GJ Gardner Homes  
Site Lot 29 Ferndale Waikanae

Date 15/06/2018  
Designer MF

Minimum Concrete strength determination WRT NZS 3101 Cl 3.4 and 3.10

Site with in 500m of coast?

No

Concrete exposed to freeze thawing?

No

Piled foundation?

No

Is there a garage?

Yes

Minimum Concrete covers above DPM

In non aggressive soils

Exposed to wetting (exterior)

| Min Concrete | Mpa |
|--------------|-----|
| 20           | mm  |
| 25           | mm  |
| 40           | mm  |
| 50           | mm  |

### Slab Calcs

#### Input data

|                                  |     |        |     |
|----------------------------------|-----|--------|-----|
| Slab width                       | bw  | 1      | M   |
| over all depth                   | d   | 0.085  | M   |
| depth to centriod of tension reo | t   | 0.0425 | M   |
| Mesh Type                        |     | SE62   |     |
| Concrete strength                | f'c | 20     | MPa |

|    |       |      |
|----|-------|------|
| As | 146.1 | MM^2 |
|    | 500   | MPa  |

#### Checks

|                       |       |      |      |
|-----------------------|-------|------|------|
| Minimum area of steel | 110.5 | MM^2 | PASS |
| Moment capacity       | 2.65  | KNm  |      |

#### 9.3.9.3.3 Max concrete shear capacity

|                  |                       |       |     |
|------------------|-----------------------|-------|-----|
| Max capacity     | 0.2f'c                | 4.000 | MPa |
| vc = lesser of   | 0.2 SqRt f'c          | 0.894 | MPa |
| or               | (0.07+10 Pw) SqRt f'c | 0.390 | MPa |
| where Pw = as/bd |                       |       |     |

### Garage point load shear check

|                                   |     |                            |           |
|-----------------------------------|-----|----------------------------|-----------|
| Point load KN                     | 13  | NZS1170.1 Table 3.1 item F |           |
| Bearing area                      | 0.2 | by                         | 0.2       |
|                                   |     | Shear area                 | 0.14      |
|                                   |     | Applied punching shear     | 9.49E-02  |
|                                   |     |                            | PASS      |
| Bearing pressure under point load |     |                            | 94.96 Kpa |

## EDGE BEAM CALCULATIONS

#### Input data

|                                  |     |        |      |
|----------------------------------|-----|--------|------|
| beam width                       | bw  | 0.3    | M    |
| over all depth                   | d   | 0.305  | M    |
| depth to centriod of tension reo | t   | 0.255  | M    |
| Top reinforcement                |     | 1-HD12 |      |
| Bottom reinforcement             |     | 2-HD12 |      |
| Concrete strength                | f'c | 20     | MPa  |
| Minimum area of steel            |     | 118.95 | MM^2 |
| Moment capacity                  |     | 24.80  | KNm  |

|                |      |
|----------------|------|
| Ribraft (85mm) |      |
| 500            | MPa  |
| 113            | MM^2 |
| 226            | MM^2 |

#### Checks

|                       |        |      |      |
|-----------------------|--------|------|------|
| Minimum area of steel | 118.95 | MM^2 | PASS |
| Moment capacity       | 24.80  | KNm  |      |

#### 9.3.9.3.3 Max concrete shear capacity

|                  |                       |       |     |
|------------------|-----------------------|-------|-----|
| Max capacity     | 0.2f'c                | 4.000 | MPa |
| vc = lesser of   | 0.2 SqRt f'c          | 0.894 | MPa |
| or               | (0.07+10 Pw) SqRt f'c | 0.511 | MPa |
| where Pw = as/bd |                       |       |     |

#### Applied load

|                                     |        |        |
|-------------------------------------|--------|--------|
| Load from previous sheets factored  |        |        |
| Shear stress = V*/φbd               | 0.47   | N/mm^2 |
| Applied bearing pressure            | 108.19 | Kpa    |
| Max spanning capacity of foundation | 2.47   | M      |

N/A

# Hamish Wells

Engineer Ltd

Civil Engineer  
MIPENZ CPEng 186323

CIVIL  
STRUCTURAL  
INFRASTRUCTURE  
LAND DEVELOPMENTS  
ENVIRONMENTAL

202 Otaki Gorge Rd, Otaki  
PO Box 188, Otaki 5542  
Hamish Wells  
M: 0274 459 757  
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## SLAB CALCULATIONS

Client  
Site

GJ Gardner Homes  
Lot 29 Ferndale Waikanae

Date  
Designer

15/06/2018  
MF

## RIB BEAM CALCULATIONS

|                        |                                  |                       |           |             |      |
|------------------------|----------------------------------|-----------------------|-----------|-------------|------|
| Input data             | beam width                       | bw                    | 0.1       | M           |      |
|                        | over all depth                   | d                     | 0.305     | M           |      |
|                        | depth to centriod of tension reo | t                     | 0.255     | M           |      |
|                        | Bottom reinforcement             |                       | 1-HD12    |             |      |
|                        | Concrete strength                | f'c                   | 20        | MPa         |      |
| Checks                 | Minimum area of steel            |                       | 39.65     | MM^2        |      |
|                        | Moment capacity                  |                       | 12.12     | KN/m        |      |
|                        |                                  |                       |           |             | PASS |
| 9.3.9.3.3              | Max concrete shear capacity      |                       |           |             |      |
|                        | Max capacity                     | 0.2f'c                | 4.000     | MPa         |      |
|                        | vc = lesser of                   | 0.2 Sqrt f'c          | 0.894     | MPa         |      |
|                        | or                               | (0.07+10 Pw) Sqrt f'c | 0.511     | MPa         |      |
|                        | where Pw = as/bd                 |                       |           |             |      |
| Applied load<br>Garage | Point load                       | 70/30 share           | of 19.5kn | 13.65 KN    |      |
|                        | Shear stress = V*/φbd            |                       |           | 0.50 N/mm^2 | PASS |
|                        | Max spanning capacity of rib     |                       | 2.67      | M           |      |

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## Building Bracing Calculator

Name GJ Gardner Homes  
Street and Number Lot 29 Ferndale Waikanae  
Designer MF  
Date 15/06/2018

### Building Specification

Number of storeys Single  
Floor Loading 2kPa  
Foundation Type Slab  
Light

Cladding Weight Single Floor  
Roof Weight Heavy  
Room in Roof Space light  
Roof Pitch (degrees) no  
Roof height above eaves (m) 25  
Building height to apex (m) 1.5  
Ground to lower floor level (m) 4.2  
0.3

Stud Height (m) 2.4  
Building Length (m) 22.6  
Building Width (m) 11.9  
Building Plan Area (m2) 199.4

### Building Location

Wind Zone High  
Select by Building Consent Authority Map  
or Preference High

Complete Single Floor  
Column Only

light  
No

Earthquake Zone Soil Type  
Waikanae D&E (deep, v  
Annual exceedance probability  
1/500 (NZS3604:2011 default)

### Bracing Units required for Wind

| Demand W (BU) |      |   | Walls single |
|---------------|------|---|--------------|
| along         | Slab | 0 | 518          |
| across        | Slab | 0 | 832          |

### Bracing Units required for Earthquake

| Demand along / across E (BU) |      |   |   |
|------------------------------|------|---|---|
| slab                         | 2087 | 0 | 0 |



00017

E

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**Civil Engineer**

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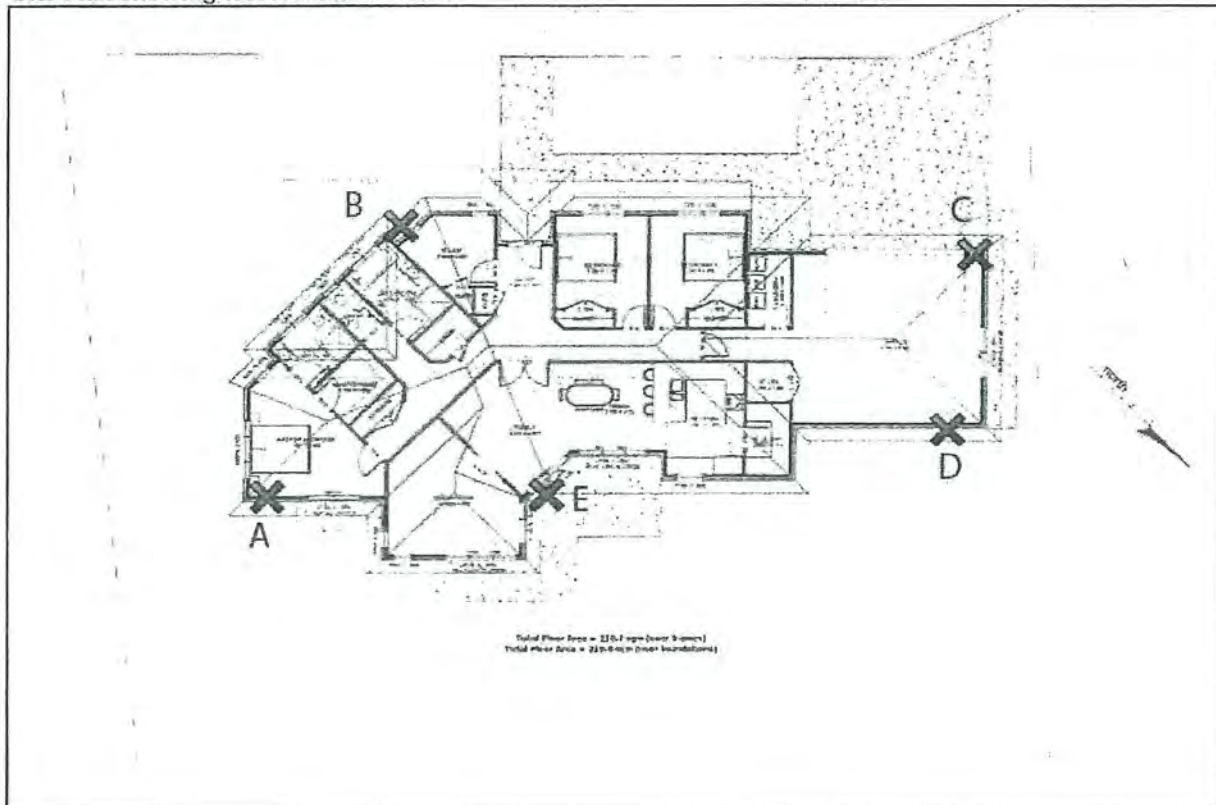
## Site suitability test report in terms of NZS 3604:2011 Timber framed buildings - Section 3 "Site requirements"

| Site Data |                   |    |      | Client Data |                              |
|-----------|-------------------|----|------|-------------|------------------------------|
| Date      | 15/02/2018        |    |      | Client      | Geoff Pate                   |
| Address   | 27 Ferndale Drive |    |      | Email       | Geoff.Pate@placemakers.co.nz |
| Town      | Waikanae          |    |      | Address     |                              |
| Post code |                   |    |      |             |                              |
| Legal     | Lot #             | 29 | DP # | 409302      |                              |
| TA        | KCDC              |    |      | Mobile      |                              |
| RA        | GWRC              |    |      | Landline    |                              |

|                    |     |
|--------------------|-----|
| Wind Zone          | H   |
| Corrosion zone     | C   |
| Earthquake zone    | 3   |
| Site subsoil class | D&E |

|                 |      |
|-----------------|------|
| Topography      | Flat |
| Basic soil type | Sand |
| NZGS data       | qa   |

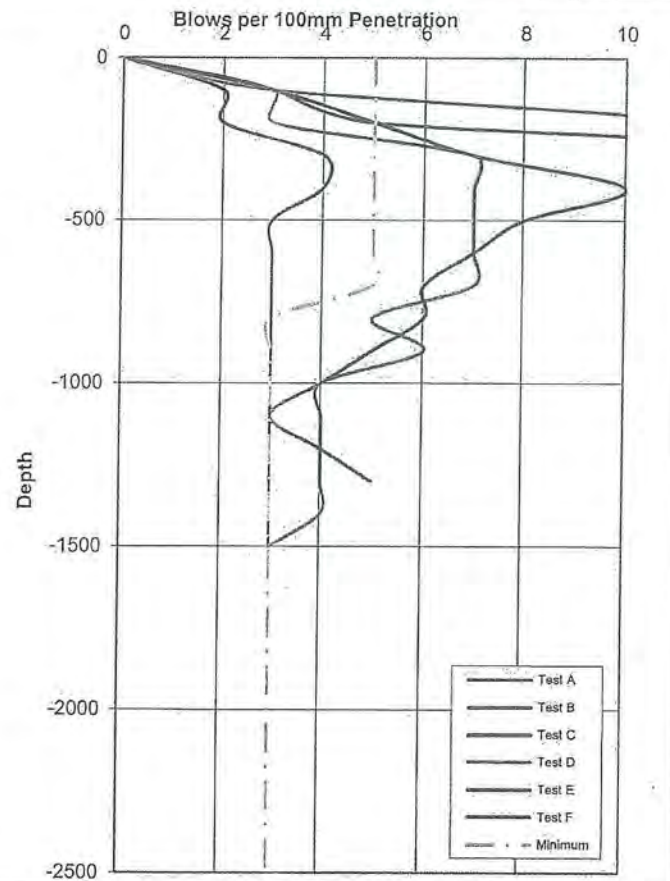
Site Plan showing test locations



## Tabulated and graphed Scala penetrometer data

|      |                   |
|------|-------------------|
| Site | 27 Ferndale Drive |
| Date | 15/02/2018        |
| By   | DE                |

| Depth | A | B | C  | D  | E  | F | min |
|-------|---|---|----|----|----|---|-----|
| 0     | 0 | 0 | 0  | 0  | 0  | 0 | 5   |
| -100  | 2 | 3 | 3  | 3  | 3  |   | 5   |
| -200  | 2 | 3 | 5  | 12 | 5  |   | 5   |
| -300  | 4 | 7 | 18 | 12 | 7  |   | 5   |
| -400  | 4 | 7 | 12 | 12 | 10 |   | 5   |
| -500  | 3 | 7 | 12 | 14 | 8  |   | 5   |
| -600  | 3 | 7 | 20 | 23 | 7  |   | 5   |
| -700  | 3 | 7 | 21 | 25 | 6  |   | 5   |
| -800  | 3 | 5 | 25 |    | 6  |   | 3   |
| -900  | 3 | 6 |    |    | 5  |   | 3   |
| -1000 | 3 | 4 |    |    | 4  |   | 3   |
| -1100 | 3 | 4 |    |    | 3  |   | 3   |
| -1200 | 3 | 4 |    |    | 4  |   | 3   |
| -1300 | 3 | 4 |    |    | 5  |   | 3   |
| -1400 | 3 | 4 |    |    |    |   | 3   |
| -1500 | 3 | 3 |    |    |    |   | 3   |
| -1600 |   |   |    |    |    |   | 3   |
| -1700 |   |   |    |    |    |   | 3   |
| -1800 |   |   |    |    |    |   | 3   |
| -1900 |   |   |    |    |    |   | 3   |
| -2000 |   |   |    |    |    |   | 3   |
| -2100 |   |   |    |    |    |   | 3   |
| -2200 |   |   |    |    |    |   | 3   |
| -2300 |   |   |    |    |    |   | 3   |
| -2400 |   |   |    |    |    |   | 3   |
| -2500 |   |   |    |    |    |   | 3   |



### 3.3.7 Ultimate bearing capacity

#### 3.3.7.1

The soil below the underside of the foundations shall be assumed to have an ultimate bearing capacity of not less than 300 kPa when:

- None of the following is encountered below the depth of the footing at any test site:
  - Organic topsoil
  - Soft or very soft peat
  - Soft or very soft clay
  - Fill material, except where a certificate of suitability has been issued under NZS 4431;
- Scala Penetrometer tests conducted in accordance with 3.3.2(a), where the number of blows per 100 mm depth of penetration below the underside of the proposed footing at each test site exceeds:
  - Five down to a depth equal to twice the width of the widest footing below the underside of the proposed footing;
  - Three at greater depths; and
  - Providing the set blow is relatively uniform, the number of blows per 100 mm may be obtained by averaging the number of blows for depths not exceeding 300 mm; and
- Comparisons of the results at all test sites show that soil conditions are closely similar at each test site.

# Test data analysis and comments for 3604:2011 type foundations systems

| Symbol | Meaning                     |
|--------|-----------------------------|
| Y      | Yes                         |
| N      | No                          |
| Blank  | Not applicable              |
| P      | Part                        |
| A      | All                         |
| SED    | Specific Engineering Design |

| Typical 3604:2011 compliant foundation systems |                     |                 |                |                  |
|------------------------------------------------|---------------------|-----------------|----------------|------------------|
| Timber subfloor                                |                     |                 | Slab on ground |                  |
| Standard piles                                 | Driven timber piles | Ring Foundation | 3604 Type      | Non SED Rib Raft |

- 1 Do the test results comply with NZS 3604:2011 Section 3 Site requirements?

|   |   |   |   |   |
|---|---|---|---|---|
| N | N | N | N | Y |
|---|---|---|---|---|

- 2 Reasons / causes of non compliance?

|    |                                          |   |   |   |   |  |
|----|------------------------------------------|---|---|---|---|--|
| a) | Peat or other organic materials          |   |   |   |   |  |
| b) | Clays or/and soft silts                  |   |   |   |   |  |
| c) | Shallow poorly consolidated sands        | Y | Y | Y | Y |  |
| d) | Deep poorly consolidated sands           |   |   |   |   |  |
| e) | Uncertified fills                        |   |   |   |   |  |
| f) | Unstable ground, adjacent slips, erosion |   |   |   |   |  |
| g) | Proximity to banks                       |   |   |   |   |  |
| h) | Ground water issues                      |   |   |   |   |  |
| i) | Other issues see summation para 7        |   |   |   |   |  |

- 3 Is specific foundation design required ?

|    |                  |   |   |   |   |   |
|----|------------------|---|---|---|---|---|
| a) | Part of the site |   |   |   |   |   |
| b) | All of the site  | Y | Y | Y | Y | N |

- 4 Can the site soils be mechanically stabilised to provide a complying site?

|    |                                                                                                        |  |  |  |  |  |
|----|--------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| a) | Required digout depth mm                                                                               |  |  |  |  |  |
| b) | Required digout area - footprint +                                                                     |  |  |  |  |  |
| c) | Can the work be carried out with the soil still in situ (roll / compact with suitable heavy machinery) |  |  |  |  |  |

Specific Engineered Design required unless Rib Raft foundation type utilised on this site.

- 5 Piling options

|    |                       |   |   |   |   |  |
|----|-----------------------|---|---|---|---|--|
| a) | Driven timber piles   | Y | Y | Y | Y |  |
| b) | Cast in situ concrete |   |   |   |   |  |

- 6 Slab options

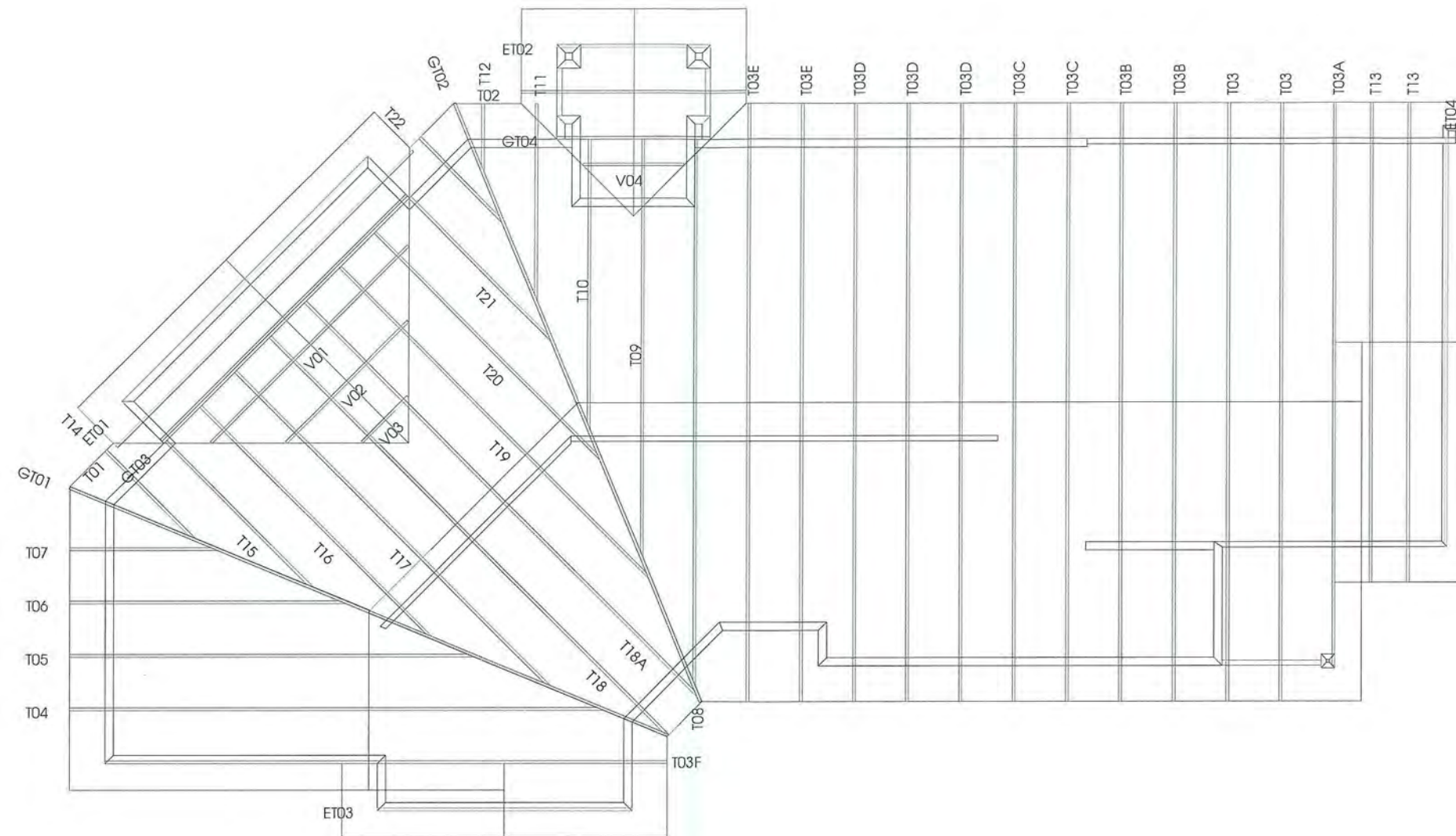
|    |                                                                              |   |   |   |   |   |
|----|------------------------------------------------------------------------------|---|---|---|---|---|
| a) | SED required for slab and foundations                                        | Y | Y | Y | Y | N |
| b) | SED required for slab and foundations if the site is mechanically stabilised |   |   |   |   |   |

- 7 Summation

Results of testing do not comply with NZS3604: 2011 good ground requirements for standard foundation types but do comply for Rib Raft type foundation systems. Check test site A during construction.

00018

25 JUN 2010  
BY: LA



**PlaceMakers®**  
Know how. Can do.

Site Address :  
G.K Pate Family Trust  
2 Lamont Place  
Waikanae  
Waikanae

Sheet Title :  
**For Building Consent  
Buildable Truss Layout**

|                    |                      |
|--------------------|----------------------|
| Date : 24 May,2018 | Drawn : Darren Perry |
| Scale : 1:100      | System : MiTek 20/20 |

|                  |                     |
|------------------|---------------------|
| Job Details:     |                     |
| Roof Pitch       | : 25.000 Deg        |
| Roof Material    | : Longrun Iron .5mm |
| Ceiling Material | : Rondo on clips    |
| Wind Zone        | : High              |
| Roof Snow Load   | : 0.000 kPa         |

Truss Centres : 900 mm  
Roof Live Load : 0.250kPa  
Floor Live Load : kPa  
Wind Speed : 44.0 m/s

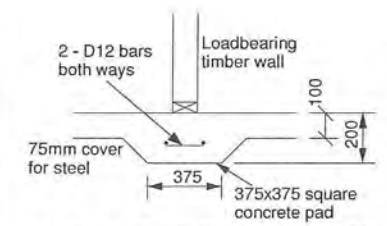
PrimeCad v4.7.291

|                   |        |
|-------------------|--------|
| Job Title :       | 147847 |
| Sheet :           | 1      |
| Revision Number : |        |

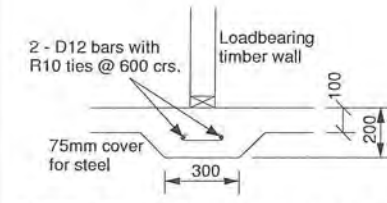
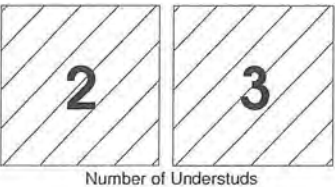


**MiTek**™

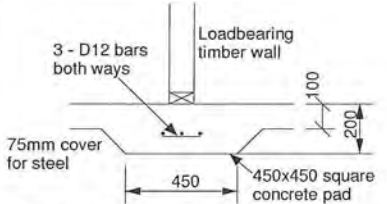
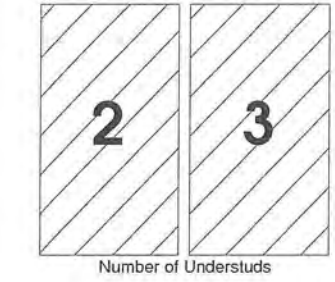
# Slab Thickening Details



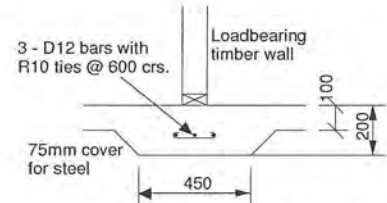
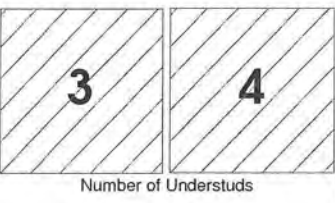
TYPE FP1 - 375x375mm Pad



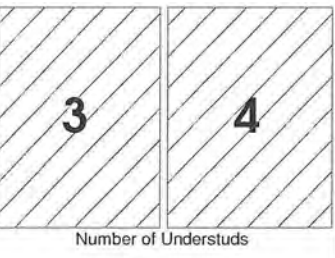
TYPE FS1 - 300mm Strip footing



TYPE FP2 - 450x450mm Pad

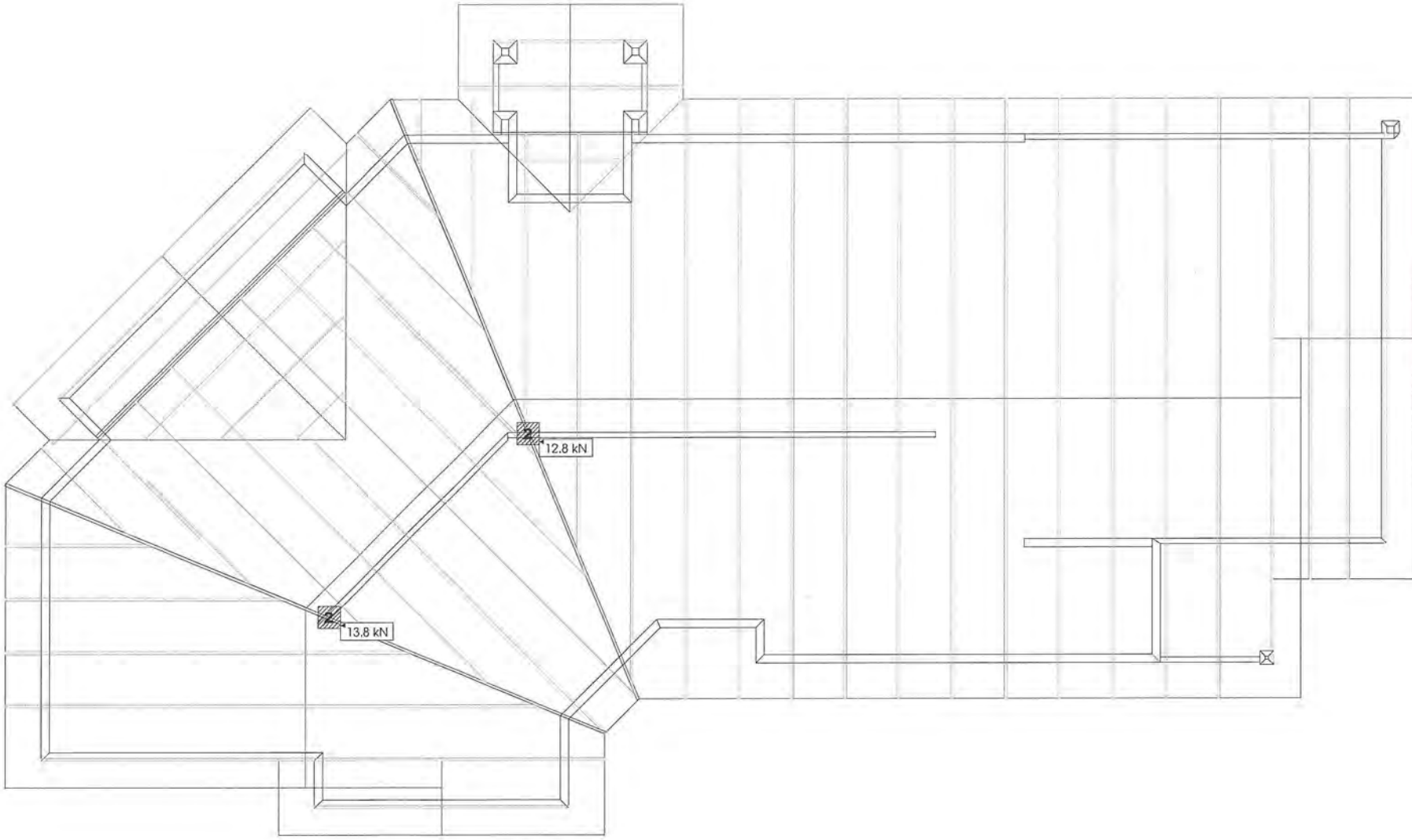


TYPE FS2 - 450mm Strip footing



**NOTES:**  
All point loads exceeding 10.0kN are indicated.  
All walls shown to be considered load bearing.  
The numbers found within the hatched area are the number of studs required below each truss. Refer to:  
GANG-NAIL Internal Load Bearing on Concrete Floor Slabs brochure 10/2011

Layout is null and void if trusses not supplied by PlaceMakers

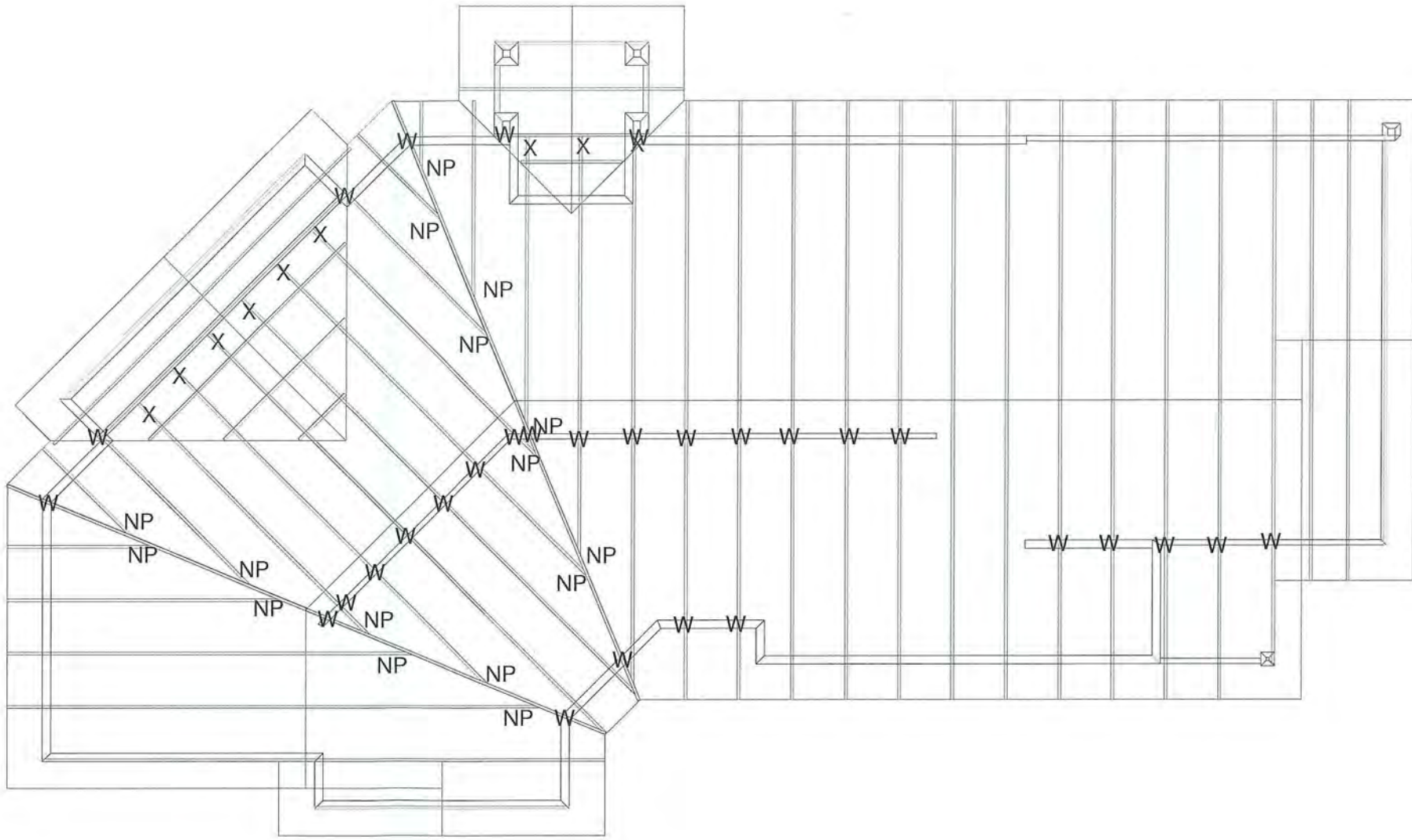


**NO SLAB THICKENING REQUIRED FOR TRUSS LOADS  
ALL OTHER THICKENINGS SPECIFIED BY DESIGNER**

# Truss Fixings

- X - LUMBERLOK JH47x90 Joist Hanger
- Z - LUMBERLOK JH47x120 Joist Hanger
- P - LUMBERLOK JH47x190 Joist Hanger
- E - LUMBERLOK JH95x165 Joist Hanger
- O - Pair of LUMBERLOK CT200 Ceiling Ties
- H - LUMBERLOK CT400 Cyclone Tie
- B - LUMBERLOK CT600 Cyclone Tie
- M - Pair of LUMBERLOK Multi Grips
- NP - LUMBERLOK Nailon Plate
- N - LUMBERLOK N21 Diagonal Cleat
- W - Pair of LUMBERLOK CPC40 Cleats
- K - LUMBERLOK TTP 16kN Truss to Top Plate set
- G - LUMBERLOK TTP 9kN Truss to Top Plate set

Layout is null and void if trusses not supplied by PlaceMakers



**NOTES:**

All other areas must have at the minimum  
2/ 90x3.15mm skew nails + 2 wire dogs (4.7kN)  
for truss to top plate connections.

Refer to:  
LUMBERLOK Timber Connectors Characteristic  
Loadings Data brochure 03/4

## LINTEL FIXING SCHEDULE

ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12

NZS 3604:2011

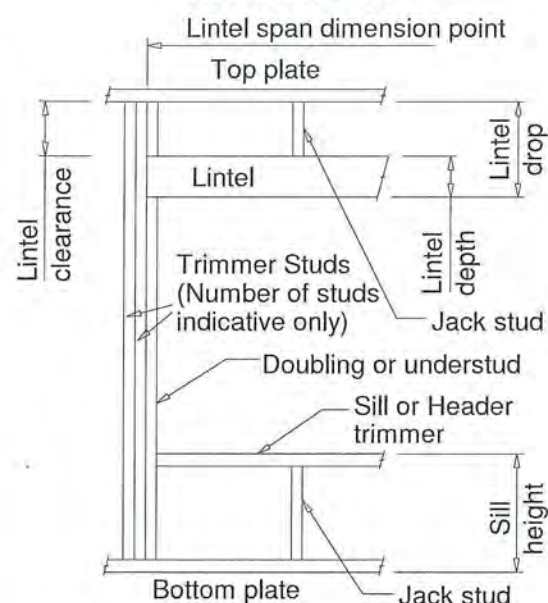
### NOTE:

- ★ All fixings are designed for vertical loads only. Dead loads include the roof weight and standard ceiling weight of 0.20 kPa.
- ★ Refer to Table 8.19 NZS 3604:2011 for nailing schedule to resist horizontal loads.
- ★ These fixings assume the correct choice of rafter/truss to top plate connections have been made.
- ★ All fixings assume bottom plate thickness of 45mm maximum. Note: TYLOK options on timber species.
- ★ Wall framing arrangements under girder trusses are not covered in this schedule.
- ★ All timber selections are as per NZS 3604:2011

### SELECTION CHART FOR LINTEL FIXING

| Lintel Span | Loaded Dimension<br>(See Fig. 1.3 NZS 3604:2011) | Light Roof Wind Zone |   |   |    |    | Heavy Roof Wind Zone |   |   |    |    |
|-------------|--------------------------------------------------|----------------------|---|---|----|----|----------------------|---|---|----|----|
|             |                                                  | L                    | M | H | VH | EH | L                    | M | H | VH | EH |
| 1.0         | 2.0                                              | E                    | E | F | F  | F  | E                    | E | F | F  | F  |
|             | 3.0                                              | E                    | E | F | F  | F  | E                    | E | F | F  | F  |
|             | 4.0                                              | E                    | F | F | F  | G  | E                    | E | F | F  | F  |
|             | 5.0                                              | E                    | F | F | G  | G  | E                    | E | F | F  | G  |
|             | 6.0                                              | E                    | F | F | G  | G  | E                    | E | F | F  | G  |
| 1.2         | 2.0                                              | E                    | E | F | F  | F  | E                    | E | F | F  | F  |
|             | 3.0                                              | E                    | E | F | F  | F  | E                    | E | F | F  | F  |
|             | 4.0                                              | E                    | F | F | G  | G  | E                    | E | F | F  | G  |
|             | 5.0                                              | E                    | F | F | G  | G  | E                    | E | F | F  | G  |
|             | 6.0                                              | F                    | F | G | G  | H  | E                    | E | F | F  | G  |
| 1.5         | 2.0                                              | E                    | E | F | F  | F  | E                    | E | F | F  | F  |
|             | 3.0                                              | E                    | F | F | G  | G  | E                    | E | F | F  | G  |
|             | 4.0                                              | E                    | F | F | G  | G  | E                    | E | F | F  | G  |
|             | 5.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 6.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
| 2.0         | 2.0                                              | E                    | F | F | F  | G  | E                    | E | F | F  | F  |
|             | 3.0                                              | E                    | F | F | G  | G  | E                    | E | F | F  | G  |
|             | 4.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 5.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 6.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
| 2.4         | 2.0                                              | E                    | F | F | G  | H  | E                    | E | F | F  | G  |
|             | 3.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 4.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 5.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 6.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
| 3.0         | 2.0                                              | E                    | F | F | G  | H  | E                    | E | F | F  | G  |
|             | 3.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 4.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 5.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 6.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
| 3.6         | 2.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 3.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 4.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 5.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 6.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
| 4.2         | 2.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 3.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 4.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 5.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 6.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
| 4.5         | 2.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 3.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 3.4                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 4.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 5.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
| 4.8         | 2.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 3.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 3.2                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 4.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 5.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
| 5.1         | 2.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 3.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 3.5                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 4.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 5.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
| 5.4         | 2.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 2.8                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 3.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 4.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |
|             | 5.0                                              | F                    | F | G | H  | H  | E                    | E | F | F  | G  |

### DEFINITIONS



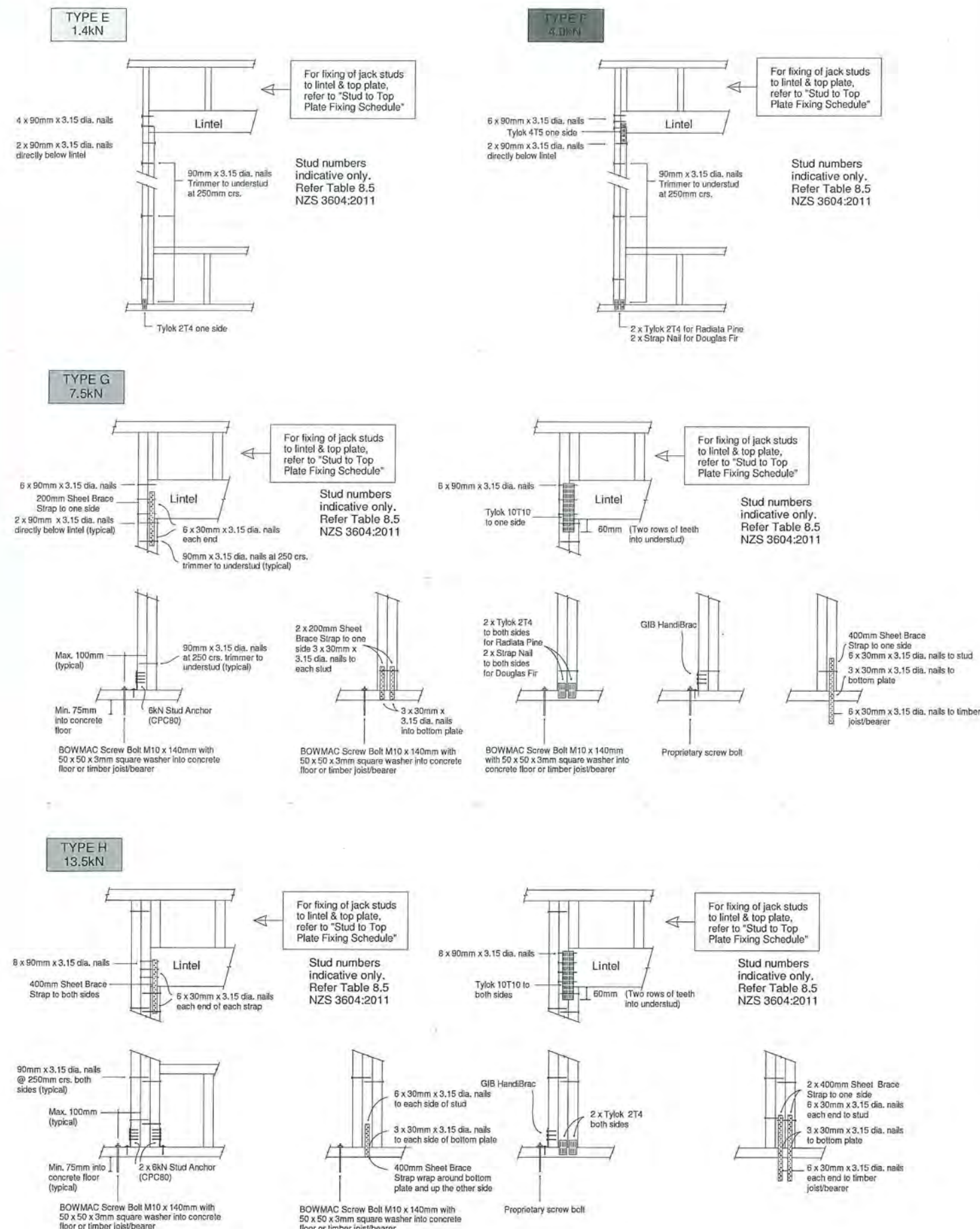
### Lintel Supporting Girder Trusses:

| Roof Tributary Area | Light Roof Wind Zone |    |    | Heavy Roof Wind Zone |    |    |
|---------------------|----------------------|----|----|----------------------|----|----|
|                     | L, M, H              | VH | EH | L, M, H              | VH | EH |
| 8.6 m²              | G                    | G  | H  | G                    | G  | H  |
| 11.6 m²             | G                    | H  | H  | G                    | G  | H  |
| 12.1 m²             | G                    | H  | H  | G                    | H  | H  |
| 15.3 m²             | H                    | H  | -  | G                    | H  | H  |
| 19.1 m²             | H                    | -  | -  | G                    | H  | -  |
| 20.9 m²             | H                    | -  | -  | H                    | H  | -  |
| 21.8 m²             | H                    | -  | -  | H                    | -  | -  |
| 34.3 m²             | -                    | -  | -  | H                    | -  | -  |

### Notes:

- 1) Roof Tributary Area = approx. 1/2 x (Total roof area on girder and rafter trusses supported by lintel)
- 2) Assumed girder truss is at mid-span or middle third span of lintel
- 3) Use similar fixings for both ends of lintel
- 4) All other cases require specific engineering design.

### LINTEL FIXING OPTIONS





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

Printed: 13:42:38 24 May

MiTek 20/20 Engineering 4.7.291.0

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

SUED BY: MiTek New Zealand Limited  
BY: Placemakers National Estimating Unit (NEU)  
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 **147847** 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

on reasonable grounds believe 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: Thursday, 24 May 2018

Ling Ng, BE (Hons), CPEng, IntPE, MIPENZ (ID: 146585)  
TECHNICAL SERVICES MANAGER, MiTek New Zealand Limited

## MITEK FABRICATOR DESIGN STATEMENT

This statement is issued by MiTek accredited fabricator **Placemakers National Estimating Unit (NEU)**, being licensed to use the MiTek 20/20® software, to the client listed above and may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

### Tek 20/20® TRUSS DESIGN DATA

This 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.

|                                        |                                      |                                                 |
|----------------------------------------|--------------------------------------|-------------------------------------------------|
| <b>Details</b>                         | Importance Level : 2                 | Design Working Life : 50 years                  |
| <b>Roof Truss</b>                      |                                      |                                                 |
| Timber Group: NEU-H1.2                 | Pitch: 25.000 deg                    | Nominal Overhang: 600 mm                        |
| <b>Roof</b>                            | <b>Ceiling</b>                       | <b>Wind</b>                                     |
| Material: Longrun Iron .5mm            | Material: Rondo on clips             | Area: High (44.0 m/s )                          |
| Dead Load: 0.600 kPa                   | Dead Load: 0.200 kPa                 | Pressure Coeff: Cpe = varies; Cpi = -0.30, 0.20 |
| Restraints: 900 mm centres             | Restraints: 1800 mm centres          |                                                 |
| Live Load: Q <sub>ur</sub> = 0.250 kPa | Live Load: Q <sub>c</sub> = 1.400 kN |                                                 |
| Q <sub>c</sub> = 1.100 kN              |                                      |                                                 |

A 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.

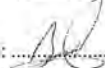
### Tek® Truss List

Legend: \* = detail only, ? = input only, ~~xxx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral bracing required  
GB = gable brace required

| ISS | Qty | Span (mm) | Pitch (deg) | Spacing (mm) | Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) | Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) |
|-----|-----|-----------|-------------|--------------|-------|-----|-----------|-------------|--------------|-------|-----|-----------|-------------|--------------|
| 01  | 1   | 5850      | 25.000      | 900          | T11   | 1   | 2722      | 25.000      | 900          | V03   | 1   | 1086      | 25.000      | 900          |
| 02  | 1   | 2600      | 25.000      | 900          | T12   | 1   | 550       | 25.000      | 900          | V04   | 1   | 1700      | 25.000      | 900          |
| 03  | 1   | 4300      | 25.000      | 900          | T13   | 2   | 6900      | 25.000      | 900          | GT01  | 1   | 9653      | 23.307      | 900          |
| 04  | 1   | 6900      | 25.000      | 900          | T14   | 1   | 1521      | 25.000      | 900          | GT02  | 1   | 9653      | 23.307      | 900          |
| 1   | 1   | 5850      | 25.000      | 900          | T15   | 1   | 3523      | 25.000      | 900          | GT04  | 1   | 2600      | 25.000      | 900          |
| 2   | 1   | 2600      | 25.000      | 900          | T16   | 1   | 5526      | 25.000      | 900          | T03A  | 1   | 8900      | 25.000      | 900 GB       |
| 3   | 2   | 8900      | 25.000      | 900          | T17   | 1   | 7529      | 25.000      | 900          | T03B  | 2   | 8900      | 25.000      | 900          |
| 4   | 1   | 8413      | 25.000      | 900          | T18   | 1   | 8936      | 25.000      | 900          | T03C  | 2   | 8900      | 25.000      | 900          |
| 5   | 1   | 6240      | 25.000      | 900          | T19   | 1   | 7421      | 25.000      | 900          | T03D  | 3   | 8900      | 25.000      | 900          |
| 5   | 1   | 4067      | 25.000      | 900          | T20   | 1   | 5418      | 25.000      | 900          | T03E  | 2   | 8900      | 25.000      | 900          |
| 7   | 1   | 1894      | 25.000      | 900          | T21   | 1   | 3415      | 25.000      | 900          | T03F  | 1   | 8900      | 25.000      | 900 GB       |
| 3   | 1   | 8802      | 25.000      | 900          | T22   | 1   | 1412      | 25.000      | 900          | T18A  | 1   | 8936      | 25.000      | 900          |
| 3   | 1   | 7068      | 25.000      | 900          | V01   | 1   | 4686      | 25.000      | 900          | GT03  | 1D  | 5850      | 25.000      | 900          |
| 3   | 1   | 4895      | 25.000      | 900          | V02   | 1   | 2886      | 25.000      | 900          |       |     |           |             |              |

total quantity : 48

The computer design input has been carried out by:

Designed: 

Name of Detailer: Darren Perry

On behalf of:

Placemakers National Estimating Unit (NEU)

Date: ...Thursday, 24 May 2018....

Qualifications and Title: Estimator

Job No: 18-00147847  
Job Name: G.K Pata Family Trust

Client: G J Gardner  
Building Consent No:

Site: 2 Lamont Place

**DESIGN STATEMENT**  
**MiTek Beam Program v1.11 September 2017**

**Certification of MiTek Beam Program v1.11 September 2017**

The MiTek Beam Program v1.11 September 2017 has been developed by MiTek New Zealand Ltd for the design of these beams: Timber, Glulam, GANGLAM and GANG-NAIL FLITCH BEAMS. The beam designs calculated by this program are prepared using sound and widely accepted engineering principles, and in accordance with Compliance Documents of the New Zealand Building Code and Verification Method B1/VM1 to satisfy the requirements of Clause B1 of the Building Code. We believe on reasonable grounds that these beams for the proposed building, if constructed in accordance with the drawings, specifications and other documents provided will comply with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements; the provision of adequate bracing and fixings; and the correct input of design data carried out by suitably trained personnel. This document may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

**Summary of MiTek Beam Program v1.11 September 2017 Data and Output**

**Roof**  
Weight: light + ceiling  
Dead Load: 0.45 kPa  
Live Load: 0.25 kPa

**Wind**  
Area/Speed: high (44.0 m/s)  
  
**Snow**  
Area: 0 kPa

**Wall**  
Type: NA  
  
**Floor**  
Live Load: NA

**Beam List**

| Opening Label | Beam Material  | Beam Size | Beam Length | Design Status | Opening Label | Beam Material | Beam Size | Beam Length | Design Status |
|---------------|----------------|-----------|-------------|---------------|---------------|---------------|-----------|-------------|---------------|
| D01           | MSG8/VSG8      | 2/140x45  | 1400        | OKAY          |               |               |           |             |               |
| W01           | MSG8/VSG8      | 2/140x45  | 1500        | OKAY          |               |               |           |             |               |
| W02           | MSG8/VSG8      | 2/190x45  | 1500        | OKAY          |               |               |           |             |               |
| D03           | MSG8/VSG8      | 2/140x45  | 1800        | OKAY          |               |               |           |             |               |
| D04           | MSG8/VSG8      | 2/90x45   | 810         | OKAY          |               |               |           |             |               |
| W03           | MSG8/VSG8      | 2/140x45  | 1500        | OKAY          |               |               |           |             |               |
| D05           | MSG8/VSG8      | 2/190x45  | 1800        | OKAY          |               |               |           |             |               |
| D06           | MSG8/VSG8      | 2/190x45  | 2700        | OKAY          |               |               |           |             |               |
| D07           | MSG8/VSG8      | 2/140x45  | 1800        | OKAY          |               |               |           |             |               |
| W04           | MSG8/VSG8      | 2/240x45  | 2200        | OKAY          |               |               |           |             |               |
| W05           | MSG8/VSG8      | 2/90x45   | 600         | OKAY          |               |               |           |             |               |
| W06           | MSG8/VSG8      | 2/90x45   | 1200        | OKAY          |               |               |           |             |               |
| W07           | MSG8/VSG8      | 2/90x45   | 600         | OKAY          |               |               |           |             |               |
| W08           | MSG8/VSG8      | 2/90x45   | 1200        | OKAY          |               |               |           |             |               |
| W09           | MSG8/VSG8      | 2/90x45   | 600         | OKAY          |               |               |           |             |               |
| W10           | MSG8/VSG8      | 2/90x45   | 600         | OKAY          |               |               |           |             |               |
| D02           | GN Flitch Beam | FB30M     | 4800        | OKAY          |               |               |           |             |               |
| Int 01        | MSG8/VSG8      | 2/140x45  | 1450        | OKAY          |               |               |           |             |               |
| Beam 01       | MSG8/VSG8      | 2/90x45   | 1080        | OKAY          |               |               |           |             |               |
| Beam 02       | MSG8/VSG8      | 2/90x45   | 1080        | OKAY          |               |               |           |             |               |
| Beam 03       | MSG8/VSG8      | 2/190x45  | 2050        | OKAY          |               |               |           |             |               |

GANGLAM plating details indicated with RD (regular duty plating), HD (heavy duty plating) and SHD (super heavy duty plating)

The design input has been carried out by:

computer design input has been carried out by:

igned: 

me of Detailer: Darren Perry

behalf of:

Placemakers National Estimating Unit (NEU)

Date: ...Thursday, 24 May 2018....

Qualifications and Title: Estimator

# GIB EzyBrace® Bracing Software



## Demand Calculation Sheet

### Job Details

Name: G.K Pate Family Trust  
 Street and Number: 2 Lamont Place  
 Lot and DP Number: Lot 29  
 City/Town/District: Ferndale, Waikanae  
 Designer: BF  
 Company: Coastal Architecture  
 Date: Thursday, May 31, 2018

### Building Specification

Number of Storeys: 1  
 Floor Loading: 2 kPa  
 Foundation Type: Slab  
  
 Cladding Weight: **Single** Heavy  
 Roof Weight: Light  
 Room in Roof Space: No  
 Roof Pitch (degrees): 25  
 Roof Height above Eaves (m): 2.6  
 Building Height to Apex (m): 4.9  
 Ground to Lower Floor (m): 0.3  
  
 Average Stud Height (m): 2.4  
 Building Length (m): 22.65  
 Building Width (m): 11.7  
 Building Plan Area (m²): 197.2

### Building Location

Wind Zone = High

Earthquake Zone 3

Soil Type

D & E (Deep to Very Soft)

Annual Prob. of Exceedance: 1 in 500 (NZS3604:2011 Default)

### Bracing Units required for Wind

|              | Along | Across |
|--------------|-------|--------|
| Single Level | 601   | 1189   |

### Bracing Units required for Earthquake

|              | Along & Across |
|--------------|----------------|
| Single Level | 1579           |



## Single Level Along Resistance Sheet

Job Name: G.K Pate Family Trust

| Wind     | EQ   |
|----------|------|
| Demand   |      |
| 601      | 1579 |
| Achieved |      |

| Line | Element | Length (m) | Angle (degrees) | Stud Ht. (m) | Type    | Supplier | Wind BUs | EQ BUs | 1821 303% | 1693 107% |
|------|---------|------------|-----------------|--------------|---------|----------|----------|--------|-----------|-----------|
| A    | 1       | 0.90       |                 | 2.4          | GS1-N   | GIB®     | 57       | 53     |           |           |
|      | 2       | 0.85       |                 | 2.4          | GS1-N   | GIB®     | 53       | 50     |           |           |
|      | 3       | 0.85       |                 | 2.4          | GS1-N   | GIB®     | 53       | 50     |           |           |
|      | 6       | 0.60       |                 | 2.4          | GS1-N   | GIB®     | 34       | 35     |           |           |
|      | 7       | 0.60       |                 | 2.4          | GS1-N   | GIB®     | 34       | 35     |           |           |
|      |         |            |                 |              |         |          |          |        | 231 OK    | 224 OK    |
| B    | 1       | 2.10       | 45              | 2.4          | GS1-N   | GIB®     | 102      | 89     |           |           |
|      | 2       | 2.10       | 45              | 2.4          | GS1-N   | GIB®     | 102      | 89     |           |           |
|      | 3       | 5.50       |                 | 2.4          | GS2-NOM | GIB®     | 275      | 275    |           |           |
|      | 4       | 1.90       |                 | 2.4          | GS1-N   | GIB®     | 131      | 114    |           |           |
|      |         |            |                 |              |         |          |          |        | 611 OK    | 567 OK    |
| C    | 1       | 1.80       | 45              | 2.4          | GS1-N   | GIB®     | 88       | 76     |           |           |
|      | 2       | 0.60       |                 | 2.4          | GS1-N   | GIB®     | 34       | 35     |           |           |
|      | 3       | 0.60       |                 | 2.4          | GS1-N   | GIB®     | 34       | 35     |           |           |
|      | 4       | 2.10       |                 | 2.4          | GS1-N   | GIB®     | 145      | 126    |           |           |
|      | 5       | 5.00       |                 | 2.4          | GS1-N   | GIB®     | 345      | 300    |           |           |
|      |         |            |                 |              |         |          |          |        | 646 OK    | 573 OK    |
| D    | 1       | 1.80       |                 | 2.4          | GS1-N   | GIB®     | 124      | 108    |           |           |
|      | 2       | 0.90       |                 | 2.4          | GS1-N   | GIB®     | 57       | 53     |           |           |
|      | 3       | 0.80       |                 | 2.4          | EP1 0.6 | Ecoply   | 76       | 84     |           |           |
|      | 4       | 0.80       |                 | 2.4          | EP1 0.6 | Ecoply   | 76       | 84     |           |           |
|      |         |            |                 |              |         |          |          |        | 333 OK    | 329 OK    |



## Single Level Across Resistance Sheet

Job Name: G.K Pate Family Trust

| Wind     | EQ   |
|----------|------|
| Demand   |      |
| 1189     | 1579 |
| Achieved |      |

| Line | Element | Length (m) | Angle (degrees) | Stud Ht. (m) | Type    | Supplier | Wind BUs | EQ BUs | 1696 143% | 1630 103% |
|------|---------|------------|-----------------|--------------|---------|----------|----------|--------|-----------|-----------|
| M    | 1       | 1.00       | 45              | 2.4          | EP1 0.6 | Ecopy    | 67       | 74     |           |           |
|      | 2       | 1.00       |                 | 2.4          | GS1-N   | GIB®     | 65       | 60     |           |           |
|      | 3       | 1.00       |                 | 2.4          | GS1-N   | GIB®     | 65       | 60     |           |           |
|      |         |            |                 |              |         |          |          |        |           | 197 OK    |
| N    | 1       | 1.00       | 45              | 2.4          | EP1 0.6 | Ecopy    | 67       | 74     |           |           |
|      | 2       | 2.00       |                 | 2.4          | GS1-N   | GIB®     | 98       | 85     |           |           |
|      | 3       | 0.80       |                 | 2.4          | EP1 0.6 | Ecopy    | 76       | 84     |           |           |
|      |         |            |                 |              |         |          |          |        |           | 241 OK    |
| O    | 1       | 1.40       |                 | 2.4          | EP1 1.2 | Ecopy    | 168      | 189    |           |           |
|      | 2       | 1.50       |                 | 2.4          | EP1 1.2 | Ecopy    | 180      | 203    |           |           |
|      |         |            |                 |              |         |          |          |        |           | 348 OK    |
| P    | 1       | 3.70       |                 | 2.4          | GS1-N   | GIB®     | 255      | 222    |           |           |
|      | 2       | 0.60       |                 | 2.4          | GS1-N   | GIB®     | 34       | 35     |           |           |
|      |         |            |                 |              |         |          |          |        |           | 290 OK    |
| Q    | 1       | 3.90       |                 | 2.4          | GS1-N   | GIB®     | 269      | 234    |           |           |
|      | 2       | 2.20       |                 | 2.4          | GS1-N   | GIB®     | 152      | 132    |           |           |
|      |         |            |                 |              |         |          |          |        |           | 421 OK    |
| R    | 1       | 2.40       |                 | 2.4          | GS1-N   | GIB®     | 166      | 144    |           |           |
|      | 2       | 0.60       |                 | 2.4          | GS1-N   | GIB®     | 34       | 35     |           |           |
|      |         |            |                 |              |         |          |          |        |           | 200 OK    |

## Custom Wall Elements

| Supplier  | System  | Min. Length<br>m | Wind<br>BUs/m | EQ<br>BUs/m |
|-----------|---------|------------------|---------------|-------------|
| Ecoply    | EP1 0.4 | 0.4              | 80            | 95          |
| Ecoply    | EP1 0.6 | 0.6              | 95            | 105         |
| Ecoply    | EP1 1.2 | 1.2              | 120           | 135         |
| Ecoply    | EPG 0.4 | 0.4              | 100           | 115         |
| Ecoply    | EPG 1.2 | 1.2              | 150           | 150         |
| RAB Board | JHD 0.4 | 0.4              | 83            | 107         |
| RAB Board | JHD 0.6 | 0.6              | 99            | 107         |
| RAB Board | JHD 1.2 | 1.2              | 154           | 140         |
| RAB Board | JHD 2.4 | 2.4              | 135           | 150         |
| Egger RAB | OSB 0.6 | 0.6              | 90            | 101         |
| Egger RAB | OSB 1.2 | 1.2              | 131           | 118         |
| Egger RAB | OSB 2.4 | 2.4              | 141           | 116         |
| Portal    | Steel   | 1                | 500           | 500         |
|           |         |                  |               |             |
|           |         |                  |               |             |

J0020



## Pate - 2 Lamont Place, Ferndale, Waikanae

### Insulation Calculations

Calculation Method  
Zone 2

#### Reference Building Heat Loss

| Building Thermal Envelope | Area (m2) | R-value | Heat Loss (Area/R-value) |
|---------------------------|-----------|---------|--------------------------|
| Roof                      | 152       | 2.9     | 52.4                     |
| Walls (including garage)  | 130       | 1.9     | 68.4                     |
| Floor (including garage)  | 152       | 1.3     | 116.9                    |
| Glazing ≤ 30%             | 33        | 0.26    | 126.9                    |
| Glazing > 30%             | 0         | 0.31    | 0.0                      |
| Skylights                 | 0         | 0.31    | 0.0                      |

Total Heat Loss of Reference Building 364.7

#### Proposed Building Heat Loss

| Building Thermal Envelope              | Area (m2) | R-value | Heat Loss (Area/R-value) |
|----------------------------------------|-----------|---------|--------------------------|
| Roof - flat ceiling (including garage) | 152       | 4.29    | 35.4                     |
| Walls - Brick (excluding garage)       | 39        | 3.37    | 11.6                     |
| Walls - Linea (excluding garage)       | 91        | 3.36    | 27.1                     |
| Floor - Ribraft                        | 152       | 2.05    | 74.1                     |
| Glazing ≤ 30%                          | 33        | 0.26    | 126.9                    |

Total Heat Loss of Proposed Building 275.2

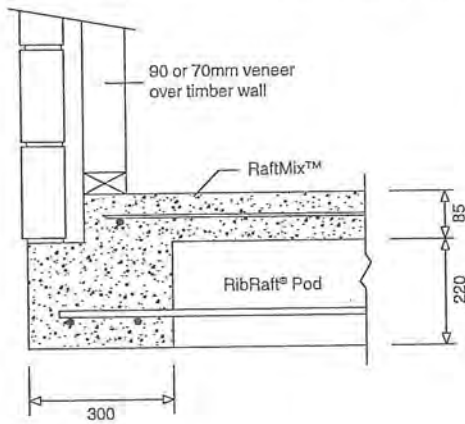
#### Summary

|         |                              |      |
|---------|------------------------------|------|
| Roof    | R5.0 Batts                   | 17   |
| Walls   | R4.0 Batts                   | 29.7 |
| Floor   | Ribraft                      | 42.8 |
| Glazing | All Seasons thermally broken | 0    |

Total Heat Gain 89.5

## SOLUTION 3

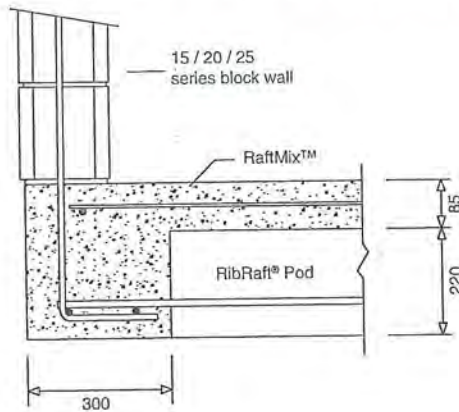
### RibRaft® Floors with a 90mm Timber Frame and 70-90mm Veneer Wall with Cavity



|                                | Floor Area To Perimeter Ratio m <sup>2</sup> /m |      |      |      |      |      |      |      |      |      |
|--------------------------------|-------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                                | 1.25                                            | 1.50 | 1.75 | 2.00 | 2.25 | 2.50 | 2.75 | 3.00 | 3.50 | 4.00 |
| R-value<br>m <sup>2</sup> °C/W | 1.54                                            | 1.67 | 1.80 | 1.93 | 2.05 | 2.17 | 2.28 | 2.40 | 2.62 | 2.84 |

## SOLUTION 4

### RibRaft® Floors with a Firth Standard or HotBloc® Masonry External Wall



|                                | Block     | Floor Area To Perimeter Ratio m <sup>2</sup> /m |      |      |      |      |      |      |      |      |      |
|--------------------------------|-----------|-------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                                |           | 1.25                                            | 1.50 | 1.75 | 2.00 | 2.25 | 2.50 | 2.75 | 3.00 | 3.50 | 4.00 |
| R-value<br>m <sup>2</sup> °C/W | 15 series | 1.48                                            | 1.60 | 1.73 | 1.85 | 1.96 | 2.08 | 2.19 | 2.30 | 2.51 | 2.72 |
|                                | 20 series | 1.54                                            | 1.67 | 1.80 | 1.93 | 2.05 | 2.17 | 2.28 | 2.40 | 2.62 | 2.84 |
|                                | 25 series | 1.59                                            | 1.73 | 1.86 | 1.99 | 2.12 | 2.24 | 2.37 | 2.49 | 2.72 | 2.95 |

## SOLUTION 5

### RibRaft® Heated Floors

Where in-floor heating is used, the combination of RaftMix™ and RibRaft® pods ensures that  $(R_{IN})/(R_{OUT})$  is always less than 0.1. The R-value of the floor can

be established from the above tables. The Building Code requires that the floor has a R-value not less than 1.9 m<sup>2</sup> °C/W.



## 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: Wall: Timber Frame with vented Cavity                                         |  |                                                                                     |                    |
| Timber Frame with vented Cavity                                                     |  | <a href="#">view detail</a>                                                         |                    |
| external surface 0.03                                                               |  |                                                                                     |                    |
| Cladding :                                                                          |  | 70mm brick                                                                          |                    |
| R-value: 0.06                                                                       |  |                                                                                     |                    |
| Air Barrier :                                                                       |  | Building paper                                                                      |                    |
| R-value: 0.01                                                                       |  |                                                                                     |                    |
| Timber Frame & Cavity :                                                             |  | 144mm, 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 :                                                                           |  | Pink@Batts@ R4.0 140mm Wall                                                         | 4                  |
| R-value: 1.19                                                                       |  | still Airgap: 20-90mm airgap (non-reflective)                                       |                    |
|                                                                                     |  | R-value: 0.16                                                                       |                    |
| 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 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)                                                             |  | 3.36                                                                                | 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 :                                                                          |  | Linea weatherboard                                                                  |                    |
| R-value: 0.04                                                                       |  |                                                                                     |                    |
| Air Barrier :                                                                       |  | Building paper                                                                      |                    |
| R-value: 0.01                                                                       |  |                                                                                     |                    |
| Timber Frame & Cavity :                                                             |  | 144mm, 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 :                                                                           |  | Pink®Batts® R4.0 140mm Wall                                                         | 4                  |
| R-value: 1.19                                                                       |  | still Airgap: 20-90mm airgap (non-reflective)                                       |                    |
| R-value: 0.16                                                                       |  |                                                                                     |                    |
| 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)

|                     | Zone 1 | Zone 2 | Zone 3 |
|---------------------|--------|--------|--------|
| Roof                | R-2.9  | R-2.9  | R-3.3  |
| Wall                | R-1.9  | R-1.9  | R-2.0  |
| Floor               | R-1.3  | R-1.3  | R-1.3  |
| Glazing (vertical)  | R-0.26 | R-0.26 | R-0.26 |
| Glazing (skylights) | R-0.26 | R-0.26 | R-0.31 |

Australian Building Code Targets

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



## Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

Some of the possible material combinations may not be suitable for actual constructions, i.e. EPS based claddings directly fixed on timber framing. Please make sure to select only appropriate material combinations.

If your construction is not listed, please send an e-mail to [designnavigator@gmail.com](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)                                                                                                 | 4.29                               | m <sup>2</sup> C/W                   |
| Type: <b>Roof: Timber framed Roof, direct fixed or battened flat Ceiling</b> <input type="button" value="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 :                                                                                                               | Pink@Batts® Ultra R5.0 Ceiling 5   |                                      |
|                                                                                                                         | R-value: 0.75                      |                                      |
| 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]: |

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

|                     | Zone 1 | Zone 2 | Zone 3 |
|---------------------|--------|--------|--------|
| Roof                | R-2.9  | R-2.9  | R-3.3  |
| Wall                | R-1.9  | R-1.9  | R-2.0  |
| Floor               | R-1.3  | R-1.3  | R-1.3  |
| Glazing (vertical)  | R-0.26 | R-0.26 | R-0.26 |
| Glazing (skylights) | R-0.26 | R-0.26 | R-0.31 |

Australian Building Code Targets

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

Form 2A

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

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

**THE BUILDING**

Street address: **2 Lamont Place**

Suburb:

Town/City **Waikanae**

Postcode:

**THE OWNER**

Name(s): **G.J Gardner**

Mailing address:

Suburb:

PO Box/Private Bag:

Town/City:

Postcode:

Phone number:

Email address: **julianne.mollet@gjgardner.co.nz**

**BASIS FOR PROVIDING THIS MEMORANDUM**

|                                                                                           |                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I am providing this memorandum in my role as the: Please tick the option that applies (✓) |                                                                                                                                                                                                                                                       |
| <input type="checkbox"/>                                                                  | <b>sole</b> designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design myself – no other person will be providing any additional memoranda for the project                                                   |
| <input type="checkbox"/>                                                                  | <b>lead</b> designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and no other person will be providing any additional memoranda for the project |
| <input type="checkbox"/>                                                                  | <b>lead</b> designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the other designers will provide their own memoranda relating to their specific RBW design           |
| <input checked="" type="checkbox"/>                                                       | <b>specialist</b> designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work                                                |

**IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK (RBW)**

I, **Hamish Tennent Wells** carried out / supervised the following design work that is restricted building work

**PRIMARY STRUCTURE: B1**

| Design work that is restricted building work  | Description                                                       | Carried out/ supervised                                                                | Reference to plans and specifications |
|-----------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------|
| Tick (✓) if included<br>Cross (X) if excluded | [If appropriate, provide details of the restricted building work] | [Specify whether you carried out this design work or supervised someone else carrying] | [If appropriate, specify references]  |

|                                    |                                                                                   |                              |                                                                                                                     |
|------------------------------------|-----------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------|
|                                    |                                                                                   | <i>out this design work)</i> |                                                                                                                     |
| <b>Primary structure</b>           |                                                                                   |                              |                                                                                                                     |
| All RBW Design work relating to B1 |  |                              | ( ) Carried out<br>( ) Supervised                                                                                   |
| Foundations and subfloor framing   |  |                              | ( ) Carried out<br>( ) Supervised                                                                                   |
| Walls                              |  |                              | ( ) Carried out<br>( ) Supervised                                                                                   |
| Roof                               |  |                              | ( ) Carried out<br>( ) Supervised                                                                                   |
| Columns and beams                  |  |                              | ( ) Carried out<br>( ) Supervised                                                                                   |
| Bracing                            |  |                              | ( ) Carried out<br>( ) Supervised                                                                                   |
| Other                              |  | on site SW disposal          | ( ) Carried out<br>(  ) Supervised |

#### EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2

|                                                      |                                                                                     |  |                                   |
|------------------------------------------------------|-------------------------------------------------------------------------------------|--|-----------------------------------|
| All RBW design work relating to E2                   |  |  | ( ) Carried out<br>( ) Supervised |
| Damp proofing                                        |  |  | ( ) Carried out<br>( ) Supervised |
| Roof cladding or roof cladding system                |  |  | ( ) Carried out<br>( ) Supervised |
| Ventilation system (for example, subfloor or cavity) |  |  | ( ) Carried out<br>( ) Supervised |
| Wall cladding or wall cladding system                |  |  | ( ) Carried out<br>( ) Supervised |
| Waterproofing                                        |  |  | ( ) Carried out<br>( ) Supervised |
| Other                                                |  |  | ( ) Carried out<br>( ) Supervised |

#### FIRE SAFETY SYSTEMS: C1 – C6

|                                                                                                              |                                                                                     |  |                                   |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|-----------------------------------|
| Emergency warning systems, evacuation and fire service operation systems, suppression or control systems, or |  |  | ( ) Carried out<br>( ) Supervised |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|-----------------------------------|

|       |  |  |  |
|-------|--|--|--|
| other |  |  |  |
|-------|--|--|--|

**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.

## WAIVERS AND MODIFICATIONS

Waivers or modifications of the building code are required ( ) Yes ☒ No

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

| Clause                                                 | Waiver/modification required                                       |
|--------------------------------------------------------|--------------------------------------------------------------------|
| <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: <b>Hamish Tennent Wells</b>                                                                                                  | LBP or Registration number: 186323 |
| The practitioner is a: ( ) Design LBP ( ) Registered architect <input checked="" type="checkbox"/> Chartered professional engineer |                                    |
| Design Entity or Company (optional): <b>Hamish Wells Civil Engineer</b>                                                            |                                    |
| Mailing address (if different from below): <b>P O Box 188 Otaki 5512</b>                                                           |                                    |
| Street address / Registered office: <b>202 Otaki Gorge Road Otaki 5582</b>                                                         |                                    |
| Suburb: <b>NA</b>                                                                                                                  | Town/City: <b>Otaki</b>            |
| PO Box/Private Bag: <b>188</b>                                                                                                     | Postcode: <b>5512</b>              |
| Phone number: <b>0274 459 757</b>                                                                                                  | Mobile: <b>0274 459 757</b>        |
| After Hours:                                                                                                                       | Fax: <b>none</b>                   |
| Email address: <b>engenr@xtra.co.nz</b>                                                                                            | Website: <b>none</b>               |

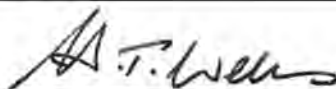
## DECLARATION

I **Hamish Tennent Wells** [name of practitioner], LBP,

state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code; or
- Complies with the building code subject to any waiver or modification of the building code recorded on this form.

Signature:



Date: **20/7/2018**

Building Code Clause(s) **B1 & 2, E1****PRODUCER STATEMENT – PS1 – DESIGN**

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

ISSUED BY: **Hamish Wells Consulting Civil Engineer**  
(Design Firm)TO: **G.J Gardner**  
(Owner/Developer)TO BE SUPPLIED TO: **Kapiti Coast District Council**  
(Building Consent Authority)IN RESPECT OF: **On Site SW Disposal to Ground**  
(Description of Building Work)AT: **2 Lamont Place**  
(Address)  
**Waikanae** **LOT** **DP** **SO**We have been engaged by the owner/developer referred to above to provide **Design & supervision**  
services in respect of the requirements of  
(Extent of Engagement)Clause(s) **E1, B1 & 2** of the Building Code for  
All ☐ or Part only ☒ (as specified in the attachment to this statement), of the proposed building work.

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

- ☒ Compliance Documents issued by the Ministry of Business, Innovation & Employment **VM1** or  
(verification method / acceptable solution)
- ☐ Alternative solution as per the attached schedule.

The proposed building work covered by this producer statement is described on the drawings titled **G.J Gardner OSSWD**  
**design at 2 Lamont Place, Ferndale, Waikanae** and numbered **1 - 2**;  
together with the specification, and other documents set out in the schedule attached to this statement.

**On behalf of the Design Firm, and subject to:**

- (i) Site verification of the following design assumptions
- (ii) All proprietary products meeting their performance specification requirements;

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

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

I, **Hamish Tennent Wells** am: ☒ CPEng **186323** #  
(Name of Design Professional)

☐ Reg Arch #

I am a Member of: ☒ IPENZ ☐ NZIA and hold the following qualifications: **NZCE Civil REA**  
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 ON BEHALF OF **Hamish Wells**  
(Design Firm)

Date **20/7/2018** (signature) *Hamish Wells*

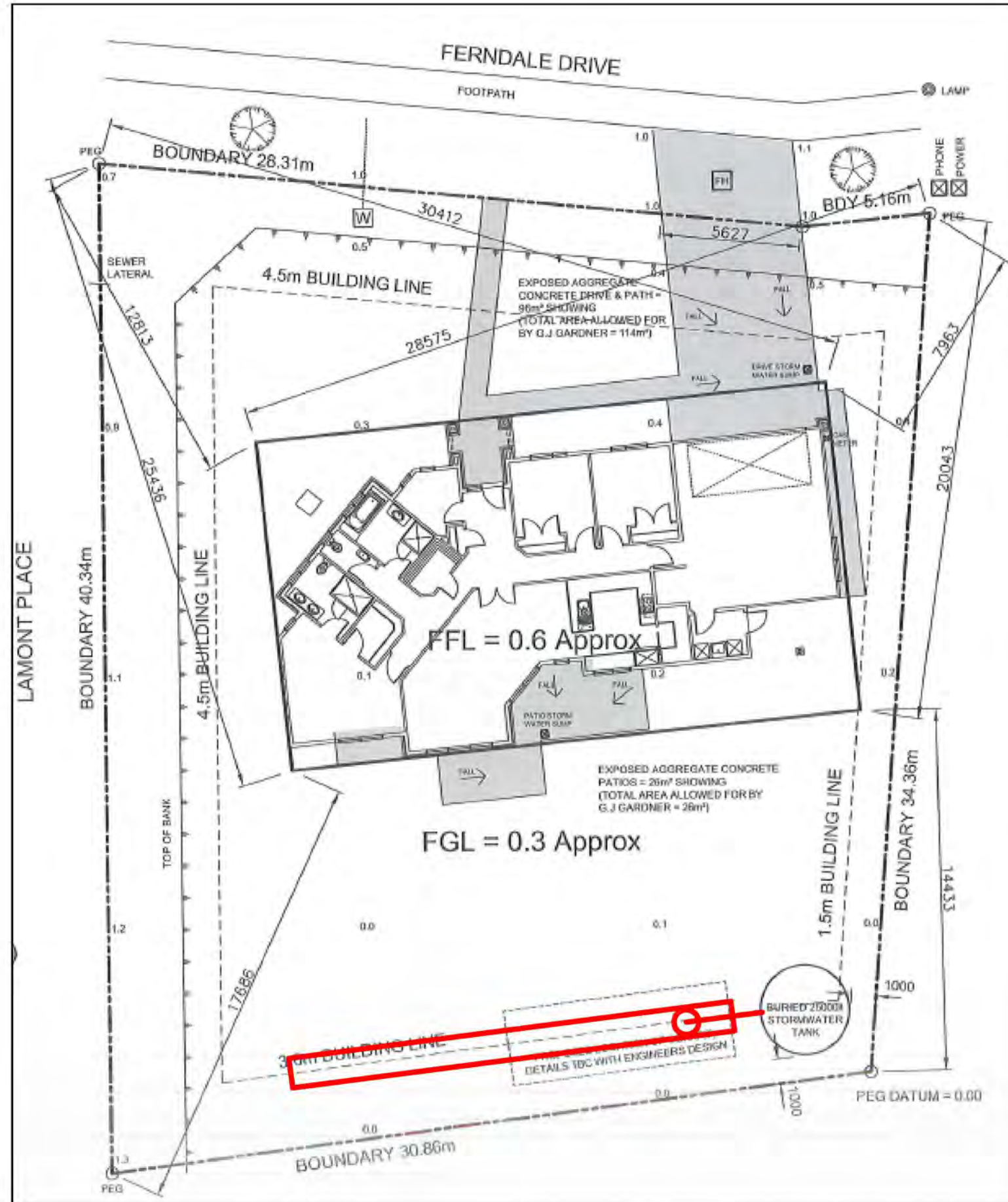
Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in 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

PROPOSED SOAK PIT - 18M LONG  
X 1.2M WIDE X 1.5M DEEP

CATCHMENT CALCULATIONS INCLUDE  
ROOF - 246M<sup>2</sup>  
DRIVEWAY - 114M<sup>2</sup>  
PATIO 26M<sup>2</sup>  
TOTAL - 386M<sup>2</sup>



POSSIBLE SOAK PIT LOCATION

G.J. GARDNER OSSWD DESIGN  
AT 2 LAMMONT PLACE  
FERNDAL WAIKANA

HAMISH WELLS  
CONSULTING CIVIL ENGINEER  
MIPENZ CPENG # 186323  
202 OTAKI GORGE  
ROAD RD2 OTAKI  
5582 NZ  
0274 459 757  
engem@xtra.co.nz

| REV | DATE      | DESCRIPTION      |
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JOB: CK PATE FAMILY TRUST  
DRAWN BY: DE  
CHK'D BY: HW  
DRAWING SCALE: 1:200  
SHEET TITLE: SITE PLAN

SHEET 1 OF 2



On site SW disposal by trench soakpit v11 2016

|                       |                |                          |                    |
|-----------------------|----------------|--------------------------|--------------------|
| Site                  | 2 Lamont Place | Regional Authority       | GWRC               |
| Client                | G.J Gardner    | Period of testing        | Autumn 2018        |
| Territorial Authority | KCDC           | Weather                  | Dry                |
| Topography            | Flat           | Groundwater observations | Nil                |
| Ground cover          | Grass          | Rainfall                 | 1000mm approx      |
| Geology               | Sand           | Site stability           | ok                 |
| Existing drainage     | none           |                          |                    |
| Soil data 1           |                | Category                 | test bore          |
| Sand                  |                | 2                        | EF depth           |
|                       |                |                          | 0.4                |
|                       |                |                          | test bore diameter |
|                       |                |                          | 0.2                |

Soil test percolation data

Note: only enter values in the yellow shaded cells!!!

| line | int min | elap time | water depth | change | diameter | area | V loss | Av depth | p surface | P <sub>i</sub> /m2/mn | test depth | Depth mm | Soil key | Bore data | Soil CAT |
|------|---------|-----------|-------------|--------|----------|------|--------|----------|-----------|-----------------------|------------|----------|----------|-----------|----------|
| 1    | 0       | 0.0       | 0.400       |        |          |      |        |          |           |                       | mm         |          |          |           |          |
| 2    | 1.0     | 1.000     | 0.320       | 0.080  | 0.20     | 0.03 | 2.513  | 0.36     | 0.2576    | 9.76                  |            |          |          |           |          |
| 3    | 1.0     | 2.000     | 0.260       | 0.060  | 0.20     | 0.03 | 1.885  | 0.29     | 0.2136    | 8.82                  |            |          |          |           |          |
| 4    | 1.0     | 3.000     | 0.210       | 0.050  | 0.20     | 0.03 | 1.571  | 0.24     | 0.1791    | 8.77                  |            |          |          |           |          |
| 5    | 1.0     | 4.000     | 0.170       | 0.040  | 0.20     | 0.03 | 1.257  | 0.19     | 0.1508    | 8.33                  |            |          |          |           |          |
| 6    | 1.0     | 5.000     | 0.135       | 0.035  | 0.20     | 0.03 | 1.100  | 0.15     | 0.1272    | 8.64                  |            |          |          |           |          |
| 7    | 5.0     | 10.000    | 0.045       | 0.090  | 0.20     | 0.03 | 2.827  | 0.09     | 0.0880    | 6.43                  |            |          |          |           |          |
| 8    | 5.0     | 15.000    | 0.000       | 0.045  | 0.20     | 0.03 | 1.414  | 0.02     | 0.0456    | 6.21                  |            |          |          |           |          |
| 9    | 5.0     | 20.000    | 0.000       | 0.000  | 0.20     | 0.03 | 0.000  | 0.00     | 0.0000    | #DIV/0!               |            |          |          |           |          |
| 10   | 10.0    | 30.000    | 0.000       | 0.000  | 0.20     | 0.03 | 0.000  | 0.00     | 0.0000    | #DIV/0!               |            |          |          |           |          |
| 11   |         | 30.000    | 0.000       | 0.000  | 0.20     | 0.03 | 0.000  | 0.00     | 0.0000    | #DIV/0!               |            |          |          |           |          |
| 12   |         | 30.000    | 0.000       | 0.000  | 0.20     | 0.03 | 0.000  | 0.00     | 0.0000    | #DIV/0!               |            |          |          |           |          |
| 13   |         | 30.000    | 0.000       | 0.000  | 0.20     | 0.03 | 0.000  | 0.00     | 0.0000    | #DIV/0!               |            |          |          |           |          |
| 14   |         | 30.000    | 0.000       | 0.000  | 0.20     | 0.03 | 0.000  | 0.00     | 0.0000    | #DIV/0!               |            |          |          |           |          |
| 15   |         | 30.000    | 0.000       | 0.000  | 0.20     | 0.03 | 0.000  | 0.00     | 0.0000    | #DIV/0!               |            |          |          |           |          |
| 16   |         | 30.000    | 0.000       | 0.000  | 0.20     | 0.03 | 0.000  | 0.00     | 0.0000    | #DIV/0!               |            |          |          |           |          |
| 17   |         | 30.000    | 0.000       | 0.000  | 0.20     | 0.03 | 0.000  | 0.00     | 0.0000    | #DIV/0!               |            |          |          |           |          |
| 18   |         | 30.000    | 0.000       | 0.000  | 0.20     | 0.03 | 0.000  | 0.00     | 0.0000    | #DIV/0!               |            |          |          |           |          |
| 19   |         | 30.000    | 0.000       | 0.000  | 0.20     | 0.03 | 0.000  | 0.00     | 0.0000    | #DIV/0!               |            |          |          |           |          |
| 20   |         | 30.000    | 0.000       | 0.000  | 0.20     | 0.03 | 0.000  | 0.00     | 0.0000    | #DIV/0!               |            |          |          |           |          |

|            |           |      |
|------------|-----------|------|
| sum P      | # results | av   |
| 40.99      | 5         | 8.20 |
| DF         |           | 0.25 |
| Des infill |           | 2.05 |

Average trench soakage is all the floor and half the side wall area

Soak pit design data

| line no. | runoff data         |                |                      |                      |                 |                  |       | soak pit data |              |               |                 |               | Pit                                          |                  |               |                          |                          | outputs                  |                             |                         |                       |                           |      |
|----------|---------------------|----------------|----------------------|----------------------|-----------------|------------------|-------|---------------|--------------|---------------|-----------------|---------------|----------------------------------------------|------------------|---------------|--------------------------|--------------------------|--------------------------|-----------------------------|-------------------------|-----------------------|---------------------------|------|
|          | storm return period | storm duration | C runoff coefficient | I rainfall intensity | A for catchment | Q surface runoff | QT    | perc rate     | trench width | trench length | effective depth | depth from GL | average infiltrative surface including floor | excavated volume | MH volume MHv | effective storage volume | effective storage volume | effective storage volume | Average trench soakage rate | storage volume required | Time for pit to empty | Is there enough storage?? |      |
|          |                     |                |                      |                      |                 |                  |       | p             | W            | L             | Ed              | D             |                                              |                  |               |                          |                          |                          |                             |                         |                       |                           |      |
|          |                     |                |                      |                      |                 |                  |       | 2.05          | 1.20         | 18.00         | 1.30            | 1.50          |                                              |                  |               |                          |                          |                          |                             |                         |                       |                           |      |
|          | years               | min            |                      | mm/hr                | m2              | l/s              | m3    | l/m2/min      | m            | m             | m               | m             | m2                                           | v                | m3            | m3                       | m3                       | m3                       | l/s                         | m3                      | hrs                   | T or F                    |      |
| 1        | 50                  | 10             | 0.98                 | 113.6                | 386             | 11.94            | 7.16  | 2.0           | 1.20         | 18.00         | 1.3             | 1.5           | 46.56                                        | 32.400           | 1.021         | 11.303                   | 0.000                    | 11.303                   | 1.59                        | 6.21                    | 1.08                  | TRUE                      |      |
| 2        |                     | 20             | 0.98                 | 78.5                 | 386             | 8.25             | 9.90  | 2.0           | 1.20         | 18.00         | 1.3             | 1.5           | 46.56                                        | 32.400           | 1.021         | 11.303                   | 0.000                    | 11.303                   | 1.59                        | 7.99                    | 1.40                  | TRUE                      |      |
| 3        |                     | 30             | 0.98                 | 64.1                 | 386             | 6.74             | 12.12 | 2.0           | 1.20         | 18.00         | 1.3             | 1.5           | 46.56                                        | 32.400           | 1.021         | 11.303                   | 0.000                    | 11.303                   | 1.59                        | 9.26                    | 1.62                  | TRUE                      |      |
| 4        |                     | 60             | 0.98                 | 43.1                 | 386             | 4.53             | 16.30 | 2.0           | 1.20         | 18.00         | 1.3             | 1.5           | 46.56                                        | 32.400           | 1.021         | 11.303                   | 0.000                    | 11.303                   | 1.59                        | 10.58                   | 1.85                  | TRUE                      |      |
| 5        |                     | 120            | 0.98                 | 29.2                 | 386             | 3.07             | 22.09 | 2.0           | 1.20         | 18.00         | 1.3             | 1.5           | 46.56                                        | 32.400           | 1.021         | 11.303                   | 0.000                    | 11.303                   | 1.59                        | 10.64                   | 1.86                  | TRUE                      |      |
| 6        |                     | 360            | 0.98                 | 16.2                 | 386             | 1.70             | 36.77 | 2.0           | 1.20         | 18.00         | 1.3             | 1.5           | 46.56                                        | 32.400           | 1.021         | 11.303                   | 0.000                    | 11.303                   | 1.59                        | 2.42                    | 0.42                  | TRUE                      |      |
| 7        |                     | 720            | 0.98                 | 10.0                 | 386             | 1.05             | 45.39 | 2.0           | 1.20         | 18.00         | 1.3             | 1.5           | 46.56                                        | 32.400           | 1.021         | 11.303                   | 0.000                    | 11.303                   | 1.59                        | -23.31                  | -                     | 4.07                      | TRUE |
| 8        |                     | 1440           | 0.98                 | 6.4                  | 386             | 0.67             | 58.10 | 2.0           | 1.20         | 18.00         | 1.3             | 1.5           | 46.56                                        | 32.400           | 1.021         | 11.303                   | 0.000                    | 11.303                   | 1.59                        | -79.31                  | -                     | 13.85                     | TRUE |

| duration | l/mm/hr by return period Kapiti |      |      |      |      |       |       |
|----------|---------------------------------|------|------|------|------|-------|-------|
|          | 1yr                             | 2yr  | 5yr  | 10yr | 20yr | 50yr  | 100yr |
| 10min    | 38.4                            | 50.4 | 70.7 | 84.0 | 97.0 | 113.6 | 126.1 |
| 20min    | 28.8                            | 37.4 | 50.5 | 59.3 | 67.7 | 78.5  | 86.5  |
| 30min    | 22.8                            | 29.8 | 40.7 | 48.0 | 55.5 | 64.1  | 70.8  |
| 1hr      | 15.8                            | 20.5 | 27.7 | 32.5 | 37.1 | 43.1  | 47.5  |
| 2hr      | 11.0                            | 14.3 | 19.1 | 22.2 | 25.3 | 29.2  | 32.3  |
| 6hr      | 6.4                             | 8.2  | 10.8 | 12.5 | 14.2 | 16.2  | 17.9  |
| 12hr     | 4.3                             | 5.4  | 6.8  | 7.9  | 8.8  | 10.0  | 10.8  |
| 24hr     | 2.6                             | 3.5  | 4.3  | 5.0  | 5.6  | 6.4   | 7.0   |

|           |            |       |
|-----------|------------|-------|
| Excavated | floor area | 21.6  |
| Ratio     | floor/wall | 0.464 |
| %         | floor/wall | 46.4  |
| Design    | SF         | 1.46  |

Trench perimeter 36

|                            |                 |          |       |     |    |
|----------------------------|-----------------|----------|-------|-----|----|
| area                       | house and paved | m2       | 386   | A   | 62 |
| length                     |                 | m        | 18.00 | L   | 63 |
| depth                      |                 | m        | 1.50  | D   | 64 |
| width                      |                 | m        | 1.20  | W   | 65 |
| design perc rate           |                 | l/m2/min | 2.05  | p   | 66 |
| effective depth in fil     |                 | m        | 1.30  | Edp | 67 |
| storage tank size          |                 | m3       | 0     | sTs | 68 |
| effective depth in storage |                 | m        | 1.30  | Eds | 69 |
| MHd                        |                 | m        | 1     | MHv | 70 |
| C                          |                 |          | 0.98  |     | 71 |
| # MH's                     |                 |          | 1     |     | 72 |
| Pit fill void ratio        |                 |          | 0.39  |     | 73 |
|                            |                 |          |       |     | 74 |

Hamish Wells  
CPEng #186323

| duration | l/mm/hr by return period 2100 Wanganui |      |      |      |       |       |       |
|----------|----------------------------------------|------|------|------|-------|-------|-------|
|          | 1yr                                    | 2yr  | 5yr  | 10yr | 20yr  | 50yr  | 100yr |
| 10min    | 51.6                                   | 72.6 | 85.8 | 99.0 | 116.4 | 129.0 |       |
| 20min    | 37.2                                   | 52.2 | 61.8 | 71.1 | 83.4  | 92.1  |       |
| 30min    | 29.6                                   | 41.6 | 49.6 | 57.2 | 66.8  | 74.0  |       |
| 1hr      | 19.4                                   | 26.5 | 31.3 | 36.0 | 41.9  | 46.4  |       |
| 2hr      | 12.2                                   | 15.9 | 18.3 | 20.6 | 23.7  | 26.0  |       |
| 6hr      | 6.1                                    | 7.8  | 8.8  | 9.9  | 11.2  | 12.3  |       |
| 12hr     | 3.9                                    | 4.7  | 5.5  | 6.2  | 7.0   | 7.6   |       |
| 24hr     | 2.4                                    | 3.1  | 3.6  | 4.1  | 4.7   | 5.2   |       |

| duration | l/mm/hr by return period Kimberly ex PB |      |      |      |       |       |       |
|----------|-----------------------------------------|------|------|------|-------|-------|-------|
|          | 1yr                                     | 2yr  | 5yr  | 10yr | 20yr  | 50yr  | 100yr |
| 10min    | 51.6                                    | 72.6 | 85.8 | 99.0 | 116.4 | 129.0 | 102.0 |
| 20min    | 37.2                                    | 52.2 | 61.8 | 71.1 | 83.4  | 92.1  | 72.0  |
| 30min    | 29.6                                    | 41.6 | 49.6 | 57.2 | 66.8  | 74.0  | 58.6  |
| 1hr      | 19.4                                    | 26.5 | 31.3 | 36.0 | 41.9  | 46.4  | 41.2  |
| 2hr      | 12.2                                    | 15.9 | 18.3 | 20.6 | 23.7  | 26.0  | 27.0  |
| 6hr      | 6.1                                     | 7.8  | 8.8  | 9.9  | 11.2  | 12.3  | 13.8  |
| 12hr     | 3.9                                     | 4.7  | 5.5  | 6.2  | 7.0   | 7.6   | 9.0   |
| 24hr     | 2.4                                     | 3.1  | 3.6  | 4.1  | 4.7   | 5.2   | 5.9   |

HMW Q100 plus GW

|       |
|-------|
| 119.1 |
| 84.1  |
| 68.4  |
| 48.1  |
| 31.5  |
| 16.1  |
| 10.5  |
| 6.9   |

# Hamish Wells

Civil Engineer

MIPENZ CPEng 186323

202 Otaki Gorge Road, Otaki  
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Hamish Wells - 0274 459 757  
James Winieti - 0274 549 009  
Steve Bright - 022 037 6315

Email: Engenr@xtra.co.nz

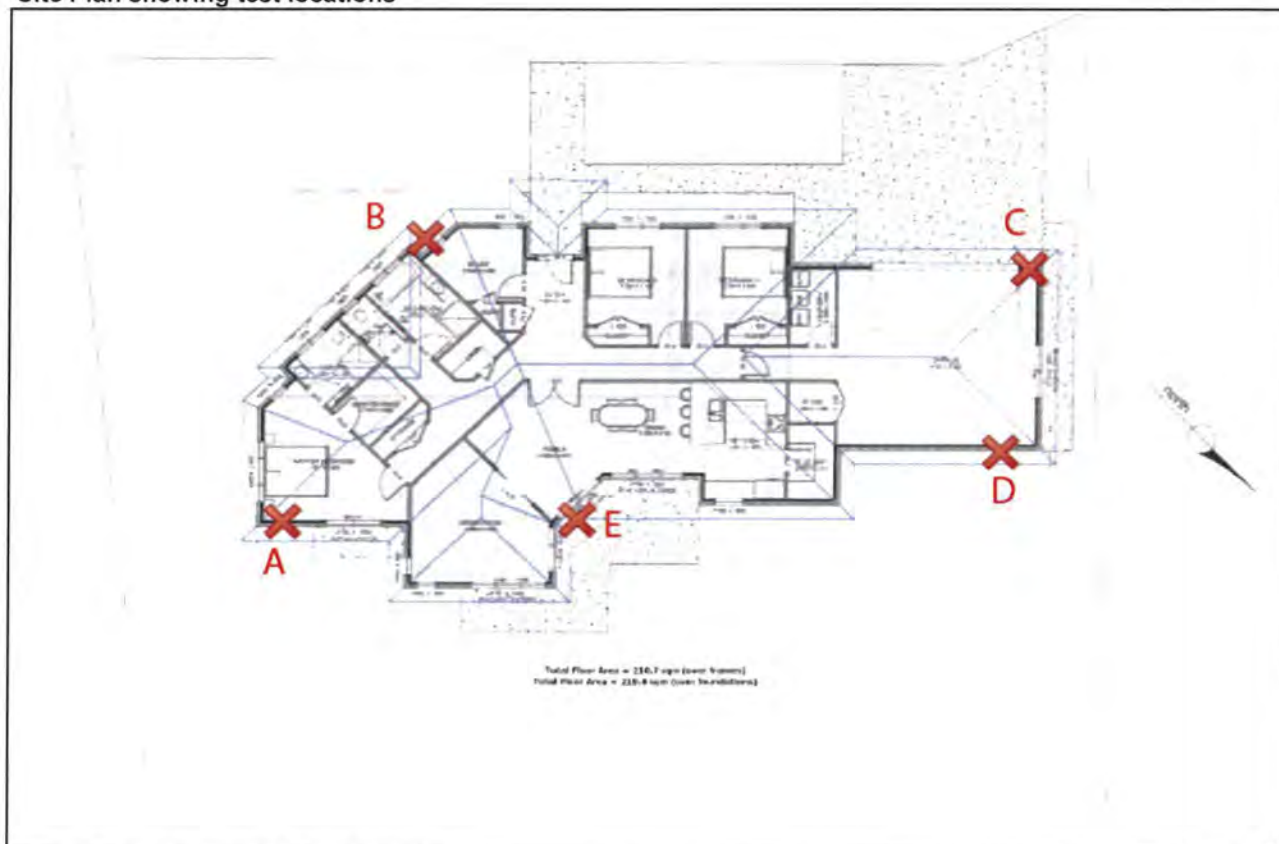
## Site suitability test report in terms of NZS 3604:2011 Timber framed buildings - Section 3 "Site requirements"

| Site Data |                   |    |      | Client Data |                              |
|-----------|-------------------|----|------|-------------|------------------------------|
| Date      | 15/02/2018        |    |      | Client      | Geoff Pate                   |
| Address   | 27 Ferndale Drive |    |      | Email       | Geoff.Pate@placemakers.co.nz |
| Town      | Waikanae          |    |      | Address     |                              |
| Post code |                   |    |      |             |                              |
| Legal     | Lot #             | 29 | DP # | 409302      |                              |
| TA        | KCDC              |    |      | Mobile      |                              |
| RA        | GWRC              |    |      | Landline    |                              |

|                    |     |
|--------------------|-----|
| Wind Zone          | H   |
| Corrosion zone     | C   |
| Earthquake zone    | 3   |
| Site subsoil class | D&E |

|                 |      |
|-----------------|------|
| Topography      | Flat |
| Basic soil type | Sand |
| NZGS data       | qa   |

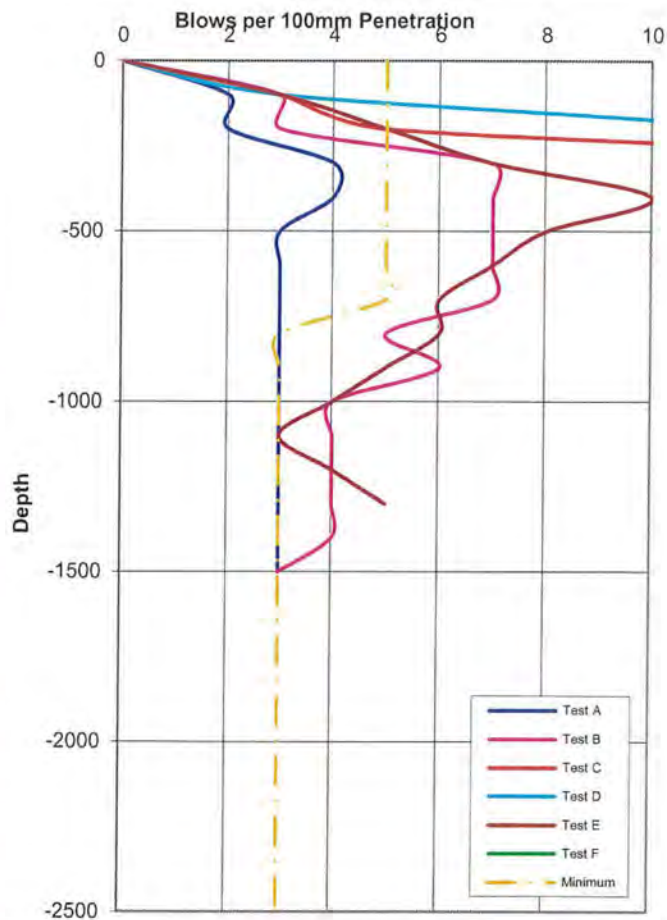
Site Plan showing test locations



## Tabulated and graphed Scala penetrometer data

|      |                   |
|------|-------------------|
| Site | 27 Ferndale Drive |
| Date | 15/02/2018        |
| By   | DE                |

| Depth | A | B | C  | D  | E  | F | min |
|-------|---|---|----|----|----|---|-----|
| 0     | 0 | 0 | 0  | 0  | 0  | 0 | 5   |
| -100  | 2 | 3 | 3  | 3  | 3  |   | 5   |
| -200  | 2 | 3 | 5  | 12 | 5  |   | 5   |
| -300  | 4 | 7 | 18 | 12 | 7  |   | 5   |
| -400  | 4 | 7 | 12 | 12 | 10 |   | 5   |
| -500  | 3 | 7 | 12 | 14 | 8  |   | 5   |
| -600  | 3 | 7 | 20 | 23 | 7  |   | 5   |
| -700  | 3 | 7 | 21 | 25 | 6  |   | 5   |
| -800  | 3 | 5 | 25 |    | 6  |   | 3   |
| -900  | 3 | 6 |    |    | 5  |   | 3   |
| -1000 | 3 | 4 |    |    | 4  |   | 3   |
| -1100 | 3 | 4 |    |    | 3  |   | 3   |
| -1200 | 3 | 4 |    |    | 4  |   | 3   |
| -1300 | 3 | 4 |    |    | 5  |   | 3   |
| -1400 | 3 | 4 |    |    |    |   | 3   |
| -1500 | 3 | 3 |    |    |    |   | 3   |
| -1600 |   |   |    |    |    |   | 3   |
| -1700 |   |   |    |    |    |   | 3   |
| -1800 |   |   |    |    |    |   | 3   |
| -1900 |   |   |    |    |    |   | 3   |
| -2000 |   |   |    |    |    |   | 3   |
| -2100 |   |   |    |    |    |   | 3   |
| -2200 |   |   |    |    |    |   | 3   |
| -2300 |   |   |    |    |    |   | 3   |
| -2400 |   |   |    |    |    |   | 3   |
| -2500 |   |   |    |    |    |   | 3   |



### 3.3.7 Ultimate bearing capacity

#### 3.3.7.1

The soil below the underside of the foundations shall be assumed to have an ultimate bearing capacity of not less than 300 kPa when:

- None of the following is encountered below the depth of the footing at any test site:
  - Organic topsoil
  - Soft or very soft peat
  - Soft or very soft clay
  - Fill material, except where a certificate of suitability has been issued under NZS 4431;
- Scala Penetrometer tests conducted in accordance with 3.3.2(a), where the number of blows per 100 mm depth of penetration below the underside of the proposed footing at each test site exceeds:
  - Five down to a depth equal to twice the width of the widest footing below the underside of the proposed footing;
  - Three at greater depths; and
  - Providing the set blow is relatively uniform, the number of blows per 100 mm may be obtained by averaging the number of blows for depths not exceeding 300 mm; and
- Comparisons of the results at all test sites show that soil conditions are closely similar at each test site.

# Test data analysis and comments for 3604:2011 type foundations systems

| Symbol | Meaning                     |
|--------|-----------------------------|
| Y      | Yes                         |
| N      | No                          |
| Blank  | Not applicable              |
| P      | Part                        |
| A      | All                         |
| SED    | Specific Engineering Design |

| Typical 3604:2011 compliant foundation systems |                     |                 |                |                  |
|------------------------------------------------|---------------------|-----------------|----------------|------------------|
| Timber subfloor                                |                     |                 | Slab on ground |                  |
| Standard piles                                 | Driven timber piles | Ring Foundation | 3604 Type      | Non SED Rib Raft |
| N                                              | N                   | N               | N              | Y                |

- 1 Do the test results comply with NZS 3604:2011 Section 3 Site requirements?

- 2 Reasons / causes of non compliance?

|    |                                          |   |   |   |   |  |
|----|------------------------------------------|---|---|---|---|--|
| a) | Peat or other organic materials          |   |   |   |   |  |
| b) | Clays or/and soft silts                  |   |   |   |   |  |
| c) | Shallow poorly consolidated sands        | Y | Y | Y | Y |  |
| d) | Deep poorly consolidated sands           |   |   |   |   |  |
| e) | Uncertified fills                        |   |   |   |   |  |
| f) | Unstable ground, adjacent slips, erosion |   |   |   |   |  |
| g) | Proximity to banks                       |   |   |   |   |  |
| h) | Ground water issues                      |   |   |   |   |  |
| i) | Other issues see summation para 7        |   |   |   |   |  |

- 3 Is specific foundation design required ?

|    |                  |   |   |   |   |   |
|----|------------------|---|---|---|---|---|
| a) | Part of the site |   |   |   |   |   |
| b) | All of the site  | Y | Y | Y | Y | N |

- 4 Can the site soils be mechanically stabilised to provide a complying site?

|    |                                                                                                        |  |  |  |  |  |
|----|--------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| a) | Required digout depth mm                                                                               |  |  |  |  |  |
| b) | Required digout area - footprint +                                                                     |  |  |  |  |  |
| c) | Can the work be carried out with the soil still in situ (roll / compact with suitable heavy machinery) |  |  |  |  |  |

Specific Engineered Design required unless Rib Raft foundation type utilised on this site.

- 5 Piling options

|    |                       |   |   |   |   |  |
|----|-----------------------|---|---|---|---|--|
| a) | Driven timber piles   | Y | Y | Y | Y |  |
| b) | Cast in situ concrete |   |   |   |   |  |

- 6 Slab options

|    |                                                                              |   |   |   |   |   |
|----|------------------------------------------------------------------------------|---|---|---|---|---|
| a) | SED required for slab and foundations                                        | Y | Y | Y | Y | N |
| b) | SED required for slab and foundations if the site is mechanically stabilised |   |   |   |   |   |

- 7 Summation

Results of testing do not comply with NZS3604: 2011 good ground requirements for standard foundation types but do comply for Rib Raft type foundation systems. Check test site A during construction.

25 JUN 2018  
UH

# WATER DEMAND MANAGEMENT DECLARATION OF COMPLIANCE



In 2009 Council required all new homes built in urban areas to provide an alternative source of water for flushing toilets and outdoor irrigation. This form is to be submitted with all applications for a Project Information Memorandum/Building Consent for new or relocated dwellings on land zoned residential.

|                          |                          |
|--------------------------|--------------------------|
| Address of Project:      | 2 Lamont Place, Ferndale |
| Number of Dwellings:     | 1                        |
| Building Consent Number: | (Office Use Only)        |

## 1. Water Demand Management Solution

All dwellings subject to this development (new or relocated) will use one of the following water demand management solutions in accordance with the District Plan (please tick one box):

|                                     |                                                                                                                                                           |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Rainwater storage tanks with a total volume of not less than 10,000 litres, for each house in the development.                                            |
| <input type="checkbox"/>            | Rainwater storage tanks with a total volume of not less than 4,000 litres, for each house in the development, and a complying greywater diversion device. |
| <input type="checkbox"/>            | The application is made with an alternative solution (note that a discretionary resource consent will be required).                                       |
| <input type="checkbox"/>            | The application is made without provision for water demand management (note that a notified resource consent will be required).                           |

## 2. For All Applications where Water Demand Management Will be Provided

Volume of rainwater storage tanks:

I confirm all the following:

|                                     |                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | That the rainwater tank volume complies with selected water demand management option and have provided a <b>certificate from the manufacturer</b> demonstrating the tank volume.                                                                                                                                |
| <input checked="" type="checkbox"/> | That there will be no direct connection from the reticulated water supply to any outside taps.                                                                                                                                                                                                                  |
| <input checked="" type="checkbox"/> | That there will be a direct connection from the rainwater storage tanks to all internal toilet cisterns and any external taps.                                                                                                                                                                                  |
| <input checked="" type="checkbox"/> | That there will be no direct connection from the reticulated water supply to any toilet cistern.                                                                                                                                                                                                                |
| <input checked="" type="checkbox"/> | I understand that the toby or manifold may have to be replaced with a dual feed manifold at my expense.<br><i>A dual feed manifold has one supply for the house and a separate restricted supply to connect to the rainwater tank.</i>                                                                          |
| <input checked="" type="checkbox"/> | I have completed Kāpiti Coast District Council Form 159: "Water Supply Connection / Alteration Application Form".<br><i>An applicant is required to submit this form to Kāpiti Coast District Council Water and Wastewater Team if a new water connection or alteration of existing connection is required.</i> |

### 3. For Applications Where a Greywater Diversion Device is to be Installed

**Size of Disposal Field:**

*(Note that this needs to be marked on the site plan or the plumbing and drainage plan submitted to Council).*

**I confirm all the following:**

That greywater will be collected from all laundry and bathroom drains (excluding toilets) and channelled to a greywater diversion device for use in outdoor irrigation.



The greywater worksheet is attached and confirms that greywater diversion is suitable on the lot.



That the device will be installed by an approved installer and that a certificate demonstrating this will be available to Council on request after installation.

### 4. Signatures

**Name:****Signed:****Date:**

## GREYWATER IRRIGATION CALCULATION SHEET

This sheet will help determine whether there is sufficient area available to reuse greywater for irrigation. Remember that greywater should be diverted to sewer and only used for garden irrigation when needed.

Greywater irrigation will not be suitable for your proposed dwelling, if it is in an area where:

- soils are too slow draining,
- ground is too steep,
- there are high water tables less than a meter below the surface, or within 20m of a drain, wetland, pond, river or other water body

If greywater is unsuitable, you will need to install a minimum of 10,000 litres of rainwater storage.

The following will help establish if your site is suitable for greywater irrigation.

|                             |          |
|-----------------------------|----------|
| Greywater Diversion Device: | Aqua2use |
| Model:                      | UG GW00  |
| Irrigation method           |          |

|                                                                     |                                         |                             |
|---------------------------------------------------------------------|-----------------------------------------|-----------------------------|
| 1. Is the area being irrigated at least 20m away from a water body? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
|---------------------------------------------------------------------|-----------------------------------------|-----------------------------|

| 2. Area available for irrigation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 713.6m <sup>2</sup>       |                           |                                                       |     |                        |     |                         |     |                                    |     |                               |     |                                       |      |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------|-------------------------------------------------------|-----|------------------------|-----|-------------------------|-----|------------------------------------|-----|-------------------------------|-----|---------------------------------------|------|--|
| Calculate the area you have available for outdoor irrigation allowing for set back distances below:                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                           |                           |                                                       |     |                        |     |                         |     |                                    |     |                               |     |                                       |      |  |
| <table border="1"> <thead> <tr> <th>Set Back Features</th> <th>Setback Distance (metres)</th> </tr> </thead> <tbody> <tr> <td>Property boundaries, pedestrian paths, and driveways.</td> <td>0.5</td> </tr> <tr> <td>Footings of buildings.</td> <td>1.5</td> </tr> <tr> <td>Retaining wall footing.</td> <td>1.0</td> </tr> <tr> <td>In ground swimming pool surrounds.</td> <td>1.0</td> </tr> <tr> <td>In ground potable water tank.</td> <td>6.0</td> </tr> <tr> <td>Bores intended for human consumption.</td> <td>50.0</td> </tr> </tbody> </table> | Set Back Features         | Setback Distance (metres) | Property boundaries, pedestrian paths, and driveways. | 0.5 | Footings of buildings. | 1.5 | Retaining wall footing. | 1.0 | In ground swimming pool surrounds. | 1.0 | In ground potable water tank. | 6.0 | Bores intended for human consumption. | 50.0 |  |
| Set Back Features                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Setback Distance (metres) |                           |                                                       |     |                        |     |                         |     |                                    |     |                               |     |                                       |      |  |
| Property boundaries, pedestrian paths, and driveways.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.5                       |                           |                                                       |     |                        |     |                         |     |                                    |     |                               |     |                                       |      |  |
| Footings of buildings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1.5                       |                           |                                                       |     |                        |     |                         |     |                                    |     |                               |     |                                       |      |  |
| Retaining wall footing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1.0                       |                           |                                                       |     |                        |     |                         |     |                                    |     |                               |     |                                       |      |  |
| In ground swimming pool surrounds.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.0                       |                           |                                                       |     |                        |     |                         |     |                                    |     |                               |     |                                       |      |  |
| In ground potable water tank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 6.0                       |                           |                                                       |     |                        |     |                         |     |                                    |     |                               |     |                                       |      |  |
| Bores intended for human consumption.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 50.0                      |                           |                                                       |     |                        |     |                         |     |                                    |     |                               |     |                                       |      |  |

### 3. Greywater Volume

Calculate how much water your home could generate. As the number of people will vary over the life of the house, use the following calculation to estimate greywater volume.

|               |   |                |   |                   |   |                                                          |   |               |   |                                            |
|---------------|---|----------------|---|-------------------|---|----------------------------------------------------------|---|---------------|---|--------------------------------------------|
| 40 Litres     | + | 60 Litres      | = | 100 Litres        | x |                                                          | x | 7 Days        | = | ____ Litres                                |
| Laundry Usage |   | Bathroom Usage |   | Total Daily Usage |   | Occupancy<br>(depends on number of bedrooms – see below) |   | Days per week |   | The amount of greywater produced each week |

| Bedroom numbers in home | Occupancy for design purposes and calculation |
|-------------------------|-----------------------------------------------|
| 1                       | 2                                             |
| 2                       | 4                                             |
| 3                       | 6                                             |
| 4                       | 8                                             |
| 5                       | 10                                            |
| 6                       | 12                                            |

|                           |   |                                |   |                            |
|---------------------------|---|--------------------------------|---|----------------------------|
| Litres produced each week | ÷ | Soil irrigation rate*          | = | area needed for irrigation |
| <u>4,200</u> litres/week  |   | <u>35</u> mm/day <u>× week</u> |   | <u>120</u> m <sup>2</sup>  |

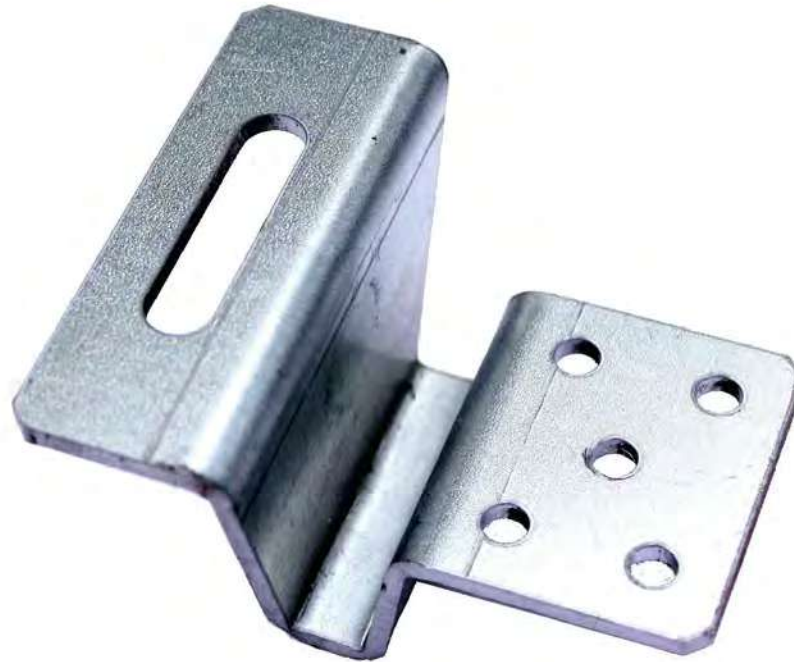
Match the soil on your site to the soil irrigation rates below.

| Soil Category | Soil Texture                                            | Irrigation rate * for greywater | Indicative drainage class |
|---------------|---------------------------------------------------------|---------------------------------|---------------------------|
| 1             | Gravel and sands – structure-less                       | 35 mm/week                      | Rapid draining            |
| 2             | Coarse to medium sand                                   | 35 mm/week                      | Free draining             |
| 3             | Medium-fine and loamy sand (dune sands)                 | 35 mm/week                      | Good drainage             |
| 4             | Sandy loam, loam and silt loam                          | 20 mm/week                      | Moderately well drained   |
| 5             | Sandy clay loam, clay loams, silt clay loam, peaty loam | 20 mm/week                      | Moderate to slow drainage |
| 6             | Sandy clay, non-swelling clay and silty clay, peat      | 15 mm/week                      | Slowly draining           |
| 7             | Swelling clay, grey clay, hardpan                       | 15 mm/day                       | Poorly or non-drained     |

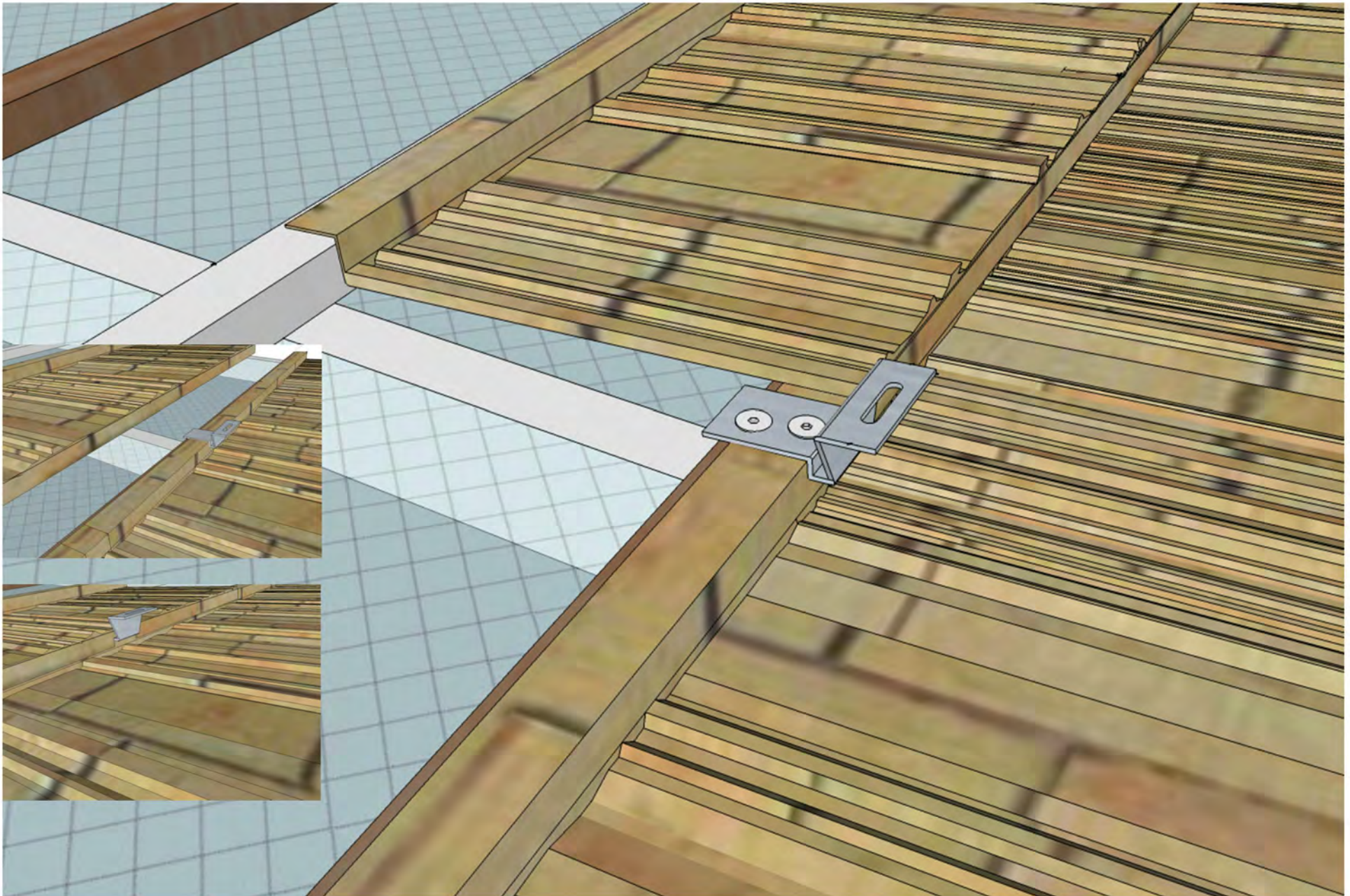
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                         |                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------|
| 4. Does area available = area needed?                                                                                                                                                                                                                                                                                                                                                                                               | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| <p>If the <b>area available</b> is greater than the <b>area needed</b>, the proposed application area is sufficient to cope with the volume of greywater that is likely to be generated and approval may be granted if all other conditions are met.</p> <p>Enter the area available on the compliance sheet and mark out on the <u>site plan</u> or <u>plumbing and drainage plan</u> the area to be irrigated with greywater.</p> |                                         |                             |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>5. There isn't enough area for greywater irrigation</b></p> <p>If the <b>area available</b> is less than the <b>area needed</b>, the proposed application area is insufficient to cope with the volume of greywater that is likely to be generated.</p> <p>If you want greywater irrigation but the area available does not appear to be sufficient, you can:</p> <ul style="list-style-type: none"> <li>• select a system that limits greywater to be suitable to your site conditions;</li> <li>• apply for an alternative solution that will only use greywater from the bathroom or laundry;</li> <li>• use a suitably qualified person to design a greywater system suited to your site (please attach their report with the compliance sheet).</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## AHI Roofing Solar Brackets



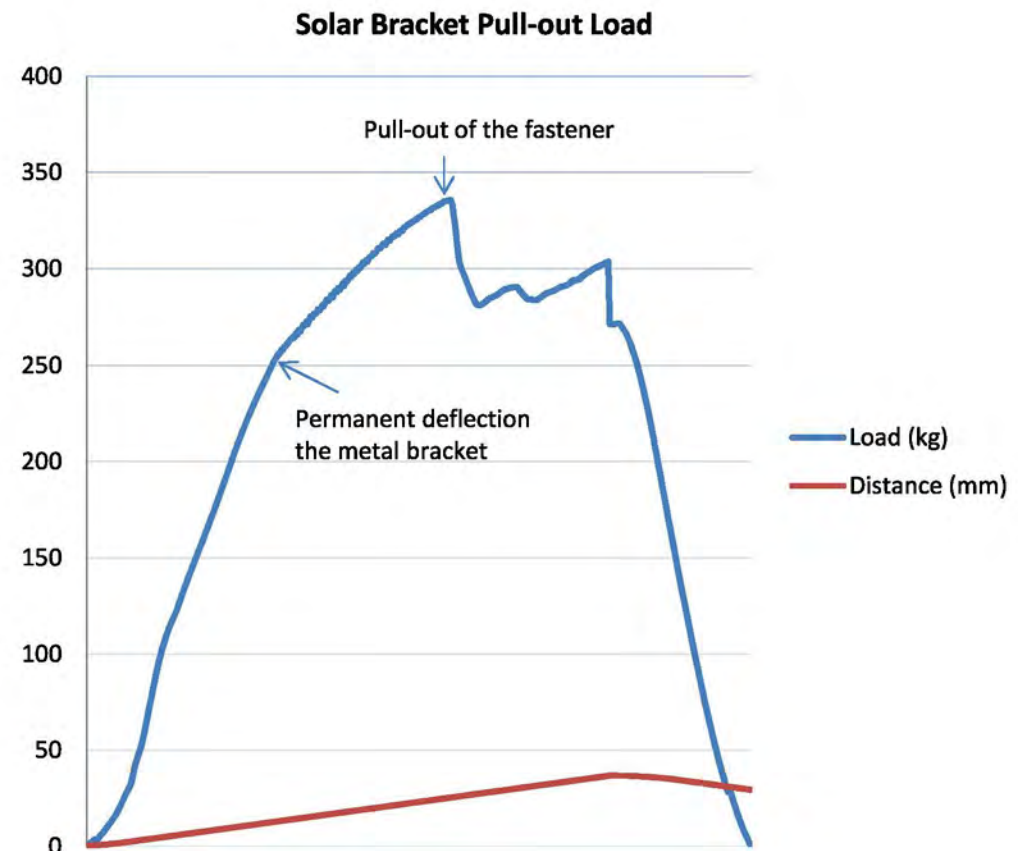
## AHI Roofing Solar Brackets



# AHI Roofing Solar Bracket Load Testing and Installation

## Solar Bracket located over Rafters.

Load – pull-out test



# Prototype Testing

- Design capacity of the solar bracket installed through a batten and into a MSG8 pine rafter.
  - Variability of structural units (Table B1 AS/NZS1170.0)
    - Number of tests = 3
    - COV of material,  $v_{sc}$  – bracket steel 5%
    - Design capacity reduction factor,  $k_t = 1.15$
  - Design capacity of the bracket Steel
    - Load test result = 252 kg
    - Design capacity
      - Result load/  $k_t$
      - $252 \text{ kg} / 1.15 = 2.19 \text{ kg} = 2.15 \text{ kN}$

# Prototype Testing

- Design capacity of fastener pull-out from rafter.
- This has been determined and is included in NZS3604:2011.
  - A single 80 mm 10 gauge purlin screw has a load capacity of 2.4 kN
- We are proposing to use 2 x 80 mm 10 gauge screws to hold each bracket.
  - This will comfortably exceed the 2.4 kN loading given in NZS3604.
- The weakest point in solar bracket connection to a rafter is the bracket strength = 2.15 kN.
- The Load capacity of a solar bracket connected to a rafter through a tile batten is 2.15kN



## Extract AS/NZS 1170.2 Section D6 Solar Panel

### D6 SOLAR PANELS

The use of this Paragraph (D6) shall be limited to the calculation of wind loads on solar panels with the following restrictions:

- Panels attached to enclosed buildings with aspect ratios  $h/d \leq 0.5$  and  $h/b \leq 0.5$ .
- Panels be attached parallel to the roof plane.
- Panels with a gap of between 50 mm and 300 mm between the underside of the panel and the roof(s) (no pitched frames).
- Panels with a minimum distance between panel and roof edge of  $2s$  where  $s$  is the gap between the underside of the panel and the roof surface, as shown in Figure D8 (roof edge includes ridges with pitch  $\geq 10^\circ$ ).

The aerodynamic shape factor ( $C_{fig}$ ) for calculating net pressures for solar panels satisfying the above conditions, as shown in Figure D8, is given in Table D11. The aerodynamic shape factor ( $C_{fig}$ ) contains local pressure and area reduction effects for calculating net loads on individual panels installed as part of an array of panels in the areas of the roof identified in Figure D9.

TABLE D11

AERODYNAMIC SHAPE FACTOR ( $C_{fig}$ ) FOR CALCULATING NET PRESSURES ACTING NORMAL TO PANELS MOUNTED PARALLEL TO A ROOF SURFACE WITH A GAP OF  $s = 50$  TO  $300$  mm

| Wind direction      | Array position   | Aerodynamic shape factor ( $C_{fig}$ ) |                                  |                                   |                                      |
|---------------------|------------------|----------------------------------------|----------------------------------|-----------------------------------|--------------------------------------|
|                     |                  | $\alpha < 5^\circ$                     | $5^\circ \leq \alpha < 10^\circ$ | $10^\circ \leq \alpha < 20^\circ$ | $20^\circ \leq \alpha \leq 30^\circ$ |
| $\theta = 0^\circ$  | Upwind end       | -1.7, +0.4                             | -                                | -1.1, +0.6                        | -1.0, +0.6                           |
|                     | Upwind central   | -                                      | -                                | -0.7, +0.3                        | -0.8, +0.3                           |
|                     | Downwind end     | -                                      | -                                | -1.4, +0.4                        | -1.3, +0.5                           |
|                     | Downwind central | -                                      | -                                | -1.0, +0.4                        | -1.1, +0.4                           |
| $\theta = 90^\circ$ | Upwind end       | -                                      | -                                | -1.7, +0.4                        | -                                    |
|                     | Central          | -                                      | -                                | -1.2, +0.5                        | -                                    |
|                     | Downwind end     | -1.2, +0.5                             | -                                | -1.1, +0.5                        | -                                    |
|                     | Downwind central | -                                      | -                                | -                                 | -                                    |

#### NOTES:

- Positive  $C_{fig}$  corresponds to a net downwards pressure.
- The installation of a panel may result in changes to the external pressure on the roof below the panel.



FIGURE D8 PANEL MOUNTED PARALLEL TO ROOF PLANE

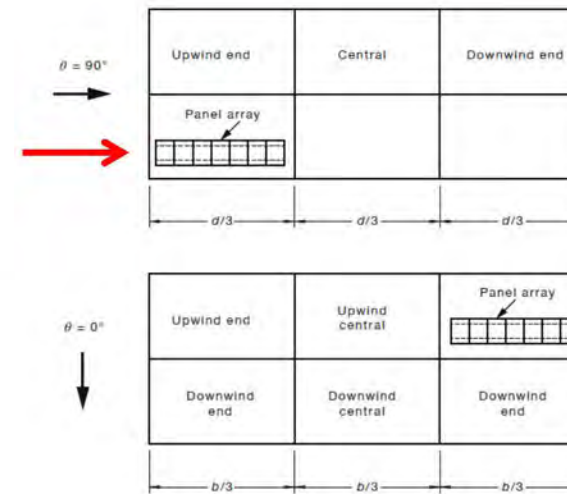
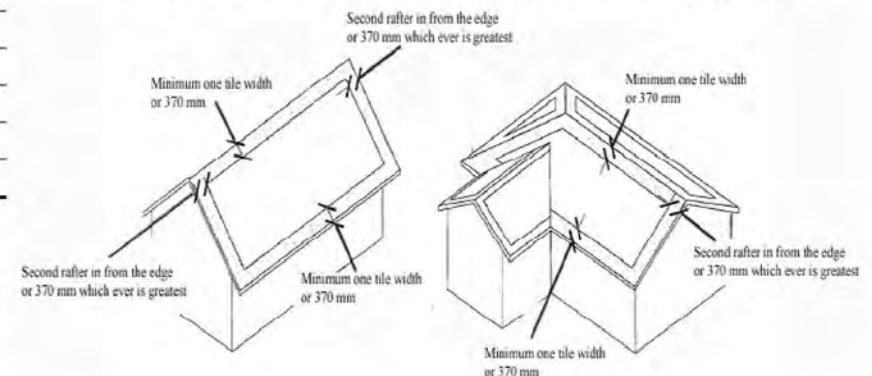


FIGURE D9 ROOF ZONES FOR PANEL ARRAY

Largest pressure coefficients ( $C_{fig}$ ) used in determining the Solar Bracket Spacing's

Solar panel position limitations to meet or exceed  $2s$  (item (d))



# Wind Load - Bracket Spacing – Design Pressure and Minimum fastening requirement of a solar bracket connection

| Determination of Fasteners Required for AHI Roofing Products |                                          |                    |                 | AS/NZ1170 Part2.                                                                                                                                                                                                 |                                      |  |         |  |  |
|--------------------------------------------------------------|------------------------------------------|--------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--|---------|--|--|
| Maximum Structure Height 10 metres                           |                                          |                    |                 | Fastening requirement to meet NZ3604                                                                                                                                                                             | 2.098                                |  |         |  |  |
| P <sub>d</sub>                                               | Design Pressure                          | P <sub>d</sub>     | 3.15 kPa uplift | Design Factors                                                                                                                                                                                                   |                                      |  |         |  |  |
| C <sub>pi</sub>                                              | Pressure coefficient Internal            | C <sub>pi</sub>    | 0.4             | Terrain Categories (M <sub>z,cat</sub> )                                                                                                                                                                         |                                      |  |         |  |  |
| C <sub>pe</sub>                                              | Pressure Coefficient external            | C <sub>pe</sub>    | -1.7            | Terrain Category                                                                                                                                                                                                 | Region A6, A7 and W Height (z) 10 m. |  |         |  |  |
| K                                                            | Local area design factor (safety factor) | K <sub>l</sub>     | 1               | 1                                                                                                                                                                                                                | 1.12                                 |  |         |  |  |
| V <sub>z</sub>                                               | Wind Speed m/s                           | V <sub>z</sub>     | 50 m/s          | 2                                                                                                                                                                                                                | 1.00                                 |  |         |  |  |
| M <sub>z,cat</sub>                                           | Terrain Structure height multiplier      | M <sub>z,cat</sub> | 1               | 3                                                                                                                                                                                                                | 0.83                                 |  |         |  |  |
| M <sub>s</sub>                                               | Shielding multiplier                     | M <sub>s</sub>     | 1               | 4                                                                                                                                                                                                                | 0.75                                 |  |         |  |  |
| M <sub>t</sub>                                               | Topographic multiplier                   | M <sub>t</sub>     | 1               | Shielding Factor (M <sub>s</sub> )                                                                                                                                                                               |                                      |  |         |  |  |
| M <sub>i</sub>                                               | Structure Importance multiplier          | M <sub>i</sub>     | 1               | Shielding Classification                                                                                                                                                                                         |                                      |  | Factor  |  |  |
| M <sub>D</sub>                                               | Direction Multiplier                     | M <sub>D</sub>     | 1               | Full Shielding (Fs)                                                                                                                                                                                              |                                      |  | 0.8     |  |  |
|                                                              |                                          |                    |                 | Partial Shielding (Ps)                                                                                                                                                                                           |                                      |  | 0.9     |  |  |
|                                                              |                                          |                    |                 | No Shielding (Ns)                                                                                                                                                                                                |                                      |  | 1.0     |  |  |
|                                                              |                                          |                    |                 | Topographic Classification (M <sub>t</sub> )                                                                                                                                                                     |                                      |  |         |  |  |
|                                                              |                                          |                    |                 | Topographic Classification                                                                                                                                                                                       |                                      |  | Factor  |  |  |
|                                                              |                                          |                    |                 | T1                                                                                                                                                                                                               |                                      |  | 1.00    |  |  |
|                                                              |                                          |                    |                 | T2                                                                                                                                                                                                               |                                      |  | 1.15    |  |  |
|                                                              |                                          |                    |                 | T3                                                                                                                                                                                                               |                                      |  | 1.28    |  |  |
|                                                              |                                          |                    |                 | Direction Multiplier (M <sub>D</sub> )                                                                                                                                                                           |                                      |  |         |  |  |
|                                                              |                                          |                    |                 |                                                                                                                                                                                                                  |                                      |  | Factor  |  |  |
|                                                              |                                          |                    |                 | All Directions                                                                                                                                                                                                   |                                      |  | 1.00    |  |  |
|                                                              |                                          |                    |                 | P <sub>d</sub> = (C <sub>pi</sub> - k . C <sub>pe</sub> ) . (V <sub>z</sub> ) <sup>2</sup> . 0.6 . 10 <sup>-3</sup> . M <sub>z,cat</sub> . M <sub>s</sub> . M <sub>t</sub> . M <sub>i</sub> . M <sub>D</sub> kPa |                                      |  |         |  |  |
|                                                              |                                          |                    |                 | Calculation of Design Load should be provided by an Engineer.                                                                                                                                                    |                                      |  |         |  |  |
|                                                              |                                          |                    |                 | BRANZ Testing, NZ3604:2011 carried out on 45 mm timber. Tile battens 40 mm thick.                                                                                                                                |                                      |  |         |  |  |
|                                                              |                                          |                    |                 | NZS3604:2011 allows battens fixed in Very High Wind Zone to use 2 x 90 mm gun nails                                                                                                                              |                                      |  |         |  |  |
|                                                              |                                          |                    |                 | This was tested using the MRM air box overseen by BRANZ. Nail pullout data below                                                                                                                                 |                                      |  |         |  |  |
|                                                              |                                          |                    |                 | confirms that the load achieved by 2 x 90 mm nailsthrough a 40 mm batten exceeds that required                                                                                                                   |                                      |  |         |  |  |
|                                                              |                                          |                    |                 | at the perimeter of a roof where K <sub>l</sub> = 1.5. Note that perimeter area is 1.5 x General area however coefficient.                                                                                       |                                      |  |         |  |  |
|                                                              |                                          |                    |                 | the 1.5 only needs to be applied to the external pressure. Result is extra load capacity.                                                                                                                        |                                      |  |         |  |  |
|                                                              |                                          |                    |                 | 45 mm                                                                                                                                                                                                            |                                      |  | 0.8 kN  |  |  |
|                                                              |                                          |                    |                 | 40 mm                                                                                                                                                                                                            |                                      |  | 0.90 kN |  |  |
|                                                              |                                          |                    |                 | Solar Panel                                                                                                                                                                                                      |                                      |  |         |  |  |
| C <sub>pi</sub>                                              | Pressure coefficient Internal            |                    |                 |                                                                                                                                                                                                                  |                                      |  |         |  |  |
| C <sub>pe</sub>                                              | Pressure Coefficient external            |                    |                 |                                                                                                                                                                                                                  |                                      |  |         |  |  |
| K                                                            | Local area design factor (safety factor) |                    |                 |                                                                                                                                                                                                                  |                                      |  |         |  |  |
|                                                              | 1 Main area of roof                      |                    |                 |                                                                                                                                                                                                                  |                                      |  |         |  |  |
|                                                              | 1.5 outer section of roof                |                    |                 |                                                                                                                                                                                                                  |                                      |  |         |  |  |
|                                                              | 2 outer section of roof                  |                    |                 |                                                                                                                                                                                                                  |                                      |  |         |  |  |

Solar panel Bracket Spacing for wind areas where the solar panels are parallel to the roof surface and the panels are installed within the boundary of one tile width (370 mm) from the perimeter of any section of roof.

#### **Solar Brackets Installed Directly over and to Rafters**

- Shake and shingle profiles
- for up to and including Very High Wind Zone installation
  - 0.900 m x 0.74 m

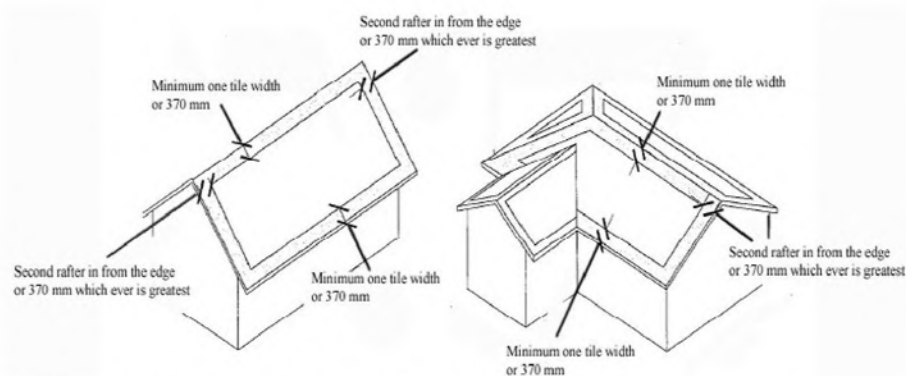
#### **Extra High Wind Zone**

- Refer to data sheets for bracket spacing.

#### **Solar Brackets Installed along an AHI Solar Bevelled Batten**

Tiles, shakes and shingles

- for up to and including Very High Wind Zone installation
  - shakes or shingles 0.920 m x 0.74 m
  - tiles at every 5<sup>th</sup> module



Solar panel installation boundaries.

Rails may connect across solar brackets either horizontally or vertically

## Solar Brackets Installed Directly over and to Rafters

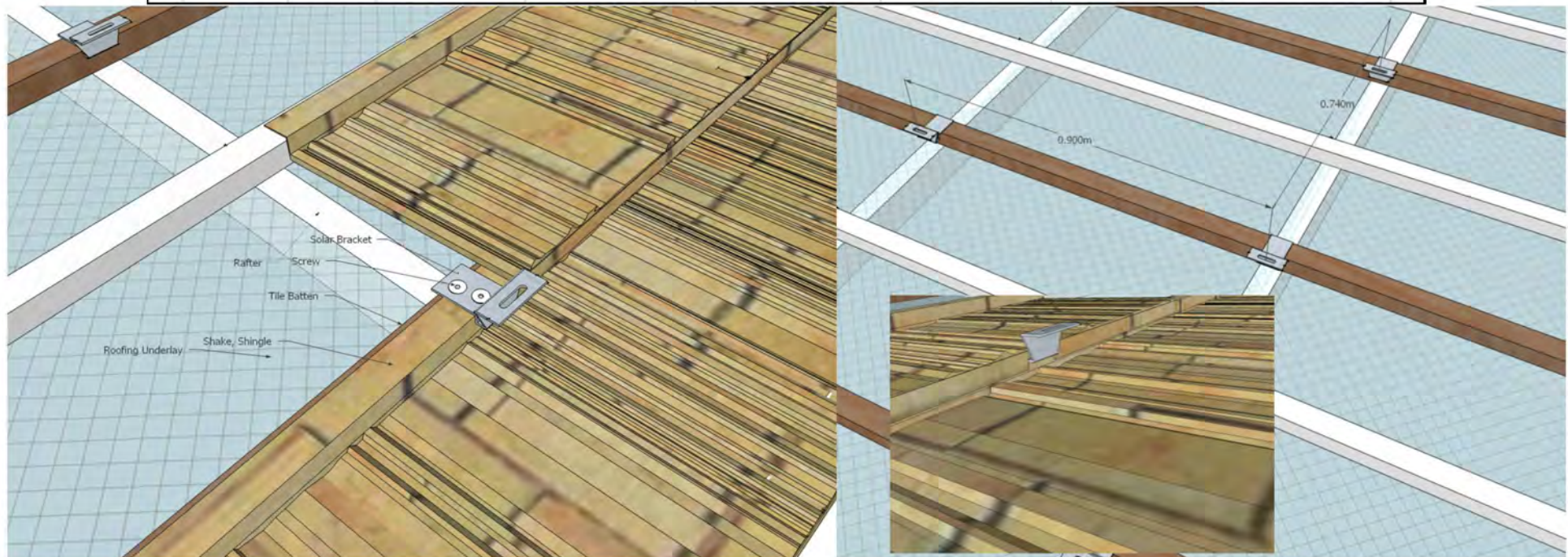
Table 1

|            |     | Bracket Spacing's (rafter x batten spacing) |                                      |             |             |             |            |
|------------|-----|---------------------------------------------|--------------------------------------|-------------|-------------|-------------|------------|
| Wind Zone  | m/s | Bracket Spacing's                           | 0.90 x 0.37                          | 0.90 x 0.74 | 0.90 x 1.11 | 0.9 x 1.480 | 1.8 x 0.74 |
|            |     | Roof kPa                                    | Fastener load strength required (kN) |             |             |             |            |
| Low        | 32  | 0.86                                        | 0.43                                 | 0.86        | 1.29        | 1.72        | 1.72       |
| Medium     | 37  | 1.72                                        | 0.57                                 | 1.15        | 1.72        | 2.30        | 2.30       |
| High       | 44  | 2.44                                        | 0.81                                 | 1.63        | 2.44        | 3.25        | 3.25       |
| Very High  | 50  | 3.15                                        | 1.05                                 | 2.10        | 3.15        | 4.20        | 4.20       |
| Extra High | 55  | 3.81                                        | 1.27                                 | 2.54        | 3.81        | 5.08        | 5.08       |

The recommended Solar Bracket Installation spacing is a configuration of 0.900 m (rafter space) x 0.740 mm (every second tile batten). This is good for all Wind Zones up to and Including Very High.

Installation of the Solar Brackets is required at each Rafter / Batten Junction in a Extra High Wind Zone

Installation of the solar brackets at the spacing's highlighted above meet the criteria to withstand the wind loads on a solar panel array as outlined in AS/NZS 1170.2 D6 Solar Panels. The fixng points load requirement is below the design load of 2.15 kN of the Solar Bracket.



## Solar Brackets Installed along an AHI Solar Bevelled Batten

Bracket Spacing (using AHI Solar Bevelled Batten x batten space)

Maximum Bracket Load kN 2.15

| Table 2    |     |          | 2 x batten space                       | 3 x batten space |                                                                                                           |
|------------|-----|----------|----------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------|
| Wind Zone  | m/s |          | 0.74 m                                 | 1.110 m          |                                                                                                           |
|            |     | Roof kPa | Bracket Spacing's (m) along AHI Batten |                  | Spacings for the Shake and Shingle products are indicated in Table 2.                                     |
| Low        | 32  | 0.86     | 2.25                                   | 1.500            |                                                                                                           |
| Medium     | 37  | 1.72     | 1.68                                   | 1.120            | The recommended spacing is 0.92 m between the solar brackets for up to and including Very High Wind zones |
| High       | 44  | 2.44     | 1.19                                   | 0.790            |                                                                                                           |
| Very High  | 50  | 3.15     | 0.92                                   | 0.615            |                                                                                                           |
| Extra High | 55  | 3.81     | 0.76                                   | 0.505            | Installation of the Solar Brackets at a spacing of 0.76 m is suitable for an Extra High Wind Zone.        |

Table 3

| Module Spacing's - along AHI Solar Bevelled Batten for: |       |              |       |
|---------------------------------------------------------|-------|--------------|-------|
| Heritage, Milano Tile                                   |       | Classic tile |       |
| Modules                                                 | m     | Modules      | m     |
| 1                                                       | 0.180 | 1            | 0.160 |
| 2                                                       | 0.360 | 2            | 0.320 |
| 3                                                       | 0.540 | 3            | 0.480 |
| 4                                                       | 0.720 | 4            | 0.640 |
| 5                                                       | 0.900 | 5            | 0.800 |
| 6                                                       | 1.080 | 6            | 0.960 |
| 7                                                       | 1.260 | 7            | 1.120 |
| 8                                                       | 1.440 | 8            | 1.280 |
| 9                                                       | 1.620 | 9            | 1.440 |
| 10                                                      | 1.800 | 10           | 1.600 |
| 11                                                      | 1.980 | 11           | 1.760 |
| 12                                                      | 2.160 | 12           | 1.920 |
| 13                                                      | 2.340 | 13           | 2.080 |
| 14                                                      | 2.520 | 14           | 2.240 |
| 15                                                      | 2.700 | 15           | 2.400 |

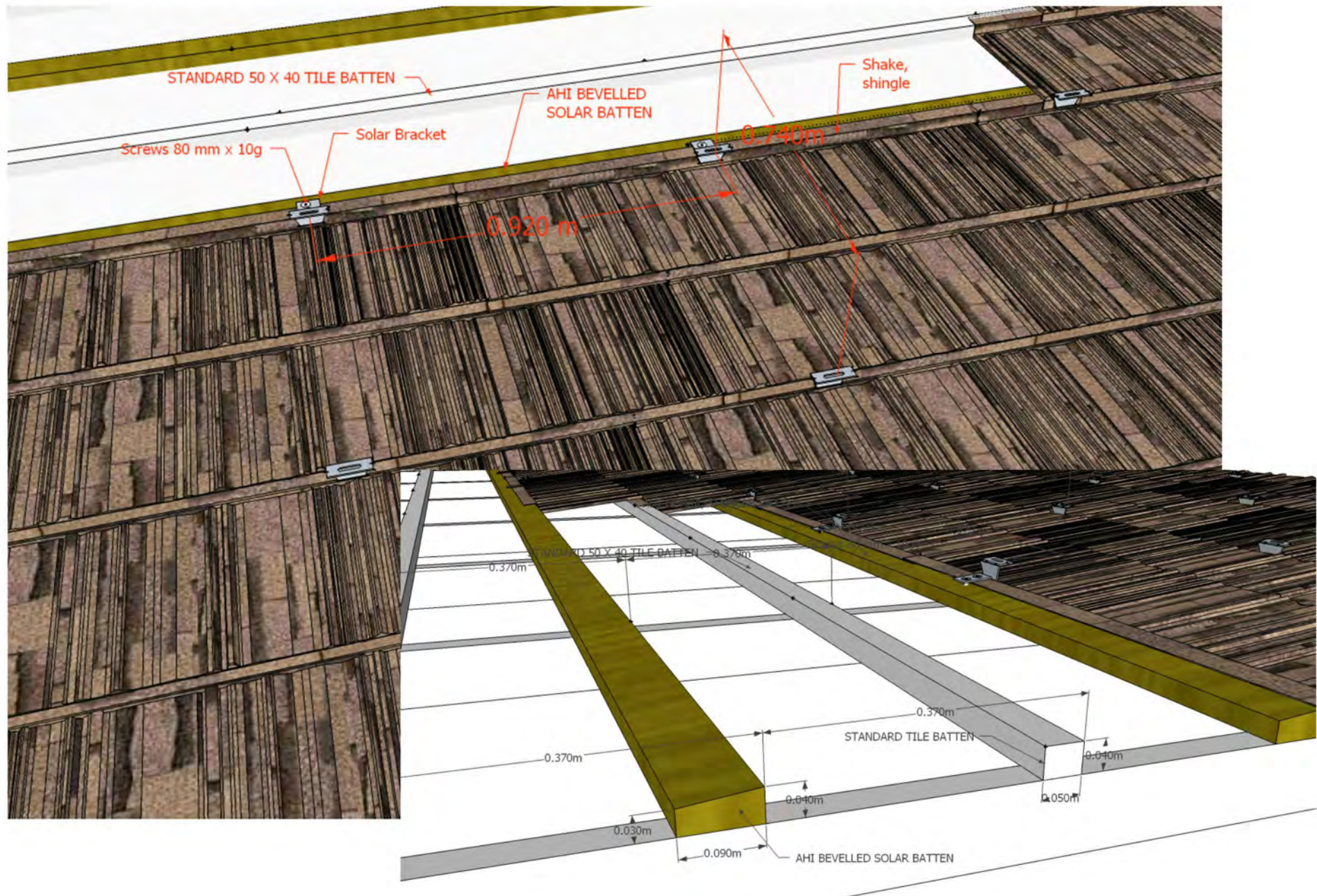
The recommended Solar Bracket Spacing is every 5 modules or 0.92 m. This is good for all wind zones up to and including Very High.

Installation of the Solar Brackets at a spacing of 4 modules or 0.76 m is suitable for an Extra High Wind Zone

Installation of the solar brackets at the spacing's highlighted above meet the criteria to withstand the wind loads on a solar panel array as outlined in AS/NZS 1170.2 D6 Solar Panels. The fixing points load requirement is below the design load of 2.15 kN of the Solar Bracket.

Solar Brackets may be installed at the same configurations (module spacings) as highlighted in colours above or a less modules between solar brackets than the highlighted colours indicate.

## AHI Bevelled Solar Batten and Bracket Installation – up to very high wind zone





## PRODUCER STATEMENT – PS1 – DESIGN

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

ISSUED BY: Fletcher Construction Infrastructure (FCI) – Engineering Services  
(Design Firm)

TO: Roof Tile Group  
(Owner/Developer)

TO BE SUPPLIED TO:  
(Building Consent Authority)

IN RESPECT OF: Timber Batten Check for Solar Panel Bracket  
(Description of Building Work)

AT:  
(Address)

LOT DP SO

We have been engaged by the owner/developer referred to above to provide structural review of 90x35 timber battens that support solar panel brackets services in respect of the requirements of

Clause(s) B1 / VM1 of the Building Code for All or Part only (as specified in the attachment to this statement), of the proposed building work.

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

☒ Compliance Documents Issued by the Ministry of Business, Innovation & Employment B1/VM1 of (verification method / acceptable solution)

☐ Alternative solution as per the attached schedule.

The proposed building work covered by this producer statement is described on the drawings titled ...refer to attached spreadsheet showing summary of outputs.

...and numbered together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:

- (i) Site verification of the following design assumptions maximum load per bracket = 1.4kN on continuous batten.
- (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, Stephen Power, am:  
(Name of Design Professional)

☒ CPEng 263039 #

☐ Reg Arch #

I am a Member of: ☒ IPENZ ☐ NZIA and hold the following qualifications: BEng, 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 Stephen Power, ON BEHALF OF FCI Engineering Services.  
(Design Firm)

Date 25/05/15 (signature)  
Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000.

Attachment to PSI dated 25/5/15

## Installation of Gerard Roofs Solar Bracket

Table 1

### Bracket Spacing - Directly over rafters

Suitable - Shake and Shingle profiles at 900 mm rafter spacing and batten spacing

| Load on fasteners - pullout from rafters                                |            |                               |        |                                        |           |
|-------------------------------------------------------------------------|------------|-------------------------------|--------|----------------------------------------|-----------|
| Rafter Spacing                                                          | Wind Zone  | Low                           | Medium | High                                   | Very High |
| 0.900                                                                   | Wind Speed | 32                            | 37     | 44                                     | 50        |
| Batten Spacing                                                          |            | kN fastener load - acceptable |        |                                        |           |
| 0.370                                                                   |            | 0.43                          | 0.57   | 0.81                                   | 1.05      |
| 0.740                                                                   |            | 0.86                          | 1.15   | 1.62                                   | 2.10      |
| 1.110                                                                   |            | 1.29                          | 1.72   | 2.44                                   | 3.15      |
| Fasteners must penetrate tile batten (50 x40) and rafter at 900 centres |            |                               |        |                                        |           |
| Limit                                                                   |            | 2.15 kN                       | Ult    | load on fasteners pullout from rafters |           |
|                                                                         |            | 1.74 kN                       | Serv   |                                        |           |

Brackets installed so they penetrate the Rafters.

Loads in green - suitable for bracket use. (<1.74 kN)

Loads in red - unsuitable for bracket use. (>1.74 kN)

Table 2

### Bracket Spacing - using 90 x 35 mm batten

Suitable - All profiles, maximum distance or modular spacing between brackets

| Max Load on Solar Batten (90x35) = 1.4 kN |  |                          |        |       |           |            |
|-------------------------------------------|--|--------------------------|--------|-------|-----------|------------|
| Batten Spacing (m)                        |  | Spacing between Brackets |        |       |           |            |
|                                           |  | Low                      | Medium | High  | Very High | Extra High |
|                                           |  | 32                       | 37     | 44    | 50        | 55         |
| 0.370                                     |  | 2.930                    | 2.200  | 1.550 | 1.200     | 0.990      |
| Heritage Modules                          |  |                          | 12     | 8     | 6         | 5          |
| Classic Modules                           |  |                          | 13     | 9     | 7         | 6          |
| 0.740                                     |  | 1.470                    | 1.100  | 0.775 | 0.600     | 0.495      |
| Heritage Modules                          |  | 8                        | 6      | 4     | 3         | 2          |
| Classic Modules                           |  | 9                        | 6      | 4     | 3         | 3          |
| 1.110                                     |  | 0.980                    | 0.730  | 0.518 | 0.400     | 0.330      |
| Heritage Modules                          |  | 5                        | 4      | 2     | 2         | 1          |
| Classic Modules                           |  | 6                        | 4      | 3     | 2         | 2          |

Brackets installed so they do not exceed 1.4 kN load on Batten

Distances in Green (m or modules) or less - suitable for installing to 90 x 35 mm bracket

Distance in Red - bracket numbers unsatisfactory - either too many or too few brackets

### Tile Module Information

| 7 Module tiles        | 8 Module Tiles        | Shakes/Shingles        |
|-----------------------|-----------------------|------------------------|
| Heritage              | Classic               | Corona Shake           |
| Milano                |                       | Senator Shingle        |
| Sierra                |                       | Rockport Shingle       |
| module spacing 180 mm | module spacing 160 mm | Variable (non modular) |

# PRODUCT CONFORMITY CERTIFICATE

Certificate No:  
10579-2017-WM-AUS-JAS-ANZ

Initial certification date:  
20<sup>th</sup> March 2008

Valid:  
23<sup>rd</sup> May 2017 – 20<sup>th</sup> March 2020

## Matala Water Technology Co., Ltd.

No. 50, Ln. 278, Haiwei Road, Longjing District, Taichung City 434, Taiwan

### WaterMark Level 2 – WMTS.460 (ATS 5200.460)

This is to certify that the products listed below have been assessed in accordance with the WaterMark Scheme and registered as complying with the requirements of the standard shown above.

The Approved Certifier grants the right to use or arrange the use of the WaterMark as shown directly above only in respect of the products and materials described and detailed on the product schedule below which are produced by the Approved User and which comply with the appropriate WaterMark Specification referred to above as from time to time amended. The Licence is granted subject to the rules governing the use of the WaterMark and the Terms and Conditions for certification. The WaterMark Licensee covenants to comply with all the Rules, technical reference documents and Terms and Conditions of the WaterMark Certification Scheme.

This certificate is valid for the following scope:

**WaterMark Level 2 Certification of Grey Water Diversion Devices as detailed in the Appendix.**

BC180550  
Further Information Received  
09/07/2018

Place and date:  
North Sydney  
08 June 2017



For the issuing office:  
DNV-GL Business Assurance  
Level 7, 124 Walker Street  
North Sydney NSW 2060  
Australia

A handwritten signature in black ink, appearing to read 'Yngve Amundsen'.

Yngve Amundsen  
Management Representative

Accreditation by the Joint Accreditation System of Australia and New Zealand, Acc Z2340801AS  
Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid. Refer to appendix for current certificate site address.

[URL: www.jas-anz.org/register](http://www.jas-anz.org/register)

ACCREDITED UNIT: DNV GL Business Assurance Australia Pty Limited., Level 7, 124 Walker Street, North Sydney NSW 2060, Australia.  
TEL: +61 299 00 9500. [www.dnvbs.com.au](http://www.dnvbs.com.au)

## Appendix 1 Product Schedule

| Model ID             | Brand Name              | Product Description                                                                                                                                                           | Date Endorsed |
|----------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Aqua2use GWDD        | Matala Water Technology | Aqua2use Greywater diverter is a pump operated or gravity operated device enclosing 3 Dimensional progressive filtration media                                                | 31/03/2011    |
| Aqua2use UG GWDD     | Matala Water Technology | Aqua2use Greywater diverter is a pump operated or gravity operated device enclosing 3 Dimensional progressive filtration media. For underground and above ground installation | 31/03/2011    |
| <b>End of Record</b> |                         |                                                                                                                                                                               |               |

## Appendix 2 CONDITIONS OF CERTIFICATION

|                    |                                                                                    |                        |                           |
|--------------------|------------------------------------------------------------------------------------|------------------------|---------------------------|
| Scheme:            | WaterMark Level 2 Scheme                                                           |                        |                           |
| Certificate No:    | 10579-2017-WM-AUS-JAS-ANZ                                                          |                        |                           |
| Client:            | Matala Water Technology Co., Ltd.                                                  |                        |                           |
| Address:           | No. 50, LN. 278<br>Haiwei Road<br>Longjing District<br>Taichung City 434<br>Taiwan |                        |                           |
| Initial Cert Date: | 20 <sup>th</sup> March 2008                                                        | Re-certification Date: | 23 <sup>rd</sup> May 2017 |

The Conditions of Certification are as stated in the following sections of the DNV GL System Manual as amended from time to time.

Section 16 – Use of Certification and Accreditation Marks

Section 17 – Issue and Maintenance of Certification

Section 19 – Suspension and Withdrawal of Certification

### Special Conditions for Scheme

This Certificate of Conformity is issued by a Watermark Approved Certifier. The ABCB does not in any way warrant, guarantee or represent that the Product the subject of this Certificate of Conformity conforms with the PCA, nor accepts any liability arising out of the use of the Product. The ABCB 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 product(s) referred to in this Certificate. The WATERMARK is a registered certification trademark of the Australian Building Codes Board (ABN 74 599 608 295). The Approved Certifier is licenced to use the WaterMark in accordance with the Approved Certifier Agreement. 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 ABCB website, [www.abcb.gov.au](http://www.abcb.gov.au)

## General:

1. The certificate holder shall ensure that Product (s) is/are maintained in accordance with the requirements of the standard applied as stated above.
2. The certificate holder shall keep DNV GL Business Assurance Australia Pty Limited (DNV GL) informed of any significant changes in its certified Product (s) or any other conditions as applicable, which may adversely affect the performance of the certificate holder's certified Product (s).
3. The certificate holder shall give DNV GL admittance and assistance in the auditing and surveillance of:
  - The certified Product documentation, including procedures and work instructions and its implementation.
  - The production processes, equipment, execution of services, facilities and personnel covered by this certification.
  - Raw materials, semi-finished products, finished products and procured services.
  - Product records specific to the certified Product (s), including as appropriate monitoring records, communications from relevant regulatory authorities, accident and incident reports, licence breaches, test reports, failure reports, customer complaints and statistics.
  - The use of Certification Marks.

## Maintenance of Certification:

4. In order to maintain certification, the following conditions must be fulfilled:

### DNV GL Certification must:-

- Perform periodical assessments in accordance with the agreed schedule; and
- Periodically confirm that certification should be continued.

### Client organisations must:-

- Maintain the Product in accordance with the relevant standard;
- Use logos and marks in accordance with the documented requirements;
- Comply with the accreditation requirements as advised to you from time to time by DNV GL;
- have periodical assessments as agreed with us;
- implement all corrective action as agreed with us. For multi-site certification, each corrective action is to be implemented at all sites as appropriate;
- pay all fees;
- advise us of any changes to your Product, organisation or activities that may affect certification;

- maintain a record, accessible to us, of all customer complaints and corrective action relating to the certified Product (s);
  - For multisite organisations: advise DNV GL within one month of the closure of any certified site. Failure to meet this requirement can be regarded as misuse of the certificate;
  - For multisite organisations: maintain central control or administration of the planning, management review, complaints, internal audit and evaluation of corrective action functions; and
  - For multisite organisations where site sampling is undertaken: ensure that all sites in the sample group continue to supply products/services that are substantially the same using methods and procedures that are fundamentally the same.
5. We may conduct additional assessments to maintain your certification if you amend your product or if we are advised of significant problems with your system.
  6. Verification of compliance of certified organisations with changed DNV GL requirements shall be achieved through either special audits or by inclusion in the next periodical audit as authorised by the Governing Board.

#### **Certification Mark:**

7. The certification holder may use the certification mark, corresponding to the certified Product (s) only and only while remains certified.
8. The certification holder shall be entitled to use the DNV GL certification mark (when so authorised) in accordance with the rules for the use of the DNV GL Certification/ Accreditation Marks. These marks may not be used in an unauthorised manner, nor imply product conformity.
9. Use or misuse of the Certificate and of the work performed by DNV GL leading to the issue of the Certificate shall be at the Certificate holders' sole risk.
10. The certificate holder shall ensure that:
  - They in no respect mislead or claim certification for operations or sites not included within the scope shown on the certificate.
  - The certification mark or other reference to the relevant Product(s) certification is not used on any product specific material or packaging, unless authorised under product certification scheme.
  - The certification certificate issued in no way implies the product or service certified is approved by JAS-ANZ or any Government Minister.
11. The Certification Mark must only be shown in standard size and design. Standard size and design may be obtained from DNV GL on request.

### **Suspension and withdrawal of certification**

12. If the certificate holder fails to meet any of the conditions of certification listed in this appendix, DNV GL shall be entitled to suspend or withdraw the certificate as outlined in the applicable Product Certification scheme and DNV GL Certification Manual.
13. Suspension and withdrawal of certification will be considered if the client:–
  - fails to implement agreed corrective actions;
  - fails to maintain the certified system;
  - violates the terms of the signed agreement; or
  - incorrectly uses the Certification Mark.
14. Reissue of the Certificate can be considered when the deficiencies that led to suspension or withdrawal have been corrected.
15. Logos and certification marks shall not be used while a certificate is suspended or after withdrawal of a certificate. Upon written request from a member of the public, limited information will be provided regarding certification granted, suspended or withdrawn.

- Grey Water Systems Working Principle
- Greywater Treatment System
- Greywater Diverter
- Purchase
- Gallery
  - For irrigation
  - For indoor reuse
- FAQs
- Sitemap

## Greywater Diverter (Underground Model) Gray Water Recycling

Greywater Diverter  
Grey Water Recycling -  
Aqua2use GWDD

Greywater Diverter  
(Underground Model)  
Gray Water Recycling

Greywater Treatment  
System (GWTS1000)

Greywater Treatment  
System (GWTS2000)

**Where to buy ?**

Aqua2use Greywater

Diversion Devices catalogue



Alfium Trackers

**Designed for underground installation!**

### Aqua2use® UG GWDD



**Unit is capable of handling large volumes of graywater.**

**filters and recycling graywater for garden irrigation!**

- Aqua2use® UG GWDD dimensions
- Certificate WaterMark Approved
- Aqua2use®UG GWDD Sub. Pump performance curve (115V 60Hz)
- Aqua2use® UG GWDD Sub. Pump performance curve (220V 50Hz)

Aqua2use® greywater diverter captures pre-filters and diverts your water so it recycles bath, shower, wash basin and laundry water which can be used for your lawn and garden. It not only save water, but also reduce the energy for transporting full amount of wastewater to the sewage treatment plant and reduce the energy on pumping the potable water from water supply company to your house.

Therefore, it reduce the carbon dioxide emission, help on the global warming issues.

Aqua2use® UG GWDD is the best grey water recycling system designed for the professional Builder, Plumber or Renovator, it is ideal for under slab or buried applications.

**Large 260L capacity, 800 length x 600 wide x 623 height (mm)**

**Large 86gallons capacity, 31.5 length x 23.6 wide x 24.5 height (in)**

**Matala® 3D progressive filtration with 4 different porosities filter mats. A technology proven in more than 40 countries worldwide.**

allows for connection of 50mm (2") DWV up to 100mm (4") DWV greywater waste pipe.

Figure: Transparent view showing all pipe connections

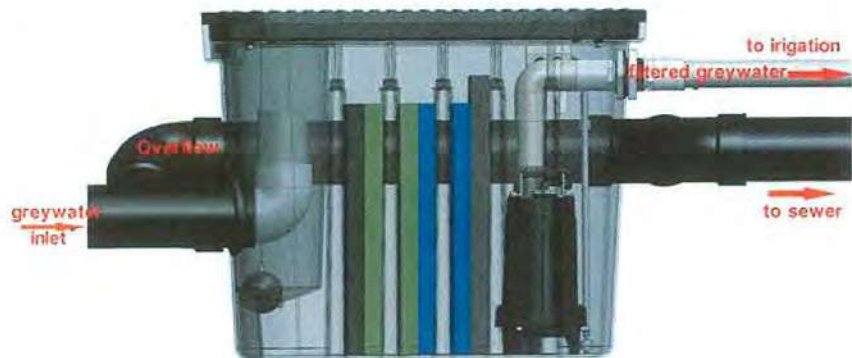


Figure: Top view of Aqua2use UG GWDD – example 4" connections



BACK

## PRODUCER STATEMENT - PS1 -DESIGN

ISSUED BY: Larsens Concrete & Drainage

TO: Kapiti Coast District Council

TO BE SUPPLIED TO: Purchasing Customers

IN RESPECT OF: Rainwater Storage Tank 25000L

AT : Permitted addresses within region

LOT..... DP..... SO.....

We have been engaged by several housing companies to provide a

**25,000 L Buried Rainwater Tank that meets KCDC requirements for the area**

in the respect of the requirements of KCDC LIUDD Guideline, AS/NZS

☐ 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:

Low Impact Urban Design& Development Guideline

AS/NZS 3106 – (For Tank Construction)

together with the specification, and other documents attached to this statement.

On behalf of the design firm, and subject to:

- (i) Site verification of design assumptions re base bearing of 80kpa
- (ii) All propriety products meeting their performance specification requirements;

I believe on reasonable grounds the building, if constructed in accordance with the drawings, specifications and other documents provided or listed in the schedule, will comply with relevant provisions of the building code.

I, ...Stuart Ian McDonald

am

principal designer for Septech New Zealand.

designer for Larsens Concrete & Drainage Ltd

SIGNED



Date : 2 April 2016

25 JUN 2018

UH

YOU ARE HERE: [Tank Range](#)[Underground](#)

## FLAT TOP UNDERGROUND TANK

Our 25,000 Litre Flat Top Underground Concrete Tank has been designed to be buried with 300mm of topsoil coverage so your tank doesn't need to cover your back yard, your back yard can cover your tank. Perfect for small sections or unobstructed views.

80% of these underground concrete water tanks are installed under flat ground and installation in these cases is pretty easy. Our underground concrete water tanks can also be installed into a bank but are not meant to be used as a retaining wall. The main point is to ensure the bottom half of the concrete tank is buried all the way around to hold the tank in place.

The top half can be exposed one side if it suits. The top of the tank is designed to hold only 300mm of soil and some foot traffic, it will not hold a bank up. It is better to bury the tank at the top of the bank not the bottom or bury it at the bottom with a retaining wall to hold the bank off the tank. Phone Ian on 0800 353 222 if you need more information on the structural strength of our tanks.



### UNDERGROUND

Check out our 25,000 Litre Precast Concrete Underground Tank



### ABOVE GROUND

Our Flagship Product! 25,000 Litre precast concrete water tank, unbeatable quality!



### 10,000LITRE

Underground rainwater recycling system meets Kapiti Coast Council requirements.

## SINGLE POUR PRECAST

All Eletank branded tanks are single pour precast which means there are no joins under water in the tank, it is a single piece of concrete which is the best manufacturing process available in New Zealand.

## LOCAL SUPPORT

Wherever possible we use local contractors for all work onsite, our contacts in the area mean we can respond rapidly when needed.

## INSTALLATION

When any tanks are installed below ground adequate sub drainage MUST be provided to stop tanks rising when empty due to rising water tables. We can add a flange to the bottom of the tank to help stabilise it if high water tables are expected.

Access must be provided through the top of the buried tanks.

If multiple tanks are installed under ground, coupling together should be done by a registered Plumber or Drainer as these connections are prone to failure because of the pressures involved and normal ground compaction / movement. All joints between tanks are to be FLEXIBLE.

If compacting around in-ground tanks, fill tanks first, before compacting starts.

Tanks should not be buried more than the 300mm riser height without engineering advice

If installing tanks under a floor, the floor must be designed to carry the loading and installation must be supervised by a REGISTERED ENGINEER.

For any further information or pricing, phone one of our sales team on  
**0800 353 222**

We offer a full supply and install service

## A LITTLE ABOUT US

Larsens Concrete and Drainage are a precast concrete products manufacturer, started by Walter Larsen in 1932 we have grown to make a wide

<http://www.eletank.co.nz/TankRange/Underground.html>

## CONTACT INFORMATION

437 Heads Road,

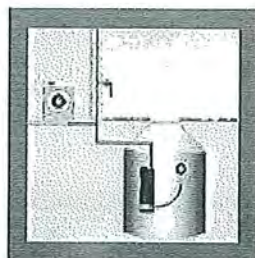
For standard product sales inquiries, E-mail

25 JUN 2018  
W

00026

DIVERTRON

DIVERTRON



AUTO  
START  
STOP



LEADER  
PUMPS

www.intellinside.com

on demand

CE

230 V 240V 115 V  
50 Hz 50 Hz 60 Hz

SCHUKO BSP AUSTRALIAN US

Submersible pressure pumps with built-in integrated electronics, designed to automatically start and stop the pump.

Pompe sommerse a pressione con elettronica integrata, per l'accensione e lo spegnimento automatico.

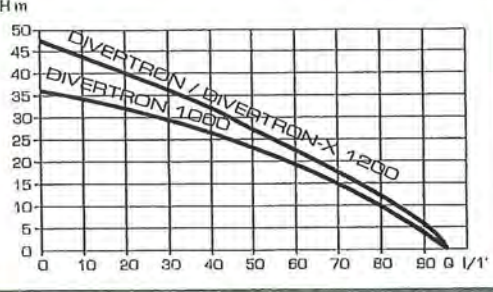
Bombas sumergibles a presión con electrónica de control integrada. Diseñada para el funcionamiento automático con encendido y apagamiento automático.

- Built-in electronic pressure switch and flow sensor
- Equipped with dry-run protection and built-in non return valve
- Easy to use
- High reliability
- Available with 3 or 4 impellers
- Supplied with 15 mt power cord
- Available with screen filter or stainless steel ring for use of suction kit

- Pressostato elettronico integrato e sensore di flusso
- Protezione contro la marcia a secco e valvola di non ritorno
- Facile da usare
- Alta affidabilità
- Disponibile con 3 o 4 giranti
- Fornite con cavo di alimentazione da 15 mt
- Disponibile con filtro di aspirazione o con raccordo inox

- Sensor de presión y flujo incorporados
- Equipados con dispositivo electrónico de seguridad que previene el funcionamiento de la bomba en seco y válvula antirretorno
- Alta confiabilidad
- Disponibles con 3 y 4 turbinas
- Equipadas de cable de alimentación de 15 mt
- Disponible con filtro inoxidable o racor de acero inox

| DIVERTRON                                                                           |        | P1<br>W | H<br>max<br>m | Q<br>max<br>l/min | Ø<br>mm | Impellers |
|-------------------------------------------------------------------------------------|--------|---------|---------------|-------------------|---------|-----------|
|  | 1000   | 900     | 36            | 95                | 1"      | 3         |
|  | 1200   | 1100    | 48            | 95                | 1"      | 4         |
|                                                                                     | X 1200 | 1100    | 48            | 95                | 1"      | 4         |

|                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                      |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |  |  |  |
|                                                                                     | cm                                                                                  | Kg                                                                                  | 120x80                                                                              |                                                                                      |
|                                                                                     | 15x15x45                                                                            | 11                                                                                  | 40                                                                                  |                                                                                      |
|                                                                                     | 15x15x48                                                                            | 11                                                                                  | 40                                                                                  |                                                                                      |
|                                                                                     | 15x15x48                                                                            | 11                                                                                  | 40                                                                                  |                                                                                      |



# Technical Specification

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### WE VALUE YOUR FEEDBACK

To continue with the development of our products and systems, we value your input. Please send any suggestions, including your name, contact details, and relevant sketches to:

**Ask James Hardie™**  
Fax 0800 808 988  
[literaturefeedback@jameshardie.co.nz](mailto:literaturefeedback@jameshardie.co.nz)



# 1 Application and scope

## 1.1 APPLICATION

Linea® Weath®rboard is a 16mm thick, pre-primed bevel back fibre cement weatherboard and is classified as lightweight wall cladding suitable for residential and light commercial construction using timber framed external walls. Linea Weatherboard is available in 135mm, 150mm and 180mm widths.

James Hardie also has available:

- Axent™ Fascia in two widths. Axent Fascia is a 16mm thick, pre-primed fibre cement product designed to accommodate James Hardie soffit linings.
- Axent™ Trim comes in a variety of widths for use as decorative trims around openings and external corners. Axent Trim is a 16mm thick, pre-primed fibre cement product.

### Specifier

If you are a specifier or other responsible party for a project ensure that the information in this document is appropriate for the application you are planning and that you undertake specific design and detailing for areas which fall outside the scope of these specifications.

### Installer

If you are an installer ensure that you follow the design, moisture management principles, associated figures and material selection provided by the designer and this James Hardie Technical Specification.

All the details provided in this document must be read in conjunction with the specifiers specification.

### Make sure your information is up to date

When specifying or installing James Hardie products, ensure you have the current manual. If you're not sure you do, or, if you need more information, visit [www.jameshardie.co.nz](http://www.jameshardie.co.nz) or Ask James Hardie on 0800 808 868.

## 1.2 SCOPE

This specification covers the use of Linea Weatherboard on buildings that fall within the scope limitations of the New Zealand Building Code (The NZBC) Acceptable Solution E2/AS1, Paragraph 1.1.

This specification includes the use of Linea Weatherboard in both direct to stud and cavity construction method and must be read in conjunction with the current BRANZ Appraisals for Linea Weatherboard.

This specification also covers the use of Linea Weatherboard in cavity construction for specific design projects (SED) subject to a wind pressure of 2.5kPa (ULS) maximum. This document is intended for use by architects, designers, specifiers or builders who are involved in specifying Linea Weatherboard. The document also serves the purpose of an installation manual for this product.

## 1.3 DETAILS

Various Linea Weatherboard details are provided in the Details section of this document. This specification and details in CAD file are also available to download from our website at [www.jameshardie.co.nz](http://www.jameshardie.co.nz).

## 1.4 SPECIFIC DESIGN

For use of Linea Weatherboard outside this published scope, the architect, designer or engineer must undertake specific design.

For advice on designs outside the scope of this specification, Ask James Hardie on 0800 808 868.

# 2 Design



## 2.1 COMPLIANCE

Linea Weatherboard direct fixed and cavity cladding has been issued a CodeMark certificate number GM-10-30018 which confirms Linea Weatherboard is deemed to comply with the requirements of the NZBC. Please refer to our website [www.jameshardie.co.nz](http://www.jameshardie.co.nz) for a copy of the CodeMark certificate. Linea Weatherboard also has a BRANZ Appraisal number 446 (2010) and 447 (2010) at [www.branz.co.nz](http://www.branz.co.nz) or [www.jameshardie.co.nz](http://www.jameshardie.co.nz).

## 2.2 RESPONSIBILITY

The specifier or other party responsible for the project must ensure that the information and details in this specification are appropriate for the intended application and that additional detailing is performed for specific design or any areas that fall outside the scope of this technical specification. For applications outside the scope of this literature and figures which are not provided herein, the architect, designer or engineer must undertake specific design and it should be ensured that the intent of their design meets the requirements of the NZBC.

All dimensions shown are in millimetres unless noted otherwise. All New Zealand Standards referenced in this manual are current edition and must be complied with.

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

## 2.3 SITE AND FOUNDATION

The site on which the building is situated must comply with the NZBC Acceptable Solution E1/AS1 'Surface Water'. Foundation design must comply with the requirements of NZS 3604 'Timber-framed Buildings' or be as per specific engineering design. The grade of adjacent finished ground must slope away from the building to avoid any possibility of water accumulation in accordance with the NZBC requirements.

## 2.4 SURFACE CLEARANCES

The clearance between the bottom edge of cladding and paved/unpaved ground must comply with section 9.1.3 of E2/AS1. The finished floor level must also comply with these requirements. These clearances must be maintained throughout the life of the building.

Linea Weatherboards must overhang the bottom plate on a concrete slab by a minimum of 50mm as required by the NZBC Acceptable Solution, E2/AS1 Table 18.

On the roofs and decks the minimum clearance must be 50mm.

Do not install external cladding such that it may remain in contact with water or ground.

## 2.5 MOISTURE MANAGEMENT

It is the responsibility of the specifier to identify moisture related risks associated with any particular building design.

Wall construction design must effectively manage moisture, considering both the interior and exterior environments of the building, particularly in buildings that have a higher risk of wind driven rain penetration or that are artificially heated or cooled. Walls shall include those provisions as required by the NZBC Acceptable Solution E2/AS1 'External Moisture'. In addition, all wall openings, penetrations, junctions, connections, window sills, heads and jambs must incorporate appropriate flashings for waterproofing. The other materials, components and installation methods used to manage moisture in the walls, must comply with the requirements of relevant standards and the NZBC. For information in relation to designing for weathertightness, refer to BRANZ and the Ministry of Business Innovation & Employment (MBIE) updates on the following websites, respectively [www.branz.co.nz](http://www.branz.co.nz) and [www.dbh.govt.nz](http://www.dbh.govt.nz).

## 2.6 STRUCTURE

Timber framing must comply with NZS 3604 for buildings or parts of buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific engineering design in accordance with NZS 3603 and AS/NZS 1170. Where specific engineering design is required, the framing stiffness must be equivalent to or more than the framing provisions of NZS 3604. In all cases stud spacing must not exceed 600mm centres maximum for buildings designed to NZS 3604 and 400mm centres maximum for specific engineering design buildings subject to design wind pressures higher than 1.5kPa.

For timber frame walls longer than 12m, it is best practice to allow for construction joints to accommodate movements generated due to timber shrinkage or deflection etc

## 2.7 WIND LOADING

Linea Weatherboard cladding is suitable for use in all wind zones as defined in NZS 3604. It is also suitable for use in SED buildings exposed to wind pressures up to 2.5kPa (ULS).

For wind pressures higher than those mentioned above, contact James Hardie at 0800 808 868 for assistance.

## 2.8 STRUCTURAL BRACING

Linea Weatherboard direct fixed installed as per Linea Weatherboard specific bracing details will provide bracing for buildings designed and constructed in accordance with NZS 3604. The Linea Weatherboard bracing systems have been independently tested by SCION using direct fixed construction. The following range of bracings can be achieved

- Wind 75 – 130 BU'S/m
- Earthquake 67 – 101 BU'S/m

Refer to the James Hardie Bracing Design Manual for details.

## 2.9 FIRE RATED WALLS

Walls clad with Linea Weatherboard using a direct fix or cavity construction method can achieve fire ratings of up to 90/90/90 when constructed in accordance with the James Hardie 'Fire and Acoustic' Design Manual. Linea Weatherboard must be face fixed for Fire Rated applications.

Refer to Fire and Acoustic Design Manual for further information about fire rated systems.

## 2.10 ENERGY EFFICIENCY

External walls constructed as per this technical specification, using Linea Weatherboard and bulk insulation, where the area of glazing is 30% or less of the total wall area, complies with the minimum R-value requirements for walls as per the NZBC Acceptable Solution H1/AS1 (The NZBC Clause H1 Energy Efficiency), Replacement Table 1. To meet the minimum thermal insulation requirements for the construction, the bulk insulation as specified in Table 1 must be used. This insulation may be substituted with insulation material having higher R-values. Thermal insulation of a wall is affected when the depth of the timber framing is increased or decreased or stud spacing is decreased. The calculation used in Table 1 is based on a timber framing size 90 x 45mm and an internal lining material such as James Hardie Villaboard® Lining or a 10mm plasterboard.

Table 1

| Insulation capability |                                  |                                        |
|-----------------------|----------------------------------|----------------------------------------|
| Climate Zone          | Construction R-Value Requirement | Minimum R-Value of Insulation Required |
| 1 and 2               | 1.9 m <sup>2</sup> °C/W          | #R2.0                                  |
| 3                     | 2.0 m <sup>2</sup> °C/W          | #R2.2                                  |

Total construction R-Value depends on the insulation material used and the framing ratio. The insulation material R-Values specified in this table are for studs spaced at 600mm c/c and nogs spaced at 800mm c/c.

# To achieve higher construction R-Values the wall insulation material must be replaced with an insulation material having higher R-Values to suit the requirements.

For further guidance on insulation requirement refer to current edition of 'House Insulation Guide' published by BRANZ.

## 3 Framing

### 3.1 GENERAL

This Linea Weatherboard technical specification is only suitable for timber-framed buildings. Other framing materials are outside the scope of this specification.

For Steel Framing refer to James Hardie Claddings Installation to Steel Framing Technical Supplement.

### 3.2 TIMBER GRADE

Timber must be graded in accordance with NZS 3631 'New Zealand Timber Grading Rules'. The timber grade to be used must be in accordance with NZS 3604 requirements.

### 3.3 DURABILITY

To comply with the NZBC requirements the external framing must be treated to a minimum H1.2 treatment. Refer to the NZBC Acceptable Solution B2/AS1 Durability for further information about the durability requirements. For timber treatment information refer to NZS 3602 (Timber and Wood-Based Products for use in Buildings) and NZS 3640 (Chemical Preservation of Round and Sawn Timber) for minimum timber treatment selection and treatment requirements. Also refer to framing manufacturer's literature for further guidance on timber selection.

Framing must be protected from moisture at sites in accordance with the recommendations of framing manufacturers.

Note: refer to NZS 3602 for information about the allowable moisture content in timber.

### 3.4 FRAME CONSTRUCTION

For buildings within the scope of NZS 3604 the framing sizes and set-out must comply with NZS 3604 with stud, nog/dwang centres as required by this specification.

In case of gable end trusses sitting on top plates of the external wall frame, the frame size must be in accordance with truss design and specification supplied by the frame and truss manufacturer/supplier supported by independent design producer statement.

#### 3.4.1 Direct fixed construction method

The following framing must be provided for direct fixed construction method:

- Studs must be provided at 600mm centres maximum.
- Nogs must be provided at 1200mm centres maximum.
- Double studs are required at internal corners.
- Extra packers may be required at external corners.
- Extra studs are required for aluminium internal corner sections.

#### 3.4.2 Cavity construction method

The following framing must be provided for cavity construction method:

- When studs are at 600mm centres the nogs must be provided at 800mm centres maximum.
- When studs are at 400mm centres the nogs may be provided at 1200mm centres maximum.
- Double studs are required at internal corners.
- Extra packers may be required at external corners.
- Extra studs are required for aluminium internal corner sections.

#### 3.4.3 Specific Engineering Design (SED)

For EH wind zone and specific engineering design projects the timber framing is required to be designed in accordance with NZS 3603 and AS/NZS 1170. The minimum framing sizes and layout must comply with this specification.

- Stud spacing 400mm centres maximum
- Nog spacing 1200mm centres maximum
- Other requirements as per 3.5.2 above

### 3.5 TOLERANCES

In order to achieve an acceptable wall finish, it is imperative that framing is straight and true. Framing tolerances must comply with the requirements of NZS 3604 and the manufacturer's specifications. All framing must be made flush.

# 4 Preparation

## 4.1 FLEXIBLE UNDERLAY OR HOMERAB PRE-CLADDING

Flexible underlay must be provided as per the requirements of the NZBC Acceptable Solution E2/AS1 'External Moisture' Table 23. The flexible underlay must be fixed in accordance with E2/AS1 and the underlay manufacturer's recommendations. Walls which are not lined on the inside face (e.g. garage walls or gable ends) must include a rigid sheathing or an air barrier behind the cladding which complies with the requirements of the NZBC Acceptable Solution E2/AS1 Table 23. For attached garages, flexible underlays must be selected in accordance with the NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. HomeRAB Pre-Cladding is suitable for use in these applications. It must be installed in accordance with James Hardie Rigid Air Barriers installation manual.

## 4.2 RIGID AIR BARRIER

For EH wind zone or Specific Engineering Design (SED) projects where the design wind pressures are between 1.5kPa (ULS) and 2.5kPa (ULS), RAB Board (6mm) must be used. Refer to James Hardie Rigid Air Barriers installation manual for information regarding its installation.

## 4.3 FLASHING

All wall openings, penetrations, intersections, connections, window sills, heads and jambs must be flashed prior to weatherboard installation. Please refer to moisture management requirements in Clause 2.5. The flexible underlay must be appropriately incorporated with penetration and junction flashings. Materials must be lapped in such a way that water tracks down to the exterior on the face of flexible underlay. The selected flashing materials must comply with the durability requirements of Table 20 of the NZBC Acceptable Solution E2/AS1.

## 4.4 VENT STRIP

The James Hardie uPVC cavity vent strip must be installed at the bottom of all walls constructed using the drained and ventilated cavity construction method. James Hardie uPVC vent strip has an opening area of 1000mm<sup>2</sup>/m length. It is important that the openings in the vent strip are kept clear and unobstructed to allow free drainage and ventilation of cavities.

## 4.5 CAVITY BATTENS

Buildings with a risk score of 13-20 calculated in accordance with the NZBC Acceptable Solution E2/AS1 Table 3 require Linea Weatherboards to be installed on a cavity.

The cavity battens provide airspace between the frame and cladding and are considered a "packer" only in this specification.

The timber battens must be minimum H3.1 treated in accordance with NZS 3640 (Chemical Preservation of Round and Sawn Timber) to comply with the durability requirements of B2/AS1.

Cavity battens must comply with E2/AS1 and:

- be minimum 18mm thick.
- be minimum as wide as the width of studs.
- must be fixed by the cladding fixings to the main framing through the flexible underlay.
- fix cavity battens to studs at maximum 600mm centres.
- until claddings are fixed the battens need only to be tacked to framing with 40 x 2.8mm nails at 800mm centres maximum.

(Batten fixing is required temporarily to keep them straight on the wall during construction.)

## 4.6 INTERMEDIATE SUPPORT

Where studs are at 600mm centres an intermediate means of restraining the flexible underlay and insulation from bulging into the cavity must be installed. An acceptable method to achieve this is using one of the following:

- intermediate cavity batten between the studs; or
- 75mm galvanised mesh; or
- polypropylene tape at 300mm centres fixed horizontally and drawn taut.

No intermediate supports are required:

- where studs are at maximum 400mm centres; or
- when rigid sheathings instead of flexible underlays are used.

## 4.7 CORNERS

Anticipated joist shrinkage must be allowed for in the design process. Do not run trims or aluminium extrusions continuously across solid floor joists. There are a number of options to select from when detailing external corners:

- 90° corner soaker in aluminium, copper or stainless steel. Refer to Figures 7 and 33.
- 135° corner soaker 180mm aluminium, contact James Hardie
- Box corners using Axent Trim. Refer to Figures 3, 4 and 30.
- Mitred corners to weatherboards. Refer to Figures 5 and 31.
- Aluminium boxed corners. Refer to Figures 6 and 32.

There are a number of options to select from when detailing internal corners:

- Scribed corner. Refer to Figures 8 and 34.
- 90° or 135° Aluminium W-mould. Refer to Figures 9, 10, 35 and 36.

## 4.8 JUNCTIONS AND PENETRATIONS

Refer to Clause 2.5 of this specification for moisture management requirements. All windows and doors must be detailed as per the requirements of this specification. James Hardie has developed the window details for Linea Weatherboards which meet the performance requirements of E2 'External Moisture', an approved document of the NZBC. Refer to Figures 11 to 22 and 38 to 51.

# 5 Fixing Linea Weatherboard

## 5.1 GENERAL

The horizontal lap of Linea Weatherboards must be 30mm minimum. In certain scenarios you may require to creep up the lap. This must not exceed 33mm. Linea Weatherboards must be kept dry whilst in storage prior to and during fixing. Cut ends which are exposed after installation or where sealant is applied to the boards such as slimline box corners, internal corners, mitred external corners etc, must be primed prior to installation. Dust and loose material must be removed before priming.

A minimum H3.1 treated timber cant strip must be provided to support the bottom board on the wall. Refer to Figure 1 and Figure 26.

## 5.2 FASTENER DURABILITY

Fasteners must meet the minimum durability requirements of the NZBC. NZS 3604 specifies the requirements for fixing's material to be used in relation to the exposure conditions and are summarised in Table 2.

Table 2

Exposure conditions and nail selection prescribed by NZS 3604

### NAIL MATERIAL

| Zone D *            | Zone C outside sea spray zone and Zone B and Geothermal hot spots | Bracing — All zones |
|---------------------|-------------------------------------------------------------------|---------------------|
| Grade 316 Stainless | Hot-dipped galvanised or 316 stainless                            | Grade 316 stainless |

\* (Zone C areas where local knowledge dictates that increased durability is required, appropriate selection shall be made)  
Microclimate conditions as detailed in NZS 3604, Paragraph 4.2.4 require SED.

Also refer to the NZBC Acceptable Solution 'E2/AS1' Table 20 and 21 for information regarding the selection of suitable fixing materials and their compatibility with other materials.

## 5.3 NAIL SIZE AND FIXING METHOD

Linea Weatherboards and Axent Trim must be fixed to timber with the types of nails specified in Tables 3 and 4, in accordance with the following requirements:

- Linea Weatherboard can either be face/exposed fixed or concealed fixed.
- Linea Weatherboard must be fixed into studs at maximum 600mm centres. Fixing centres to coincide with stud spacing. Refer to Figure 2 and 28.
- All concealed nails must be driven flush with the board surface.
- When concealed fixing Linea Weatherboards, nails must be driven under the lap of boards, except at all corners and vertical edges of openings where Linea Weatherboards must be face fixed. Refer to Figure 2 and Figure 29.
- Nails must be fixed 25mm from the end of the board when hand nailing. For gun nailing refer to Section 5.4.
- When using concealed fixing method, any gaps that may appear under the lap due to site conditions can be minimised by fixing a jolt head nail through the lap as per the exposed nailing method. Refer to Figure 2 and 29.
- When using concealed fixing method, Linea Weatherboard can also be tied together by face fixing through the lap using 32mm brad nails if desired.

- When face fixing Linea Weatherboard, the upper board must be pre-drilled before fixing with a jolt head nail.

Table 3

### Nail requirements for Linea Weatherboards

#### DIRECT TO STUD FIXING UP TO AND INCLUDING VH WIND ZONE

| Concealed Nailing over flexible underlay |                                                                                       |
|------------------------------------------|---------------------------------------------------------------------------------------|
| 40 x 2.8mm HardieFlex™ nails             | Finish flush with the board surface.                                                  |
| Face Nailing over flexible underlay      |                                                                                       |
| 60 x 3.15mm jolt head nails              | Hot-dipped galvanised jolt head nail with pre-drilling* through the top weatherboard. |
|                                          | Stainless steel jolt head nail with pre-drilling* through the top weatherboard.       |
| Concealed Nailing over rigid air barrier |                                                                                       |
| 50 x 2.8mm HardieFlex™ nails             | Finish flush with the board surface.                                                  |
| Face Nailing over rigid air barrier      |                                                                                       |
| 75 x 3.15mm jolt head nails              | Hot-dipped galvanised jolt head nail with pre-drilling* through the top weatherboard. |
|                                          | Stainless steel jolt head nail with pre-drilling* through the top weatherboard.       |

#### CAVITY FIXING UP TO AND INCLUDING VH WIND ZONE

| Concealed Nailing over flexible underlay |                                                                                       |
|------------------------------------------|---------------------------------------------------------------------------------------|
| 60 x 3.15mm HardieFlex™ nails            | Finish flush with the board surface.                                                  |
| Face Nailing over flexible underlay      |                                                                                       |
| 75 x 3.15mm jolt head nails              | Hot-dipped galvanised jolt head nail with pre-drilling* through the top weatherboard. |
|                                          | Stainless steel jolt head nail with pre-drilling* through the top weatherboard.       |
| Concealed Nailing over rigid air barrier |                                                                                       |
| 75 x 3.15mm HardieFlex™ nails            | Finish flush with the board surface.                                                  |
| Face Nailing over rigid air barrier      |                                                                                       |
| 90 x 4.0mm jolt head nails               | Hot-dipped galvanised jolt head nail with pre-drilling* through the top weatherboard. |
|                                          | Stainless steel jolt head nail with pre-drilling* through the top weatherboard.       |

#### CAVITY FIXING EH WIND ZONE AND SED PROJECTS (1.5KPA - 2.5KPA WIND PRESSURE)

| Face Nailing              |                                                                                        |
|---------------------------|----------------------------------------------------------------------------------------|
| 90 x 4.0mm jolt head nail | Hot-dipped galvanised jolt head nail with pre-drilling** through the top weatherboard. |
|                           | Stainless steel shank jolt head nail with pre-drilling** through the top weatherboard. |

# 7 Finishing

Table 4

| Nail requirements for trim |                                                                                                                                                        |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Single Thickness           | 60mm jolt head nails. If fixing over Linea Weatherboard use predrilled* 75 x 3.15mm jolt head nails.                                                   |
| Double Thickness           | 60mm jolt head nails.                                                                                                                                  |
| Single plus packer         | If fixing over Linea Weatherboard use 75 x 3.15mm jolt head nails through a pre-drilled* hole. When fixing to timber support use 60mm jolt head nails. |

\* Use a 3.0mm drill bit. \*\* Use a 3.5mm drill bit

Note: Special fixing arrangements are required for bracing and fire-resistance rated wall systems. For more information Ask James Hardie on 0800 808 868.

## 5.4 GUN NAILING

Linea Weatherboard can also be gun-nailed with a D head or RounDrive nail when concealed fixing method is used.

- Gun-nailing must not be used when Linea Weatherboard is used for bracing.
- Nails must be no closer than 50mm from the ends of boards when gun nailing is used — double studs will be required.
- Be minimum length and gauge as per Table 3.
- Be finished flush with surface of board.

# 6 Jointing

The ends of Linea Weatherboards are jointed off-stud by means of a tongue and groove joint. Tongue and groove joints may be located centrally between studs but no closer than 100mm from the edge of a stud. The joints must be staggered by 600mm minimum. Flexible sealant must be applied in the tongue and groove joint at the time of installation.

Note: Protective coating of Linea Weatherboard and Axent Trim is required in order to meet the durability requirements of the NZBC.

## 7.1 PREPARATION AND PRIMING

The Linea Weatherboard and Axent Trim must be dry before painting. Punch and fill all exposed nails a maximum of 2mm below the surface. Fill the hole with an exterior grade builders fill, allow to cure and sand smooth ready for priming. Prime the filled holes in accordance with paint manufacturer's specifications.

It is not recommended to seal under the lap of weatherboards as it helps circulation of air behind the weatherboard cladding.

## 7.2 SEALANTS

All sealants must demonstrate the ability to meet the relevant requirements of the NZBC and hold a current BRANZ Appraisal. Application and use of sealants must comply with manufacturer's instructions. Sealants, if coated, must be compatible with the paint system.

## 7.3 PAINTING

All Linea Weatherboards are pre-primed on their face and bottom edge with a factory applied acrylic base coat.

Linea Weatherboard must be painted within 90 days of installation. There is no restriction on the LRV of paint to be applied on the Linea Weatherboard. All exposed faces, including the top edges under the sills and bottom edges of Linea Weatherboard, Axent Trim and accessories must be finished with latex exterior paint system complying with any of parts 7, 8, 9, and 10 of AS 3730.

Dark coloured paints can be used on Linea Weatherboard and Trim. The dark colours in certain environments may fade over a period of time. Special paints/coatings are required in certain harsh environments.

Stainless steel soakers are generally left natural. For painting over stainless steel soakers, refer to paint manufacturer as special preparation and paints are required.

# 8 Storage and handling

Paint selection and the preparation required is dependant on paint chosen. Refer to the paint manufacturer for information before starting painting.

Linea Weatherboards and Axent Trim must be laid flat on a smooth level surface. To ensure optimum performance, store weatherboards under cover and keep dry prior to fixing. If the weatherboards should become wet, allow to dry thoroughly before fixing. Do not carry weatherboards on the flat, carry in the vertical position to avoid excessive bending.

# 9 Maintenance

The extent and nature of maintenance will depend on the geographical location and exposure of the building. It is the responsibility of the specifier to determine normal maintenance requirements to comply with The NZBC Acceptable Solution B2/AS1. As a guide, it is recommended that basic normal maintenance tasks shall include but not be limited to:

- Washing down exterior surfaces every 6-12 months\*,
- Re-applying exterior protective finishes\*\*,
- Maintaining the exterior envelope and connections including joints, penetrations, flashings and sealants,
- Cleaning out gutters, blocked pipes and overflows as required,
- Pruning back vegetation close to or touching the building,
- The clearances between the bottom edge of Linea Weatherboard and the finished/unfinished ground must always be maintained.
- Stainless steel soakers used in extreme coastal conditions or in sea spray zones may show some signs of 'tea staining'. It is an aesthetic issue and to minimise staining soaker must be washed/polished frequently.

\*Do not use a water blaster to wash down the cladding.

\*In extreme coastal conditions or sea spray zones, wash every 3-4 months.

\*\*Refer to your paint manufacturer for washing down and recoating requirements related to paint performance.

# 10 Product information

## 10.1 MANUFACTURING AND CLASSIFICATION

James Hardie New Zealand is an ISO 9001 Telarc certified manufacturer. Linea Weatherboard and Axent Trim are manufactured to meet the requirements of AS/NZS 2908.2: 2000 'Cellulose-Cement Products'. Linea Weatherboard has a classification of Type A Category 3 in accordance with this Standard. Linea Weatherboard is an advanced lightweight cement composite building product incorporating James Hardie proprietary Scyon technology. The basic composition of product is Portland cement, ground sand, cellulose fibre and water.

Linea Weatherboard has a bevel back and tongue and groove at the ends for jointing. The bottom front edge of Linea Weatherboard is chamfered. The weatherboards are supplied pre-primed on their face and bottom edge with an acrylic primer.

Linea Weatherboards and Axent Trim are identified by the printing at regular intervals of the name Linea on the back face.

## 10.2 JAMES HARDIE TRIM

The Axent Trim, used for box corners, around windows and doors as well as special architectural features, is also made with the CLD technology and is supplied pre-primed with an acrylic primer.

## 10.3 DURABILITY

Linea Weatherboard and Axent Trim, when installed and maintained as per the technical specification, will meet the durability requirements for claddings as required in the NZBC Approved Document B2 'Durability'.

### 10.3.1 Resistance to moisture/rotting

Linea Weatherboard and Axent Trim have demonstrated resistance to permanent moisture-induced deterioration (rotting) and has passed the following tests in accordance with AS/NZS 2908.2:

- Water Permeability (Clause 6.2)
- Warm Water (Clause 6.4)
- Heat Rain (Clause 6.5)
- Soak Dry (Clause 6.6)
- Freeze-Thaw (Clause 8.2.3)

### 10.3.2 Control of External Fire Spread

Linea Weatherboard meets the requirements of Appendix C C7.1.1 and is classified as 'Non-Combustible Material' which is suitable for use as external wall cladding and complies with the requirements of Paragraph 5.4 of the NZBC Acceptable Solution C/AS1 and Paragraph 5.8.1 of Acceptable Solutions C/AS2 to C/AS6 of the NZBC.

### 10.3.3 Alpine regions

In regions subject to freeze/thaw conditions, Linea Weatherboard must not be in direct contact with snow or ice build up for extended periods, e.g. external walls in alpine regions subject to snow drifts over winter.

The Linea Weatherboard has been tested in accordance with AS/NZS 2908.2 Clause 8.2.3.

## 10.4 PRODUCT SIZES AND MASS

Available sizes of Linea Weatherboard and Axent Trim and its weight are given in Table 6.

## 10.5 SIZE AND WEIGHT

Linea Weatherboard is categorised as a Light Weight Wall Cladding as described in NZS 3604. Physical properties of Linea Weatherboard and Axent Trim are provided in Table 6.

# 11 Safe working practices

## **WARNING — DO NOT BREATHE DUST AND CUT ONLY IN WELL VENTILATED AREA**

James Hardie products contain sand, a source of respirable crystalline silica which is considered by some international authorities to be a cause of cancer from some occupational sources. Breathing excessive amounts of respirable silica dust can also cause a disabling and potentially fatal lung disease called silicosis, and has been linked with other diseases. Some studies suggest smoking may increase these risks. During installation or handling: (1) work in outdoor areas with ample ventilation; (2) minimise dust when cutting by using either 'Score and Snap' knife, fibre cement shears or, where not feasible, use a HardieBlade™ Saw Blade and dust-reducing circular saw attached to a HEPA vacuum; (3) warn others in the immediate area to avoid breathing dust; (4) wear a properly-fitted, approved dust mask or respirator (e.g. P1 or P2) in accordance with applicable government regulations and manufacturer instructions to further limit respirable silica exposures. During clean-up, use HEPA vacuums or wet cleanup methods — never dry sweep. For further information, refer to our installation instructions and Safety Data Sheets available at [www.jameshardie.co.nz](http://www.jameshardie.co.nz).

**FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.**

## James Hardie recommended safe working practices

### **CUTTING OUTDOORS**

1. Position cutting station so wind will blow dust away from the user or others in working area.
2. Use one of the following methods based on the required cutting rate:

#### **BEST**

- Dust reducing circular saw equipped with HardieBlade™ Saw Blade and HEPA vacuum extraction.

#### **GOOD**

- Dust reducing circular saw with HardieBlade™ Saw Blade.

### **SANDING/REBATING/DRILLING/OTHER MACHINING**

When sanding, rebating, drilling or machining you should always wear a P1 or P2 dust mask and warn others in the immediate area.

### **IMPORTANT NOTES**

1. For maximum protection (lowest respirable dust production), James Hardie recommends always using "Best" — level cutting methods where feasible.
2. NEVER use a power saw indoors.
3. NEVER use a circular saw blade that does not carry the HardieBlade™ logo.
4. NEVER dry sweep — Use wet suppression or HEPA vacuum.
5. NEVER use grinders.
6. ALWAYS follow tool manufacturers' safety recommendations.

P1 or P2 respirators should be used in conjunction with above cutting practices to further reduce dust exposures. Additional exposure information is available at [www.jameshardie.co.nz](http://www.jameshardie.co.nz) to help you determine the most appropriate cutting method for your job requirements. If concern still exists about exposure levels or you do not comply with the above practices, you should always consult a qualified industrial hygienist or contact James Hardie for further information.

## Working instructions

Refer to recommended Safe Working Practices before starting any cutting or machining of product.

### HardieBlade™ Saw Blade

The HardieBlade™ Saw Blade used with a dust-reducing saw connected to a HEPA vacuum is ideal for fast, clean cutting of James Hardie fibre cement products. A dust-reducing saw uses a dust deflector or a dust collector connected to a vacuum system. When sawing, clamp a straight-edge to the sheet as a guide and run the saw base plate along the straight edge when making the cut.



### Hole-forming

#### For smooth clean cut circular holes:

Mark the centre of the hole on the sheet.

Pre-drill a pilot hole.

Using the pilot hole as a guide, cut the hole to the appropriate diameter with a hole saw fitted to a heavy duty electric drill.

#### For irregular holes:

Small rectangular or circular holes can be cut by drilling a series of small holes around the perimeter of the hole then tapping out the waste piece from the sheet face.



Tap carefully to avoid damage to sheets, ensuring that the sheet edges are properly supported.

### Storage and handling

All James Hardie building products should be stored to avoid damage, with edges and corners of the sheets protected from chipping.

James Hardie building products must be installed in a dry state and be protected from rain during transport and storage. The product must be laid flat under cover on a smooth level surface clear of the ground to avoid exposure to water or moisture, etc.

### Quality

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

# 12 Product sizes

Table 6

| Linea Weatherboard and Axent Trim sizes |             |            |                |             |                      |                                       |                                   |                                         |                                |
|-----------------------------------------|-------------|------------|----------------|-------------|----------------------|---------------------------------------|-----------------------------------|-----------------------------------------|--------------------------------|
|                                         |             |            |                |             |                      | Coverage Information                  |                                   |                                         |                                |
| Product                                 | Length (mm) | Width (mm) | Thickness (mm) | End Details | Effective Cover (mm) | No. of planks/ metre height (approx.) | Mass kg/lineal m (approx. at EMC) | Mass kg/m <sup>2</sup> (approx. at EMC) | Weight/ packs (60 units/ pack) |
| Linea Weatherboard 135                  | 4200*       | 135        | 16             | T & G       | 105                  | 9.5                                   | 2.62                              | 25.70                                   | 660.00                         |
| Linea Weatherboard 150                  | 4200*       | 150        | 16             | T & G       | 120                  | 8.3                                   | 3.1                               | 24.93                                   | 781.00                         |
| Linea Weatherboard 180                  | 4200*       | 180        | 16             | T & G       | 150                  | 6.7                                   | 3.57                              | 23.92                                   | 899.00                         |
| Axent Trim 84mm                         | 2600        | 84         | 16             | Square      | N/A                  | N/A                                   | 1.6                               | N/A                                     | N/A                            |
| Axent Trim 100mm                        | 2600        | 100        | 16             | Square      | N/A                  | N/A                                   | 1.9                               | N/A                                     | N/A                            |

\*Length is 4200mm plus 5mm for the tongue and groove making overall length 4205mm

\*The effective thickness of finished Linea Weatherboard on the wall at the lap is approximately 33 to 35mm

NOTE: All dimensions and masses provided are approximate only and are subject to manufacturing tolerances.

# 13 Accessories

Table 7

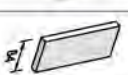
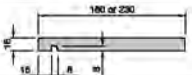
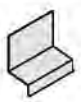
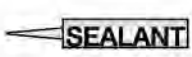
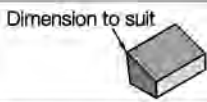
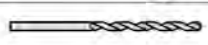
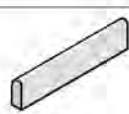
| Accessories/Tools supplied by James Hardie                                          |                                                                                                                                                                         |                        |                                                 |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------------------|
| Accessories                                                                         | Description                                                                                                                                                             | Size (mm)              | Code                                            |
|    | <b>External corner soaker 90° for Linea Weatherboards 180mm</b><br><ul style="list-style-type: none"> <li>Aluminium</li> <li>Copper</li> <li>Stainless Steel</li> </ul> | 200 long               | <b>301186</b><br><b>301188</b><br><b>301197</b> |
|    | <b>External corner soaker 135° for Linea Weatherboards 180mm</b><br><ul style="list-style-type: none"> <li>Aluminium</li> </ul>                                         | 200 long               | <b>301178</b>                                   |
|    | <b>External corner soaker 90° for Linea Weatherboards 150mm</b><br><ul style="list-style-type: none"> <li>Aluminium</li> <li>Stainless Steel</li> </ul>                 | 170 long               | <b>302820</b><br><b>302821</b>                  |
|    | <b>External corner soaker 90° for Linea Weatherboards 135mm</b><br><ul style="list-style-type: none"> <li>Aluminium</li> <li>Stainless Steel</li> </ul>                 | 155 long               | <b>301185</b><br><b>301196</b>                  |
|   | <b>External Slimline Box Corner Mould</b><br>Etched primed aluminium extrusion used to create external corner                                                           | 2700 long<br>4000 long | <b>301195</b><br><b>305809</b>                  |
|  | <b>Box Corner 'Z' Flashing</b>                                                                                                                                          | 2700 long              | <b>301203</b>                                   |
|  | <b>Internal 'W' Mould 90°</b><br>Etched primed aluminium extrusion used to create 90° internal corner                                                                   | 2700 long<br>4000 long | <b>301184</b><br><b>305807</b>                  |
|  | <b>Internal 'W' Mould 135°</b><br>Etched primed aluminium extrusion used to create 135° internal corner                                                                 | 2700 long              | <b>301183</b>                                   |
|  | <b>Vent Strip</b><br>PVC moulding used as vermin proofing                                                                                                               | 3000 long              | <b>302490</b>                                   |
|  | <b>JH Corner Under Flashing 50 x 50mm</b><br>PVC moulding used as under flashing for internal and external corners                                                      | 3000 long              | <b>303745</b>                                   |
|  | <b>Axent Trim 84mm</b>                                                                                                                                                  | 84 x 2600 long         | <b>401943</b>                                   |
|  | <b>Axent Trim 100mm</b>                                                                                                                                                 | 100 x 2600 long        | <b>401930</b>                                   |
|  | <b>HardieFlex™ nail - 5kg</b>                                                                                                                                           | 60 x 3.15mm            | <b>302782</b>                                   |
|  | <b>HardieFlex™ nail - 5kg</b>                                                                                                                                           | 60 x 3.15mm            | <b>302784</b>                                   |
|  | <b>HardieBlade™ Saw Blade</b><br>Diamond tip fibre cement circular saw blade. Spacers not included                                                                      | 4 tooth - 184mm        | <b>300660</b>                                   |
|  | <b>HardieBlade™ Saw Blade</b><br>Diamond tip fibre cement circular saw blade. Spacers not included                                                                      | 6 tooth - 254mm        | <b>303375</b>                                   |
|  | <b>Axent Fascia - 180mm - 230mm</b>                                                                                                                                     | 4200 long              | <b>401843</b><br><b>402230</b>                  |

Table 8

### Accessories not supplied by James Hardie

James Hardie recommends the following products for use in conjunction with its Linea Weatherboard and Axent Trim.

James Hardie does not supply these products. There may also be some other accessories required depending upon the application. Please contact component manufacturer for information on their warranties and further information on their products.

| Accessories                                                                         | Description                                                                                                                                                                                                           | Size (MM)                                              | Material/appearance                                              |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------|
|    | <b>Head flashing</b><br>Required over window heads to be supplied by window installer. Material must comply with Table 20 and 21 of E2/AS1.                                                                           | To suit                                                | Etch Primed Aluminium/Powder Coated                              |
|    | <b>D head or RoundDrive Nail</b><br>Gun nail for concealed fixing Linea Weatherboard.                                                                                                                                 | 50 x 2.87<br>60 x 3.15                                 | Hot Dip Galvanised<br>Stainless Steel                            |
|    | <b>HardieFlex™ Hot Dip Galv. Nails</b><br>For fixing cavity battens.                                                                                                                                                  | 40 x 2.8mm                                             | Hot Dip Galvanised                                               |
|    | Jolt Head Nail for face fixing to Linea Weatherboard.<br>Hot Dip Galvanised<br>or 316 Stainless Steel                                                                                                                 | 50 x 2.8mm<br>60 x 3.15mm<br>75 x 3.15mm<br>90 x 4.0mm | Self colour                                                      |
|    | <b>Joint sealant</b><br>Paintable flexible sealants are recommended for filling the joints. Refer to Section 7.2 for information.                                                                                     | Tube                                                   | Sika,<br>Holdfast                                                |
|   | PEF Rod                                                                                                                                                                                                               | Polyethylene foam                                      | Sika or similar                                                  |
|  | <b>Flexible tape</b><br>A flexible self-adhesive tape used in preparation of a window. Refer to the Window installation section in this manual for more information.<br>e.g. Tyvek®, Marshall Innovations or similar. | Proprietary tape to adhere to flexible underlay        | Tyvek,<br>Marshall Innovations<br>or similar                     |
|  | <b>Flashing Material</b><br>as per Table 20, 'E2/AS1'                                                                                                                                                                 |                                                        | Flashing Fabricator                                              |
|  | Planted Sill                                                                                                                                                                                                          |                                                        | H3.1 minimum<br>Treated Timber Timber<br>Merchant or cut on site |
|  | Titanium Coated High Speed Drill Bit.<br>For pre-drilling prior to face fixing with jolt head.                                                                                                                        | 3.0mm<br>3.5mm                                         |                                                                  |
|  | Timber Scribe<br>To scribe beside window, site cut to suit.                                                                                                                                                           | As required                                            | H3.1 minimum<br>Treated Timber Timber<br>Merchant or cut on site |
|  | Fibre Cement Cutting Blade<br>Diamond tip 305mm diameter circular saw blade to fit drop saw.                                                                                                                          | 305mm                                                  | Diamond Tipped                                                   |
|  | Meter Box<br>Refer Electrical Suppliers                                                                                                                                                                               |                                                        |                                                                  |
|  | Cant Strip<br>Redway Developments 03 358 5775<br>Predrill the weatherboards when fixing using Redway Development Cant/Vent Strips                                                                                     | To suit                                                | uPVC                                                             |
|  | Inseal 3109<br>Sealing Strip.                                                                                                                                                                                         | 5 x 3mm x 25mm                                         | Black Compressible<br>Foam                                       |
|  | CRC Builders Fill<br>Two part exterior grade fill to finish over jolt head nails.                                                                                                                                     |                                                        |                                                                  |

# 14 Details

Various details outlined in the following table are available on Pages 15 to 42.

Table 9

| Details                                               |              |      |                                   |      |
|-------------------------------------------------------|--------------|------|-----------------------------------|------|
| Description                                           | Direct fixed |      | Timber Cavity Batten Construction |      |
|                                                       | Figure       | Page | Figure                            | Page |
| Foundation detail and soffit detail                   | Figure 1     | 15   |                                   |      |
| Weatherboard fixing                                   | Figure 2     | 15   | Figure 30                         | 30   |
| Boxed corner                                          | Figure 3 & 4 | 16   | Figure 31                         | 31   |
| Mitre corner                                          | Figure 5     | 17   | Figure 32                         | 31   |
| Aluminium box corner                                  | Figure 6     | 17   | Figure 33                         | 31   |
| External corner soaker                                | Figure 7     | 18   | Figure 34                         | 32   |
| Internal corner                                       | Figure 8     | 18   | Figure 35                         | 32   |
| Internal 90° aluminium 'W' mould corner               | Figure 9     | 19   | Figure 36                         | 33   |
| Internal 135° aluminium 'W' mould corner              | Figure 10    | 19   | Figure 37                         | 33   |
| Window sill with facings                              |              |      | Figure 39                         | 34   |
| Window sill with sill tray and facings                | Figure 11    | 20   |                                   |      |
| Window door and head with facings                     | Figure 12    | 20   | Figure 40                         | 35   |
| Window door and jamb with facings                     | Figure 13    | 21   | Figure 41                         | 35   |
| Window door and sill without facings                  | Figure 14    | 21   | Figure 42                         | 35   |
| Window door and head without facings                  | Figure 15    | 22   | Figure 43                         | 36   |
| Window door and jamb without facings                  | Figure 16    | 22   | Figure 44                         | 36   |
| Head flashing termination                             | Figure 17    | 23   | Figure 45                         | 37   |
| One piece apron flashing joint                        | Figure 18    | 23   | Figure 46                         | 37   |
| Pipe penetration                                      | Figure 19    | 24   | Figure 48                         | 38   |
| Meter box at head                                     | Figure 20    | 24   | Figure 49                         | 39   |
| Meter box at sill                                     | Figure 21    | 25   | Figure 50                         | 39   |
| Meter box at jamb                                     | Figure 22    | 25   | Figure 51                         | 40   |
| Timber cavity fix meter box                           |              |      | Figure 52                         | 41   |
| Deck junction                                         | Figure 23    | 26   | Figure 61                         | 47   |
| Cantilevered timber deck junction                     | Figure 24    | 27   | Figure 62                         | 47   |
| Sloping soffit to weatherboard junction               | Figure 25    | 27   | Figure 59                         | 46   |
| Timber cavity batten fixing                           |              |      | Figure 27                         | 28   |
| Foundation detail                                     |              |      | Figure 28                         | 29   |
| Soffit detail                                         |              |      | Figure 29                         | 29   |
| Batten layout at window opening                       |              |      | Figure 38                         | 34   |
| One piece gutter/wall junction                        |              |      | Figure 47                         | 38   |
| Floating lap over floor joist                         |              |      | Figure 53                         | 42   |
| Drainage joint                                        |              |      | Figure 54                         | 43   |
| Enclosed deck balustrade to wall                      |              |      | Figure 55                         | 43   |
| Enclosed balustrade to wall                           |              |      | Figure 56                         | 44   |
| Enclosed deck                                         | Figure 26    | 28   | Figure 57                         | 45   |
| Parapet flashing                                      |              |      | Figure 58                         | 45   |
| Sloping soffit and wall junction                      |              |      | Figure 60                         | 46   |
| Door sill support detail                              |              |      | Figure 63                         | 48   |
| Junction between Linea® Weatherboard and fascia board |              |      | Figure 64                         | 49   |
| Exclosed roof to wall intersection                    |              |      | Figure 65                         | 50   |

Figure 26: Enclosed deck

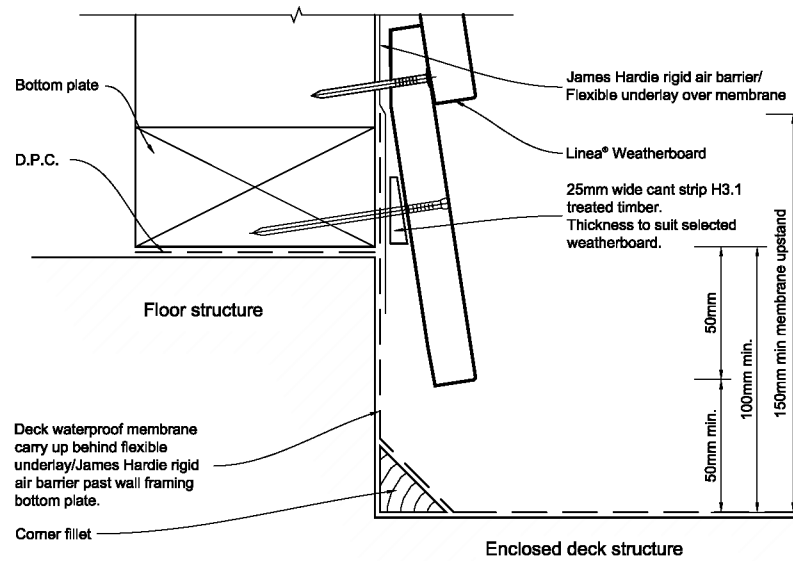


Figure 27: Timber cavity batten fixing

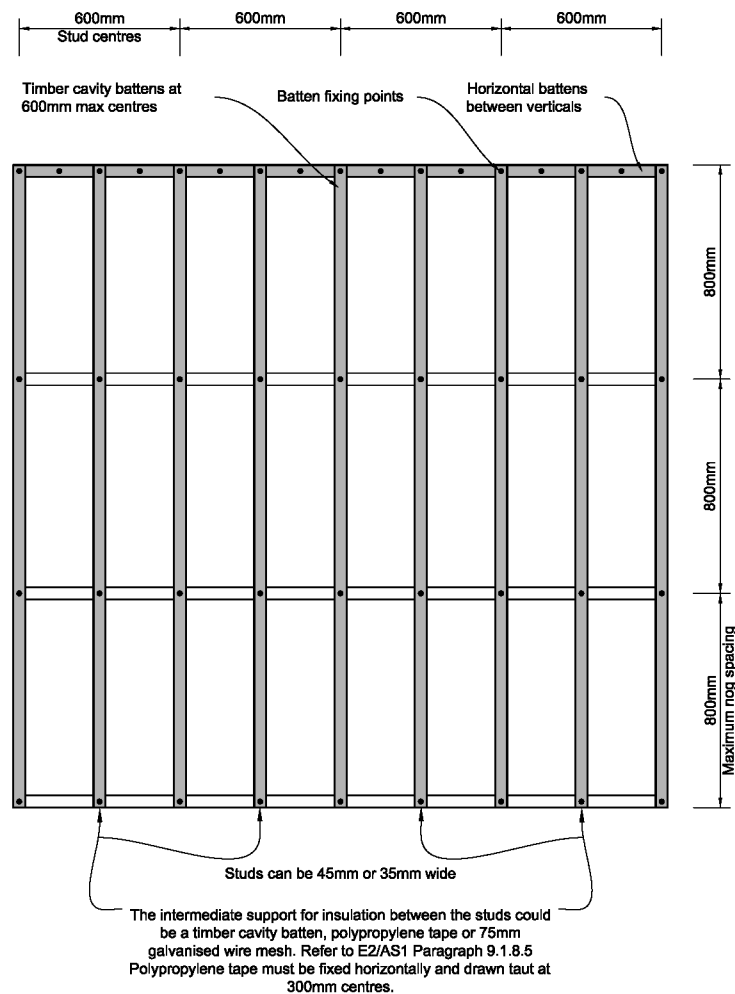


Figure 28: Timber cavity foundation detail

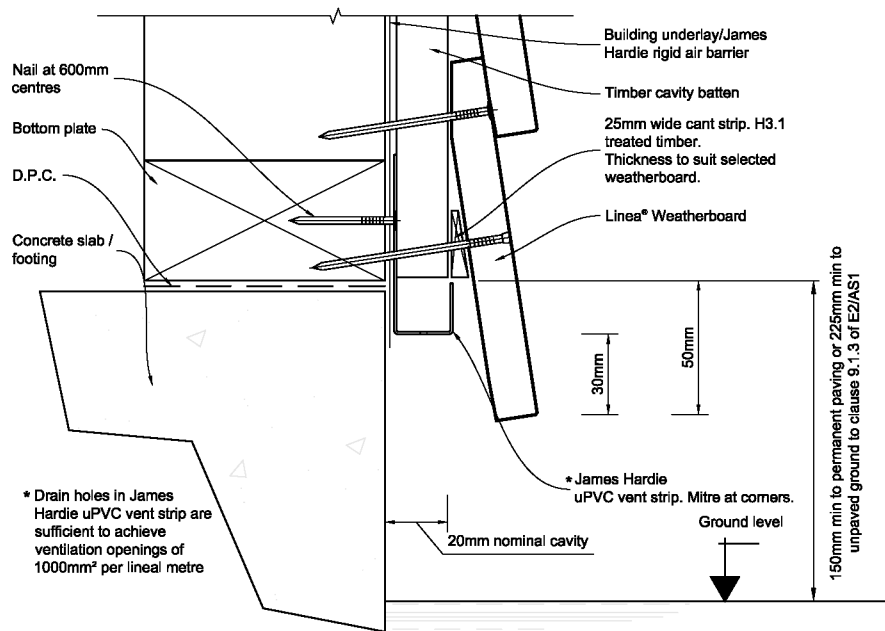


Figure 29: Timber cavity soffit detail

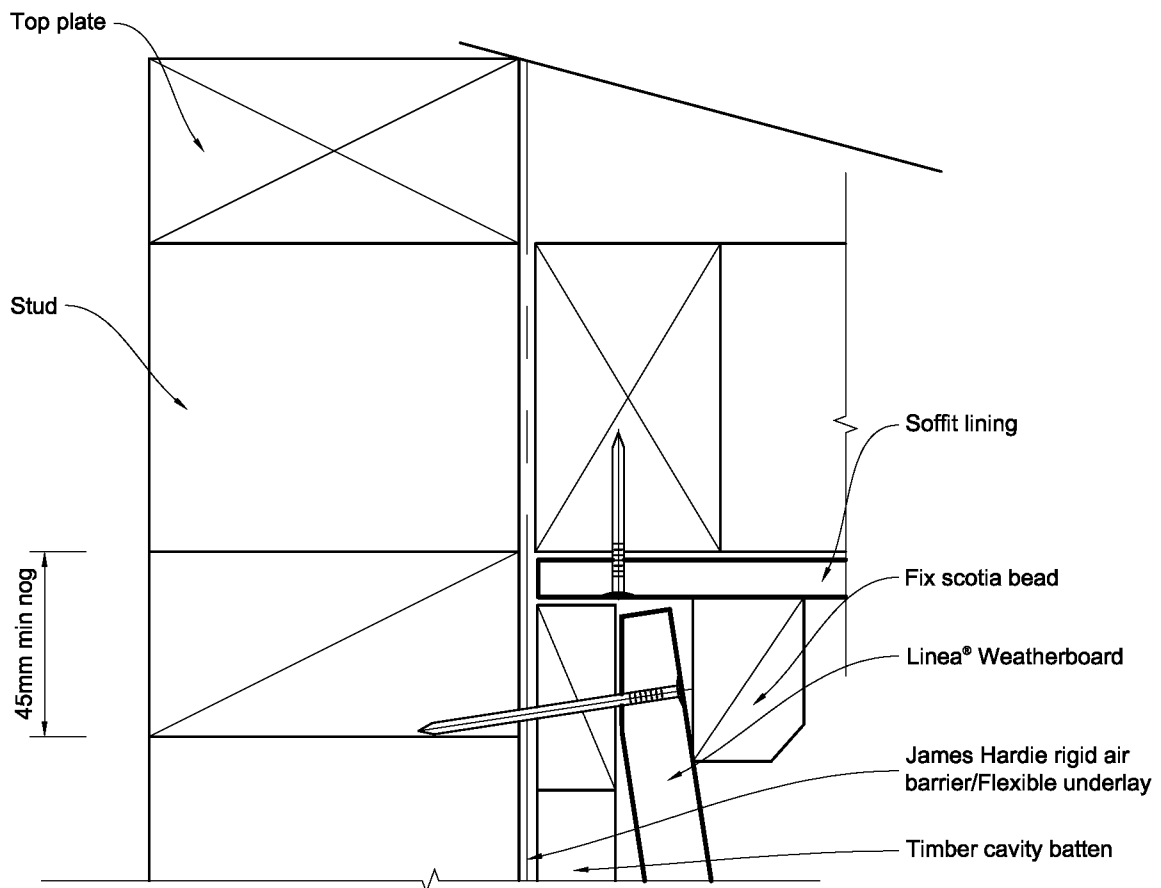


Figure 30: Timber cavity weatherboard fixing

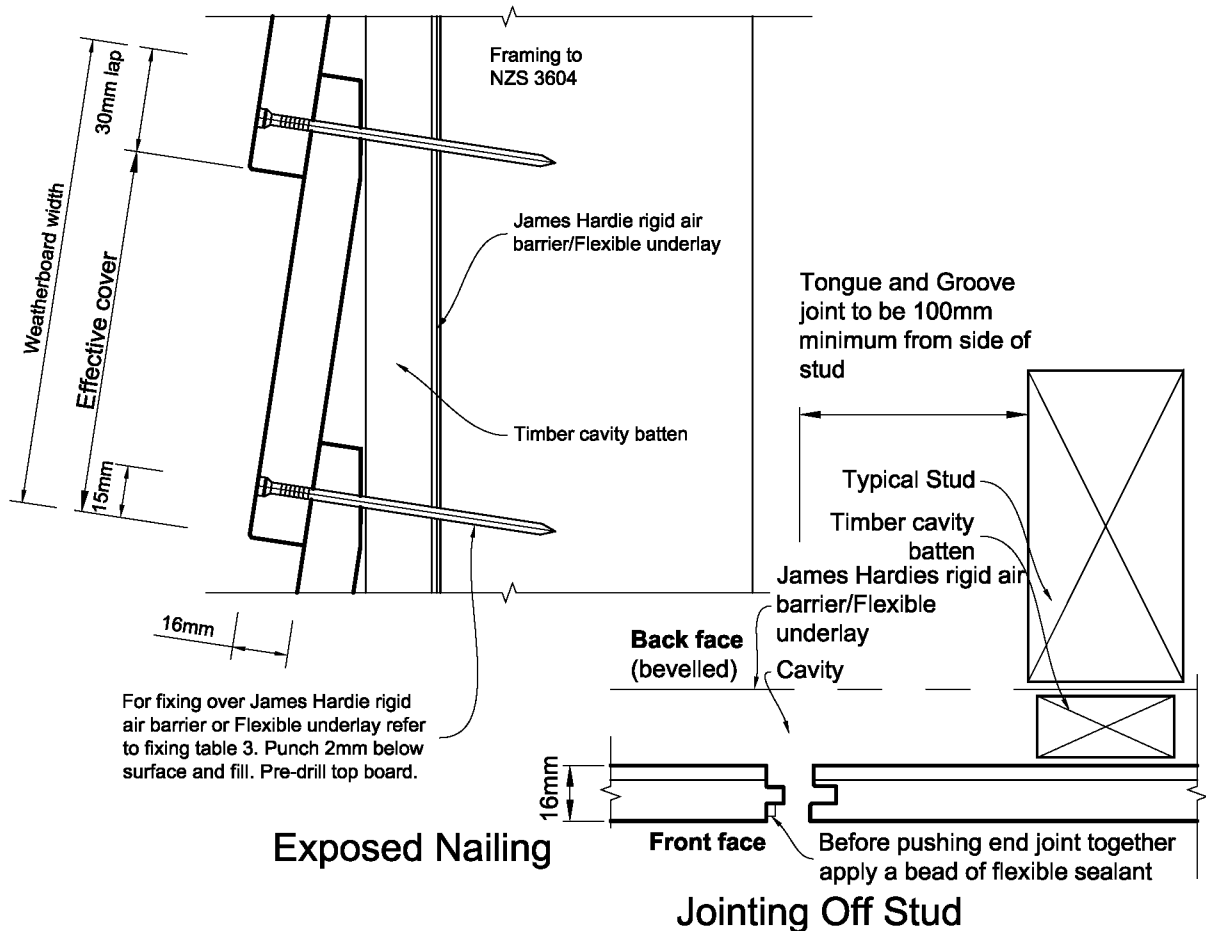
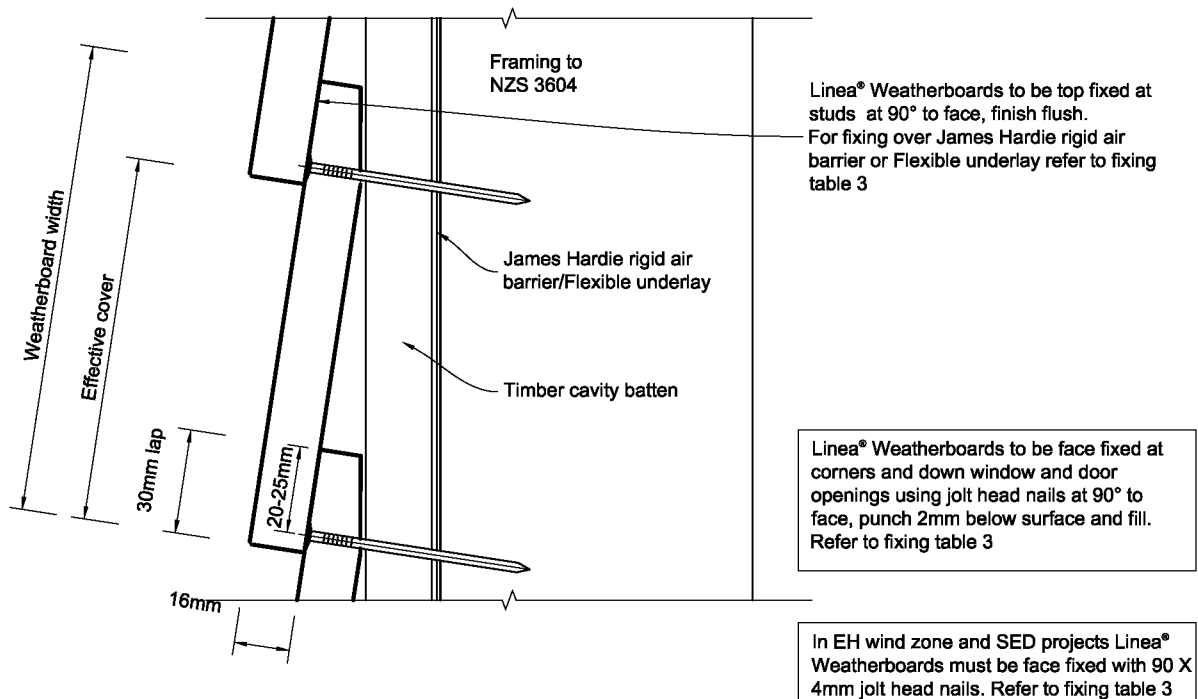


Figure 31: Timber cavity boxed corner

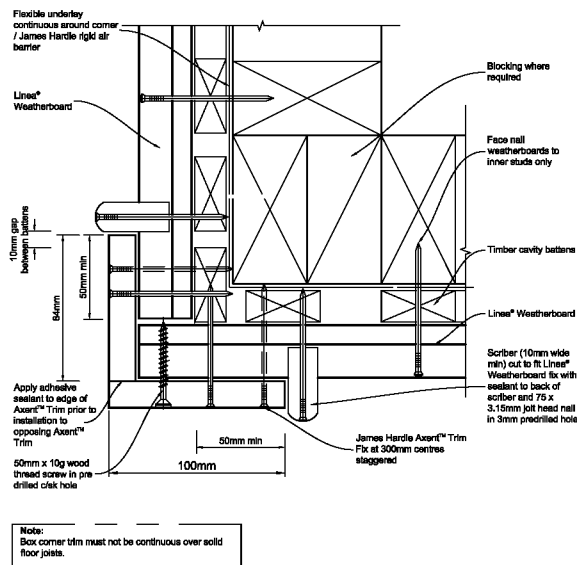


Figure 32: Timber cavity mitre corner

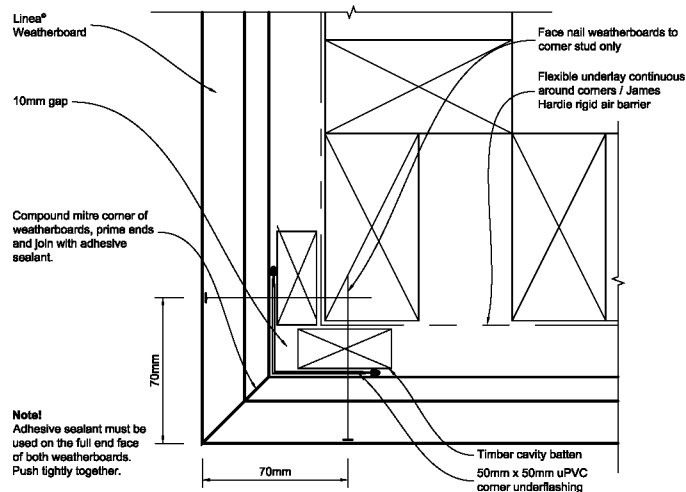


Figure 33: Timber cavity aluminium box corner

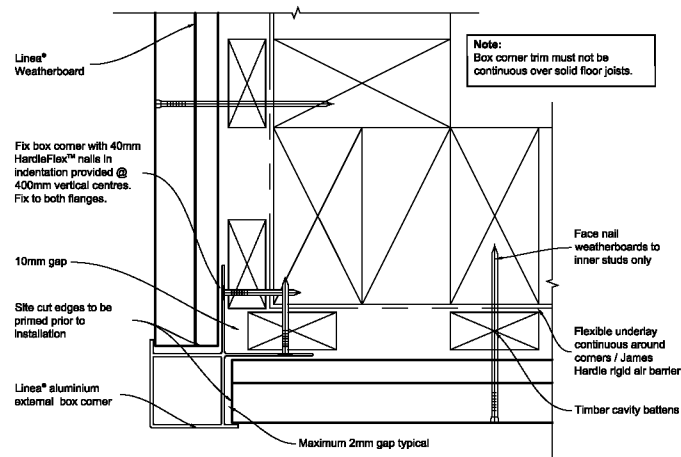
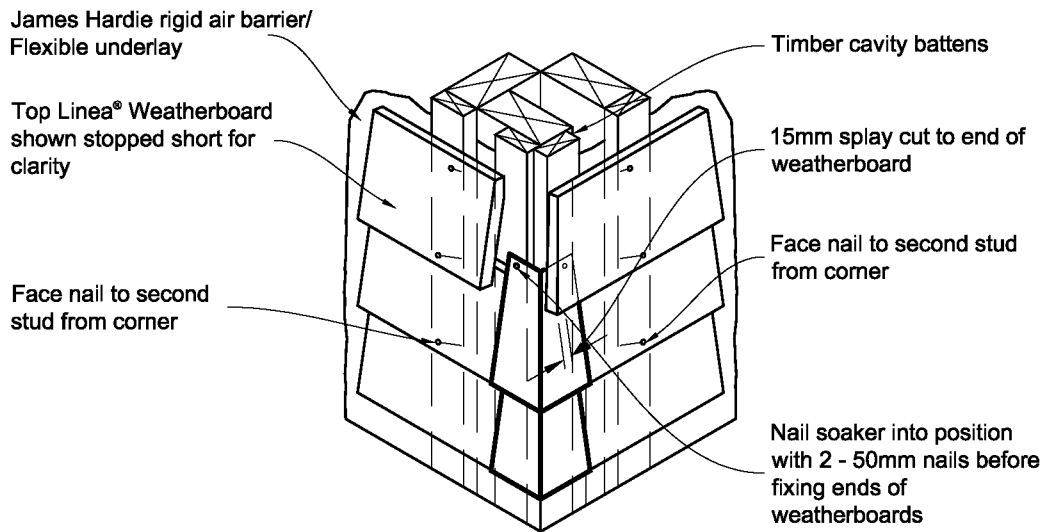


Figure 34: Timber cavity external corner soaker



| Soaker material | Nail material             |
|-----------------|---------------------------|
| Copper          | Copper or phosphor bronze |
| Aluminium       | Hot dip galvanised        |
| Stainless steel | Stainless steel           |

Figure 35: Timber cavity internal corner

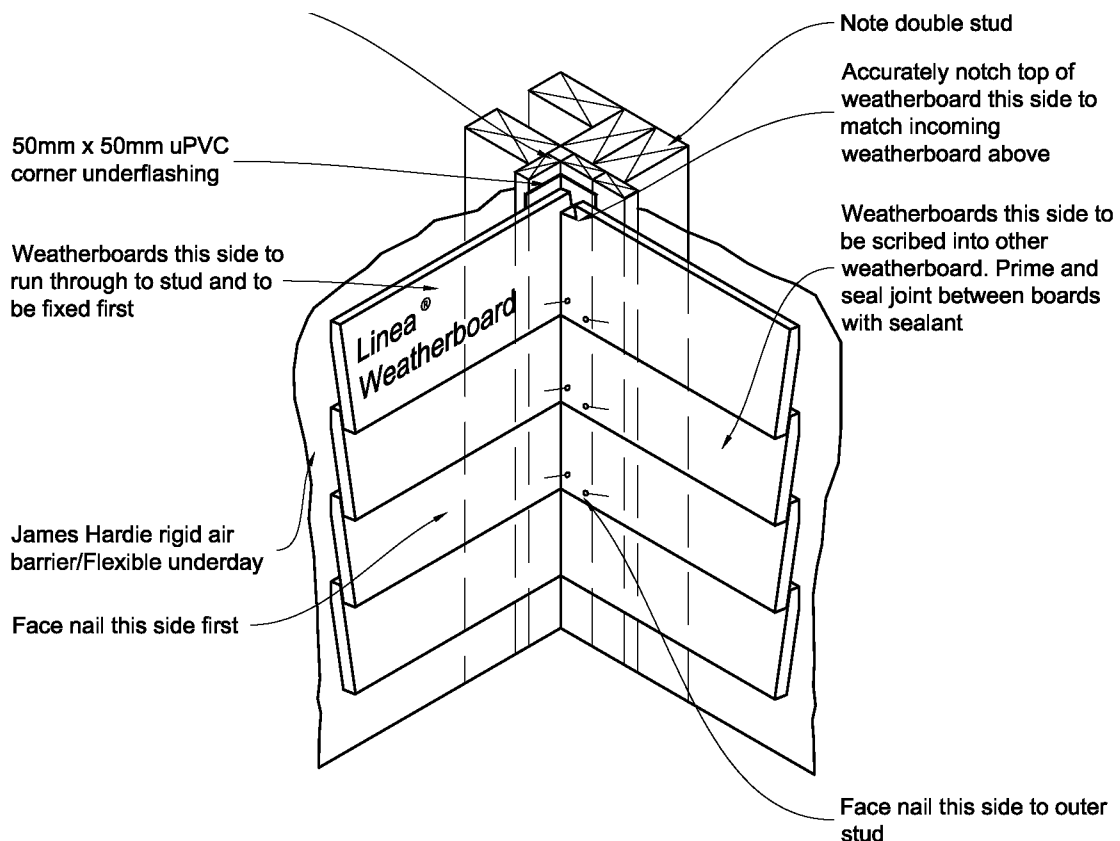


Figure 36: Timber cavity internal 90° aluminium 'W' mould corner

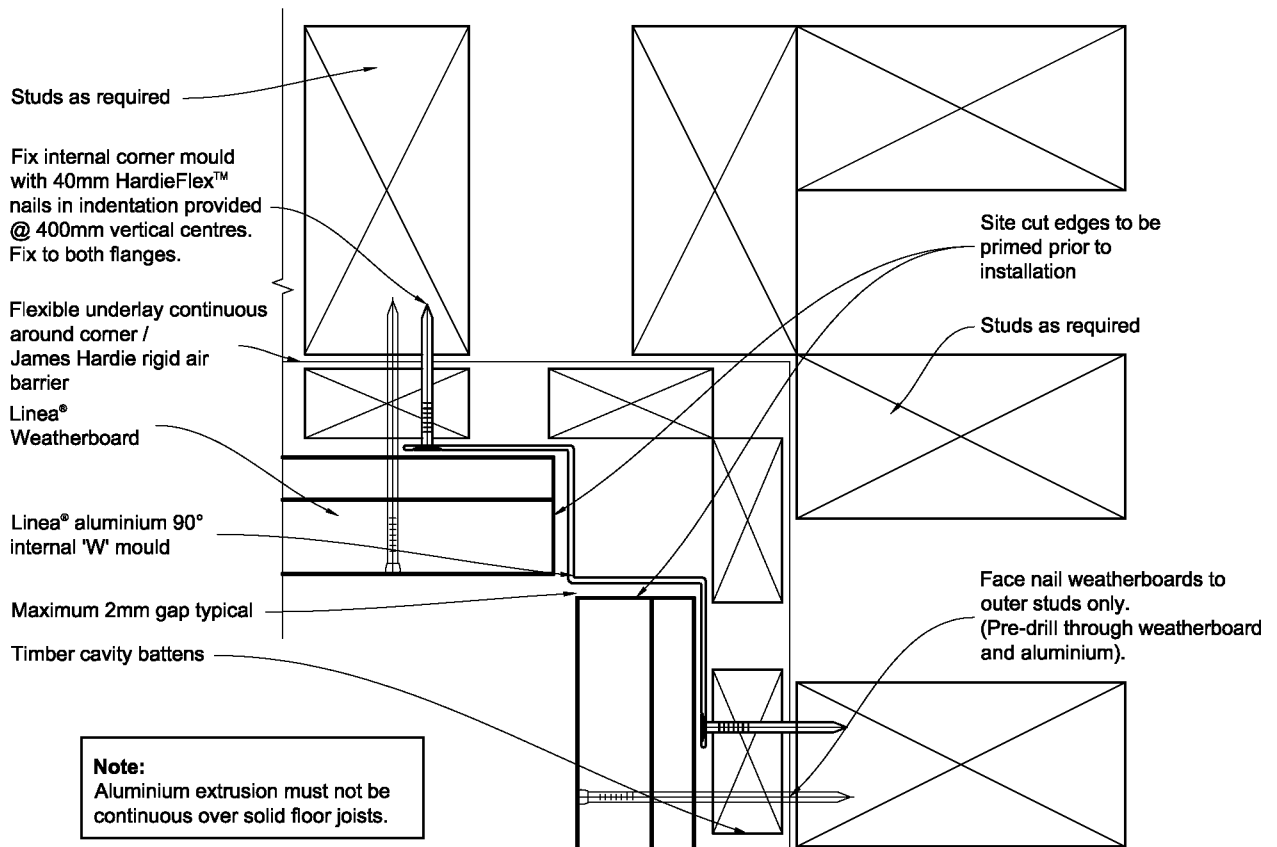


Figure 37: Timber cavity internal 135° aluminium 'W' mould corner

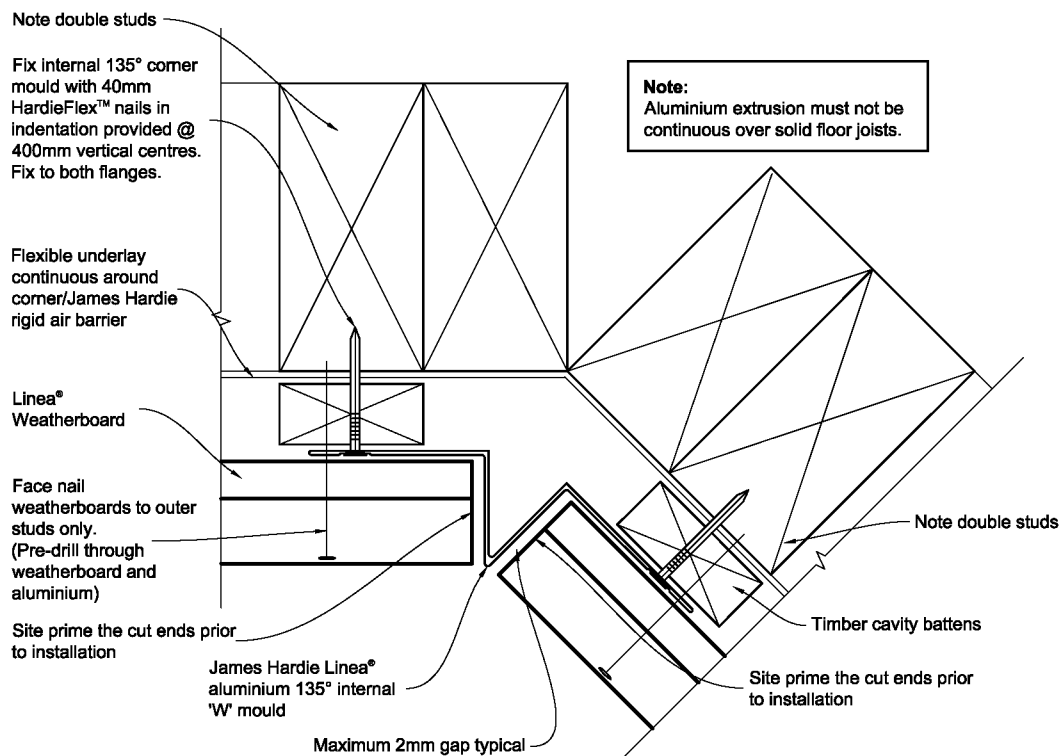


Figure 38: Timber cavity batten layout at window opening

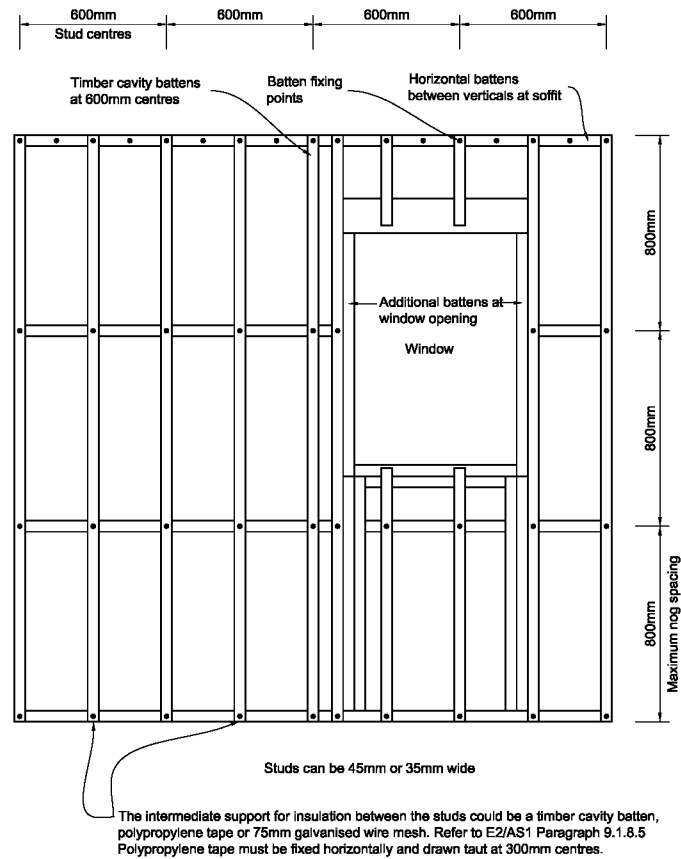
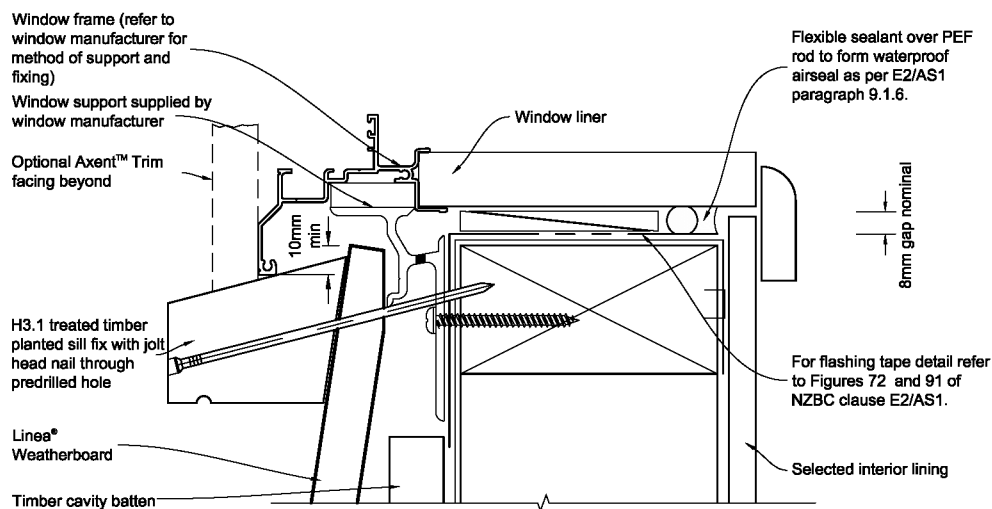


Figure 39: Timber cavity window sill with facings



**General notes for materials section**

1. Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of NZBC clause E2/AS1.
2. Flexible underlay must comply with acceptable solution E2/AS1.
3. Flashing tape must have proven compatibility with the selected flexible underlay / James Hardie rigid air barrier and other materials with which it comes into contact.

Refer to the manufacturer or supplier for technical information for these materials.

Figure 40: Timber cavity window and door head with facings

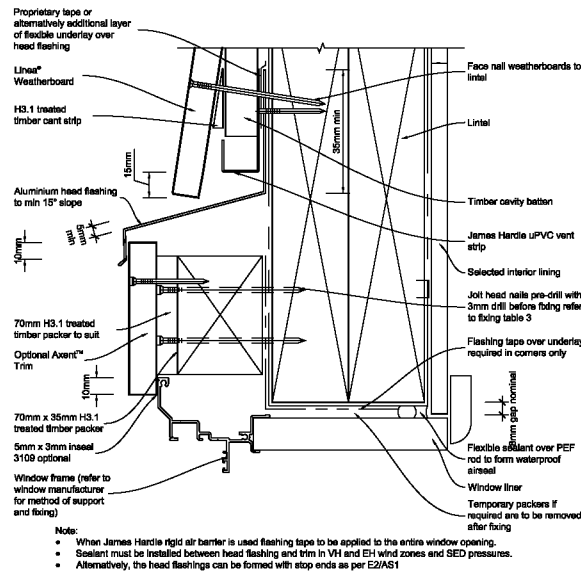


Figure 41: Timber cavity window and door jamb with facings

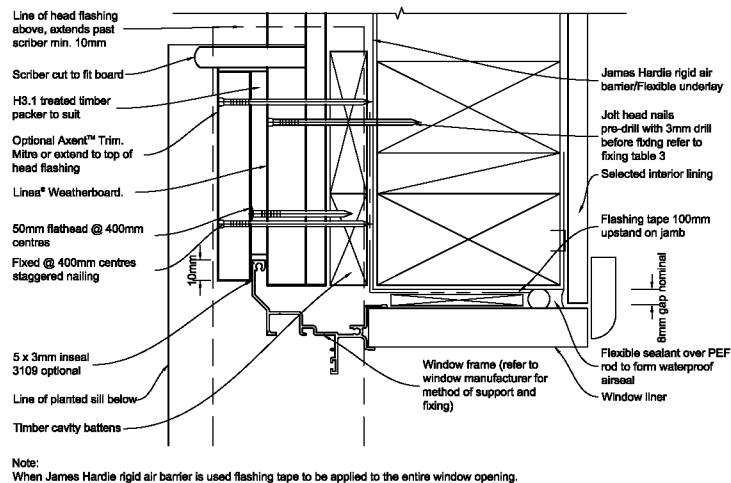


Figure 42: Timber cavity window and door sill without facings

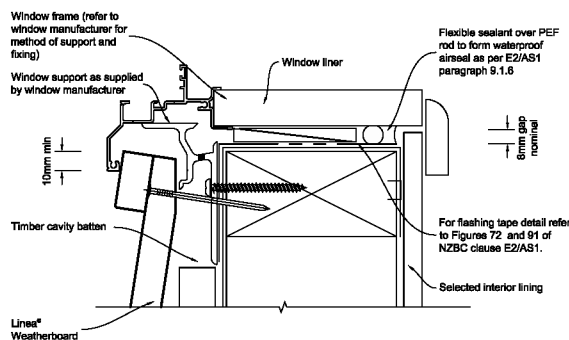
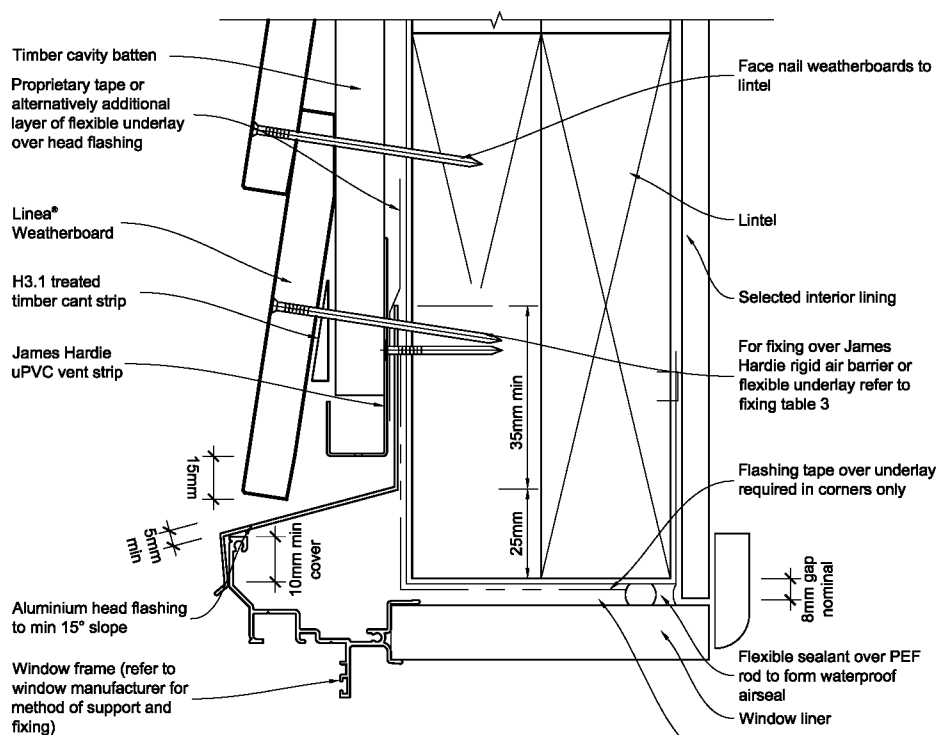


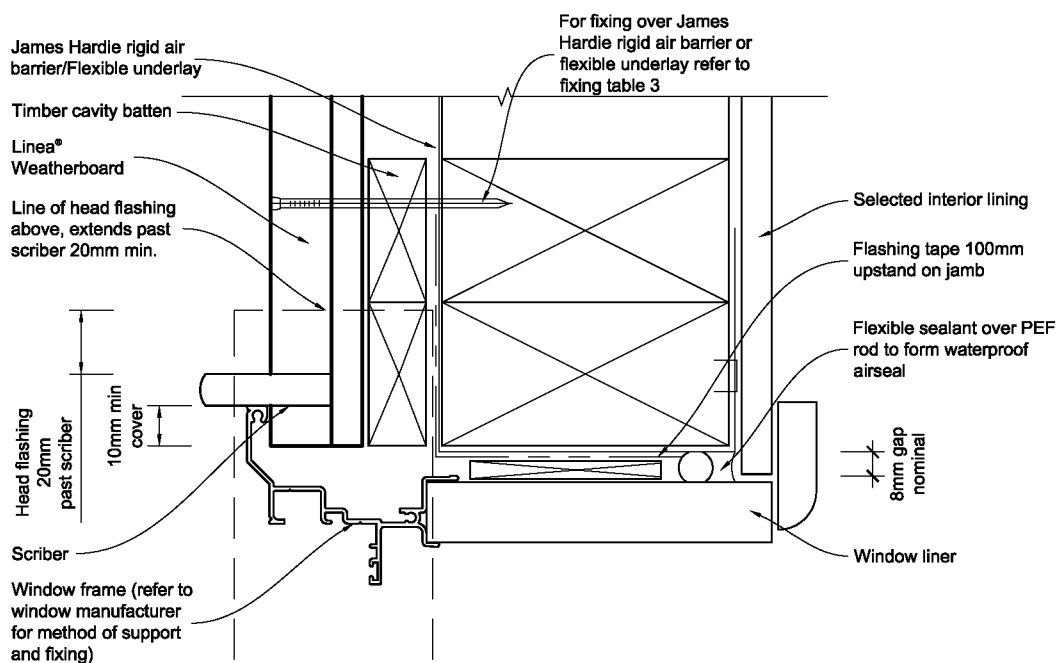
Figure 43: Timber cavity window and door head without facings



Note:

- When James Hardie rigid air barrier is used flashing tape to be applied to the entire window opening.
- Sealant must be installed between head flashing and flashing and trim in VH and EH wind zones and SED projects.
- Alternatively, the head flashings can be formed with stop ends as per E2/AS1

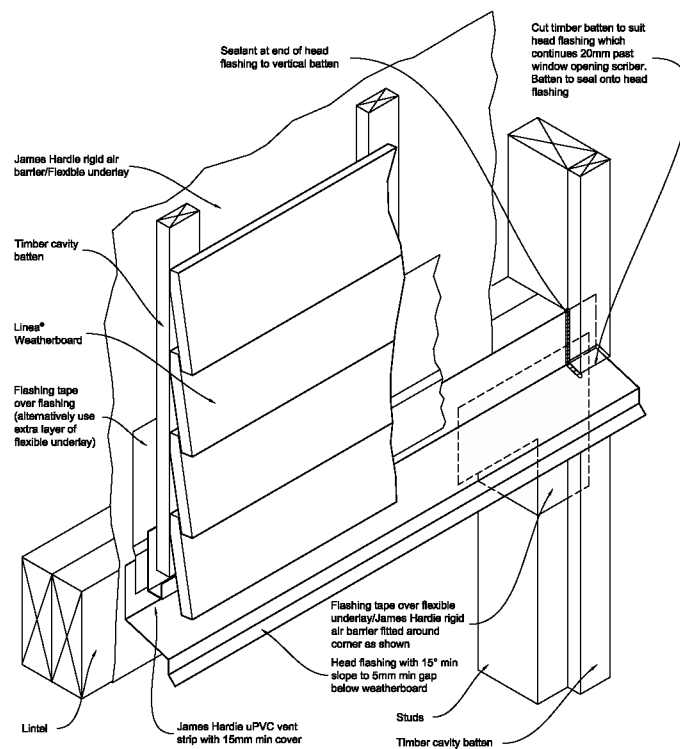
Figure 44: Timber cavity window and door jamb without facings



Note:

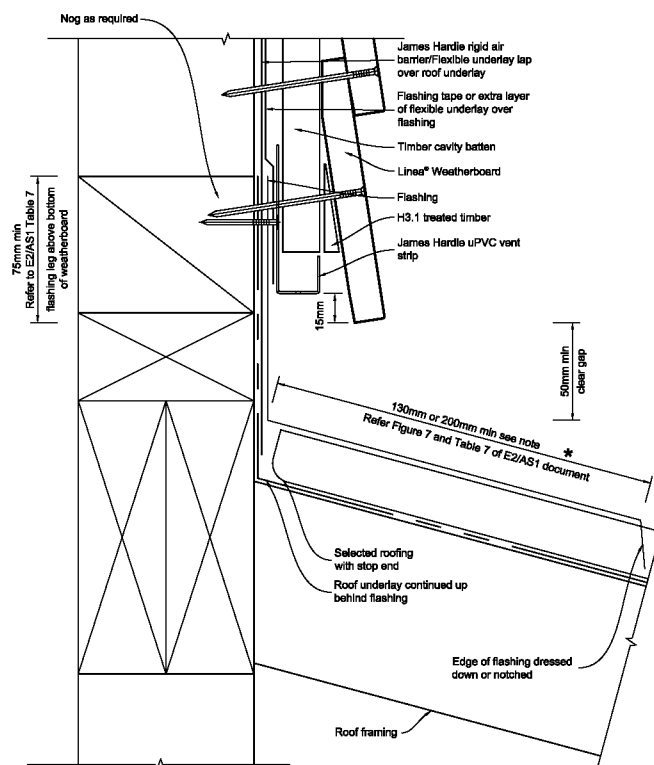
When James Hardie rigid air barrier is used flashing tape to be applied to the entire window opening.

Figure 45: Timber cavity head flashing termination



Note:  
When James Hardie rigid air barrier is used flashing tape to be applied to the entire window opening.

Figure 46: Timber cavity one piece apron flashing joint



\* When 50 year durability for flashing is required refer Table 20 of E2/AS1 of NZBC.

Vertical Section

Figure 47: Timber cavity one piece gutter/wall junction

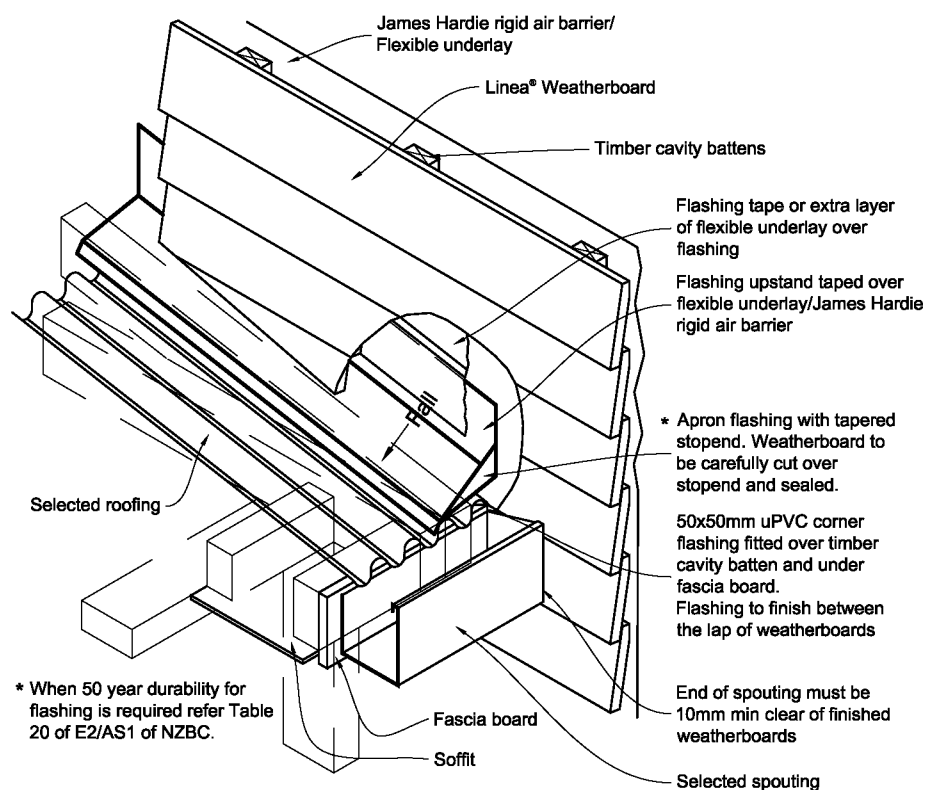


Figure 48: Timber cavity pipe penetration

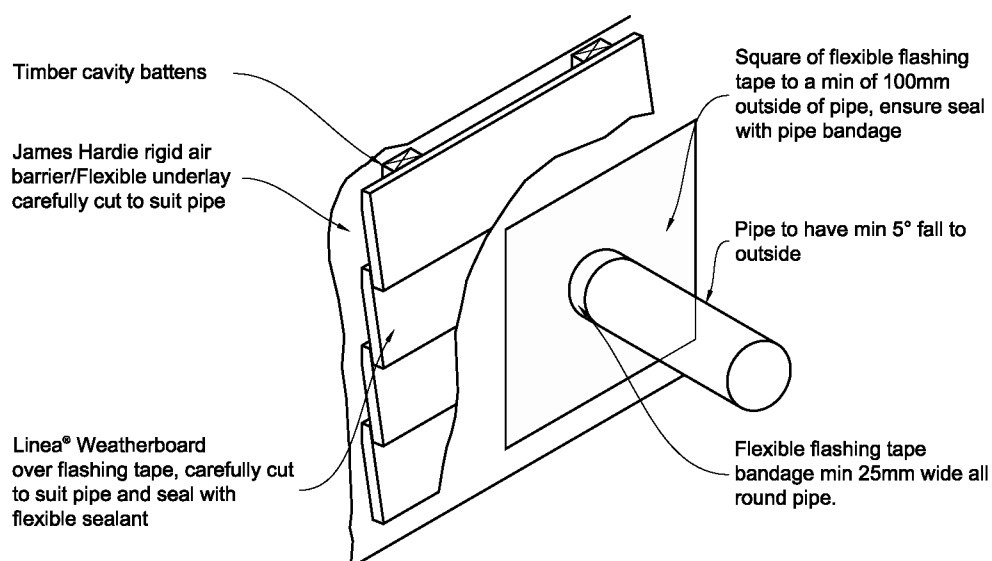
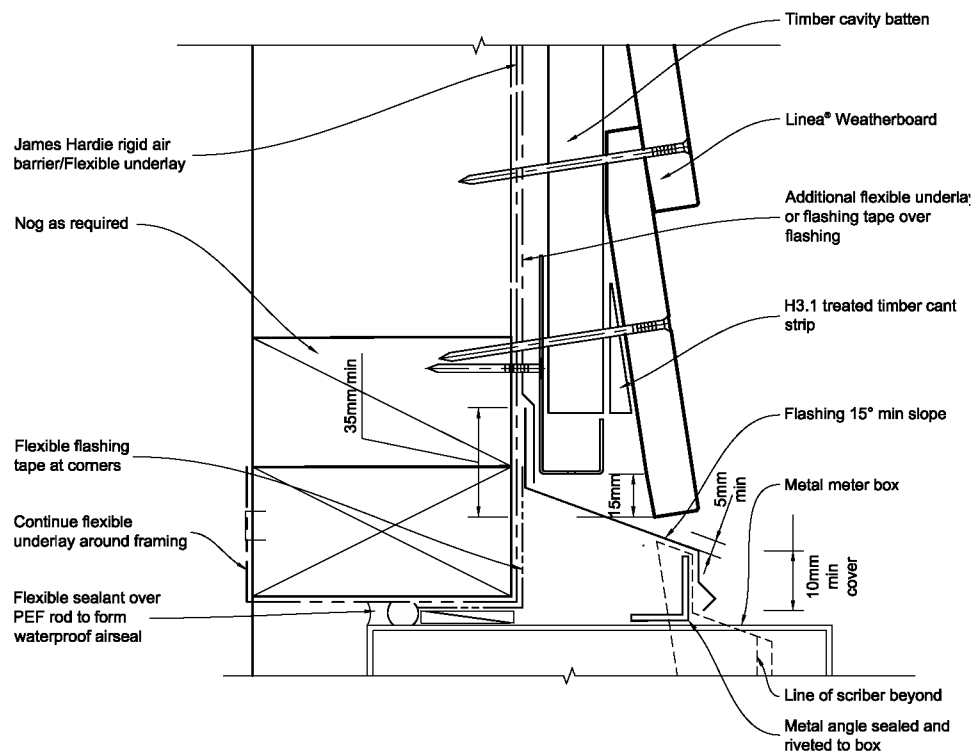
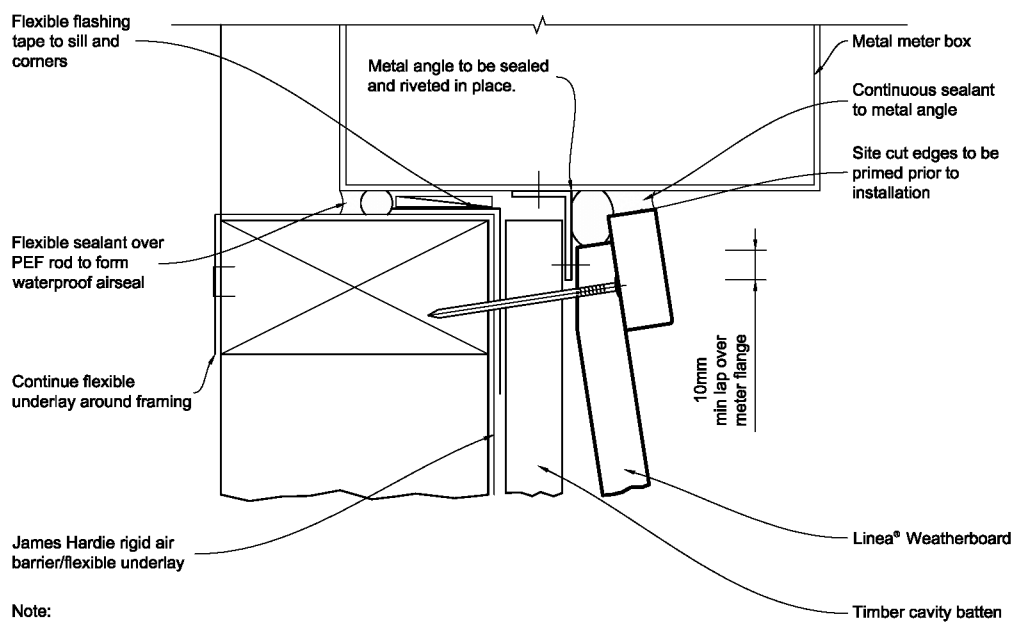


Figure 49: Timber cavity meter box at head



Note:  
When James Hardie rigid air barrier is used flashing tape to be applied to the entire opening.

Figure 50: Timber cavity meter box at sill



Note:  
When James Hardie rigid air barrier is used flashing tape to be applied to the entire opening.