

# Sharalyn Fraser *Agency*

Statement of passing over information – This information has been supplied by the Vendor or the vendor’s agents. Accordingly, Sharalyn Fraser Agency (Ownly Limited licensed (REA 2008) is merely passing over the information as supplied to us by the vendor or vendors agents.

We cannot guarantee its accuracy and reliability as we have not checked, audited, or reviewed the information and all intended purchasers are advised to conduct their own due diligence investigation into the same. To the maximum extent permitted by law Sharalyn Fraser Agency (Ownly Limited licensed (REA 2008) does not accept any responsibility to any person for the accuracy of the information herein

# CODE COMPLIANCE CERTIFICATE

Section 95 Building Act 2004.



Consent No: 161030

The Building			
Street address of building:	7 Mahia Lane, Waikanae	Building name:	
Current, Lawfully established, use:	New Dwelling	Location of building within site/block number:	Centre of site
Level/unit number:		Intended life of the building if 50 years or less:	-
Legal description of land where building is located:	LOT 16 DP 476550 CT 658759	Year first constructed:	2017
The Owner			
Name of owner:	KC Homes Limited	Street address /registered office:-	
Contact person:	Conan Doyle	Phone numbers:-	
Mailing address:	C/- C B Doyle 17 Heihei Place Paraparaumu 5032	Landline:-	
Email address:	kchomesltd@yahoo.com	Mobile:	027 256 0966
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:	161030	Issued by:	Kapiti Coast District Council
Project Description:	New single level brick & Linea Weatherboard dwelling with attached double garage.		

## Code Compliance

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

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

A handwritten signature in black ink, appearing to read 'Michelle Salmon'.

Michelle Salmon –  
(Acting) Team Leader – Site Inspections  
On behalf of **Kapiti Coast District Council**

Date: 26 July 2017

# PRODUCER 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: Stephen Henderson

Registration number: 04479

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: 7 Mahia Lane, Waikanae.

Building Consent No: 161030.

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: Stephen Henderson

Signature: [Signature]

Address: Otaki George Rd

Date: July 17

Phone: 06 364 5252

Fax: 06 364 5254

Mobile: 0274485658

Email: dione@hendersonplumbing.co.nz

### Kāpiti Coast District Council Office Use Only

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

Date: 26/7/17

Name: ~~Stephen Henderson~~ Gareth Mc

Signature: [Signature]

# PRODUCER STATEMENT STORMWATER DRAINS



## Construction Review

Send or deliver this form to: Kāpiti 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: Jason Gates

Registration number: 19318

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

Installed at: 7 Mahia Lane, Waikanae

Building Consent No: 161030

As a certified drainlayer, currently holding an annual practising 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.

Name: Jason Gates Signature: 

Address: Otaki Gorge Rd Date: July 17

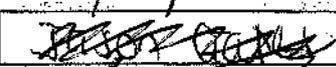
Phone: 06 3645252 Fax: 06 3645254

Mobil: 0274548538 Email: dione@hendersonplumbing.co.nz

Note: Fully dimensioned as built drain plan to be supplied. (scale 1:100)

### Kāpiti Coast District Council Office Use Only

Producer Statement author authenticated and current registration verified. Verification and Registration checked through public register on www.tbta.co.nz

Date: 26/7/17  
Name:   
Signature: 

# PRODUCER STATEMENT PRIVATE SEWER DRAINS



## 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:	Jason Graves		
Registration number:	19318		
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:	7 Mahia Lane, Waikanae		
Building Consent No:	161030		
As a certified drainlayer, 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			
Name:	Jason Graves	Signature:	
Address:	Otaki Grange Rd	Date:	July 17
Phone:	06 364 5252	Fax:	06 364 5254
Mobile:	0274548538	Email:	dionea@hendersonplumbing.co.nz

**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

Producer Statement verified, authentic, correct and current registration verified. Verification and Registration checked through public register on www.psd.govt.nz

Date:	26/7/17
Name:	Jason Graves
Signature:	

### APPLICATION WORKFLOW COVERSHEET (Blue Folder)

Department	For Referral	Comments	Approving Officer / Date
Site Inspection	<input checked="" type="checkbox"/>	Refer to Form 241 for completion of Site Inspection & sign off this form when completed.	
Resource Consents (refer PIM Sheet)	<input checked="" type="checkbox"/>		
Plumbing and Drainage	<input checked="" type="checkbox"/>		
Building	<input checked="" type="checkbox"/>	Refer to Form 241 for completion of Site Inspection & sign off this form when completed.	<i>[Signature]</i> 16/12/17
Fire Design			
Compliance Schedule			
Environmental Health			
Other.....			
<b>Attachments:</b> <input type="checkbox"/> PIM <input type="checkbox"/> DIF <input type="checkbox"/> CS <input type="checkbox"/> Sec 37/ <p><small>Building work related to this consent may not yet commence because you need to obtain resource consents under the Resource Management Act 1991 or the proposal must be amended to comply with the requirements of the District Plan.</small></p> <b>Other:</b> <input type="checkbox"/> ..... <input type="checkbox"/> .....		<b>NOTES:</b>	

Building Consent No.	161 C3C
Building Project	New Single live back & linear <sup>with the house</sup> <sub>with the house for the garage</sub>
Location (Site Address)	7 Malina Lane Waitapu
Building Category	Circle appropriate category <b>(R1)</b> R2 R3 C1 C2 C3

Received:  
21/12/16

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

	Name and signature	Date
# Note: Checked, date stamped and initialed by TO/BCO. Select and circle appropriate category above & identify allocation to appropriate technical groups and if required to go to "site inspection" <b>BC1</b>	<i>[Signature]</i>	22/12/16
Payment taken and receipted (details entered inside this cover sheet) by CSO <b>BC1</b>		
Data entered and invoiced by CSO <b>BC1</b>	Angie	22/12/16
Pages numbered by CSO <b>BC1</b>	<i>[Signature]</i>	22/12/16
BC Application and documentation scanned, checked & status update by CSO <b>BC1</b>	Angie	23/12/16
BC Application signed over to BC <b>BC1</b>	Angie	23/12/16
Application reviewed by Technical Officers who sign off at back of this form <b>BC2 &amp; BC5</b>	<i>[Signature]</i> <i>[Signature]</i>	17/12/16 16/12/16
Once Technical review complete, passed to CS for Plan Production and Invoicing <b>BC3</b>		
CSO checks data entry input, including required inspections <b>BC3</b>		
BC, plans and other appropriate paperwork produced by CSO <b>BC3</b>	<i>[Signature]</i>	16/12/17
BC, Approved plans and appropriate paperwork sent to applicant or agent with receipt by CSO <b>BC3</b>		
Inspection envelope prepared by CSO with endorsed plans and other appropriate paperwork and filed to cabinet. <b>BC3</b>		

**CONSENT DATA INPUT REQUIREMENTS**

✓	Required Inspections	✓	Required Inspections	✓	Required Inspections	✓	Required Inspections
	Foundation/Piles	✓	Drainage	✓	Pre-lining (Plumbing)	✓	Final (Dwelling)
	Block	✓	Pre-Wrap		Wet Areas – Membrane		Final (Commercial)
✓	Pre-Slab (Plumbing)	✓	Pre-Clad		Post Lining		Chimney (Inbuilt Fire)
✓	Pre-Slab (Building)		Weathertightness	✓	Brick Veneer		
	Sub-Floor	✓	Pre-lining (Building)		Retaining Wall		

Office use	✓	Office use	✓
32	✓	Lapse and cancellation after 12mths of consent	23A
2		Engineer design specific components	25
3		Foundations to solid bearing of 200mm	30
4		NZS3604 as acceptable solution in terms of NZ Building Code	31
6		Not approved as Habitable Room	33
9	✓	Note and comply with all endorsements on approved plans	34
10	✓	Names and Registration of plumber and drain-layer required	38
11	✓	Concealed soil and TV pipes and gas flues only allowed in ducts or minimum framed	39
12	✓	Hot & Cold water pipes tested to 1500kPa	40
13		Roof stormwater to be connected to existing	43
15		Owner/builder to ensure prop foundation height will allow satisfactory connection	44
21		Minimum FFL to comply with NZS3604	
23		Installation of solid fuel appliance (wood burner) comply and secured	

Act Ref	✓	Standard Consent Conditions	Comment
37		Resource Consent has not yet been obtained	
72-73	—	Land subject to natural hazard	
75-80	—	Construction on two or more allotments	

Non-Standard Addenda

Yes/No	NO	Compliance Schedule
Yes/No		Office - please see additional consent data comments on next page

Attach Receipt	
✓	This project contains elements specifically designed by an engineer. The Owner/Builder is required to ensure the Engineer inspects the work and provides KCDC with written evidence of the inspections.
	The attached fire report constitutes an essential part of this Building Consent and must be read and fully implemented on site - refer to the fire report for full details that are not necessarily indicated on the architectural drawings. It is the responsibility of the owner and contractor to ensure the full fire precautions, systems and construction are incorporated in the building.
	Ground bearing must be reconfirmed on site following excavation but prior to placing of concrete and reinforcing. Soft ground may be encountered requiring engineer specific design.
✓	Other: <i>Re-use 18 brick veneer to be done per E2/AS1 Fig 73D.</i>
<b>Office Use Only: Fees</b>	
Building Consent Fee	\$ 1591.00
Inspection Fee	\$ 1454.00
Sewer Connection	\$
Water Connection	\$
Building Research Levy	\$ 250.00
Vehicle Crossing Damage Deposit	\$
Certificate of Title Charge	\$ 33.00
MBIE Building Levy	\$ 502.50
Compliance Schedule	\$
Code Compliance Certificate	\$ 73.00
Accreditation Levy	\$ 250.00
Photocopying DP Check	\$ 146.00
<b>SUBTOTAL</b>	\$
Less Fee Paid	\$
<b>Total</b>	\$ 4299.50

AUTHORISATION FOR REFUND OF DEPOSITS	
Application Fee	\$ 4299.50
Invoice No:	26096
Date:	22/12/16
Receipt No:	
Date:	
Fees Paid By:	
Building Consent Number:	161030
Date Issued:	22/12/16
Deposit Held	\$
Cost to Repair Damage Caused During Construction	\$
Total Balance to be Refunded	\$
Authority Number:	
Authorised:	Date:
Deposit Held	\$

*✓ Other; Bath and porch slab to have broom finish or similar to provide adequate slip resistance.*

K C Homes Ltd  
17 Hei Hei Place  
Paraparaumu 5032

16 February 2017

Dear Building Consent Applicant / Building Owner

**Approval of Building Consent: 161030**

**Location:** 7 Mahia Lane, Waikanae  
**Legal Description:** LOT 16 DP 476550 CT 658759  
**Description:** New single level brick & Linea Weatherboard dwelling with attached double 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.

**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.**

As the owner you are also responsible for the following:

- ensuring that building work starts within 12 months of the approval of the building consent and that work progresses at a reasonable pace.
- ensuring that all required inspections are completed and that a Code Compliance Certificate is obtained once the work has been completed – please be aware that before a Code Compliance Certificate is issued, the building work must comply with the Building Act 2004 and the Building Code as at the date of Consent.
- that 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.
- ensuring that no damage occurs to public property, for example footpaths or retaining structures. Should damage occur you will be required to pay for any repairs.
- ensuring that if you wish to make any changes to the approved building consent, then an amendment to the building consent will need to be lodged with us.

If you have any questions regarding your building consent or your responsibilities, please contact Kapiti Coast District Council on (04) 296 4700.

**Building Consent**

**161030**

**Section 51, Building Act 2004**

**The building**

*Street address of building:* 7 Mahia Lane, Waikanae  
*Legal description of land where building is located:* LOT 16 DP 476550 CT 658759  
*Valuation number:* 1494195013  
*Building name:*  
*Location of building within site/block number:* Centre of site  
*Level/unit number:*

**The owner**

*Name of owner:* K C Homes Ltd  
*Contact person:* Conan Doyle  
*Mailing address:* 17 Hei Hei Place, Paraparaumu 5032  
*Street address/registered office:*  
*Email address:* kchomesltd@yahoo.com  
*Website:*  
*Phone numbers:*  
*Landline:* *Mobile:* 027 256 0966  
*After hours:* *Fax number:*  
*First point of contact for communications with the council/building consent authority:*  
As above

**Building work**

The following building work is authorised by this building consent:  
New single level brick & Linea Weatherboard dwelling with attached double 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.

### Build conditions

### Compliance schedule

A compliance schedule is not required for the building.

### Attachments

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

- Building Consent Addendum
- List of required inspections
- Plans and specifications

Signature

Position

On behalf of: KAPITI COAST DISTRICT COUNCIL

Date: 16/02/17

## Addenda to Application

### Application

K C Homes Ltd 17 Hei Hei Place Paraparaumu 5032	No.	161030
---	-----	--------

### Project

Description	New (& prebuilt) House, Unit, Bach, Crib, Town House etc. Being Stage 1 of an intended 1 Stages New single level brick & Linea Weatherboard dwelling with attached double garage.
Intended Life	Indefinite, but not less than 50 years
Intended Use	Residential Dwelling
Estimated Value	\$250,000
Location	7 Mahia Lane, Waikanae
Legal Description	LOT 16 DP 476550 CT 658759
Valuation No.	1494195013

Designer: Coastal Architecture Ltd 11 Kodex Place, Paraparaumu : 296  
1248

### General Requirements

- a) The Building Inspector is to be given 24 hours' notice before carrying out the following inspections:
1. Site
  2. Pre-slab - Plumbing
  3. Pre-slab - Building
  4. Drainage
  5. Pre Wrap
  6. Pre Clad
  7. Preline - Building
  8. Preline - Plumbing
  9. Brick Veneer
  10. Final Inspection
- b) To arrange for any of the above required inspections by Building Control Team, please contact the Call Centre on (04) 296 4700 between the hours of 8am and 5pm.

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Pre-site Inspection**

Inspection Outcome: **Fail**

Inspected By: **Alan Tinney**

Inspection Date: **5 January 2017 9:54 a.m.**

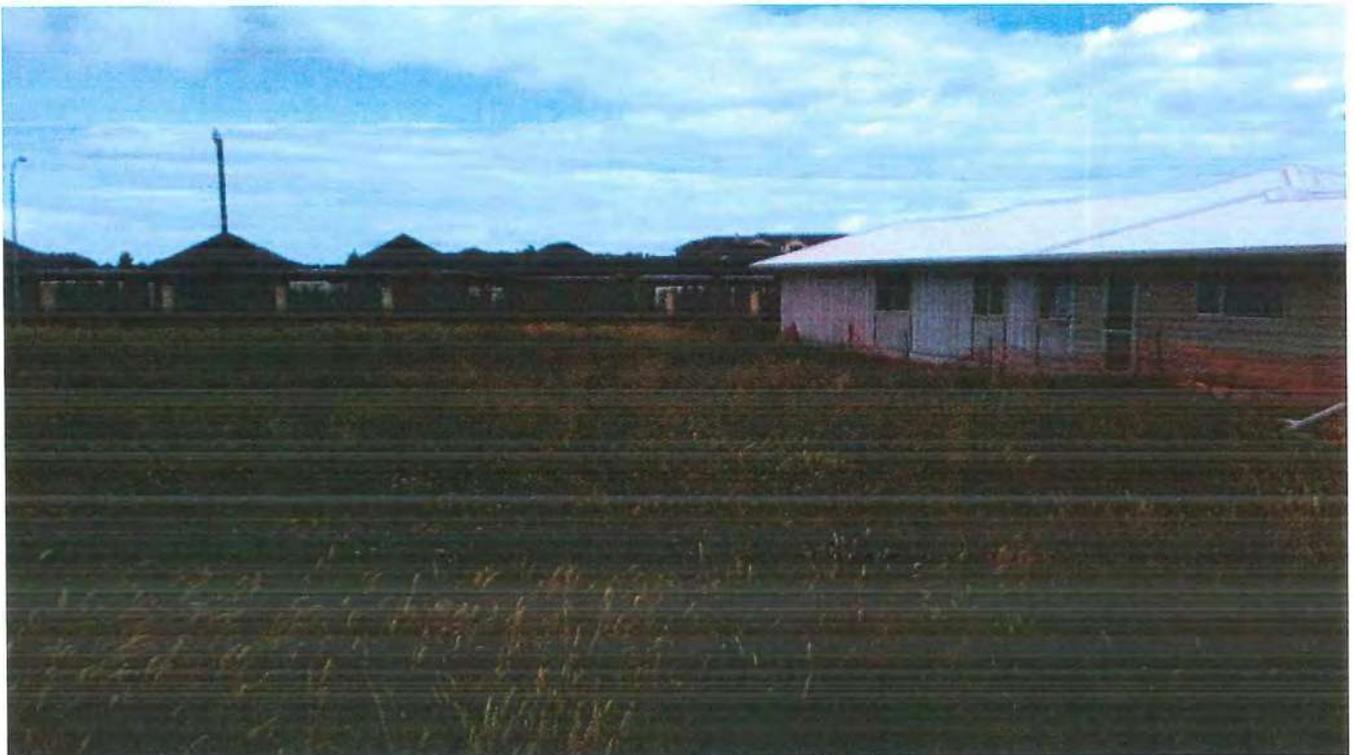
Duration: **15 minutes**

### Inspection Element

	<b>Status</b>
General	Fail
Contours match application	Pass
Datum point identified	Pass
Boundaries identified	Fail
Ground conditions checked	Pass
Footpath checked	N/A
Kerb and channel checked	N/A
Grass berm checked	N/A
Existence damage	N/A
Vehicle crossing installed	N/A
Dogs	N/A
Further investigation	N/A
Conforms with approved drawings	N/A
Resource consent	N/A
Producer statement	N/A
Driveway checked	N/A
Position of boundaries and datum height checked	N/A
Surveyor	Pass
N/A	



Taken at 9:53 AM on Thursday 5/01/2017



Taken at 9:54 AM on Thursday 5/01/2017

**VARIATION TO CONSENT NOTICE  
PURSUANT TO SECTION 221(3)  
OF THE RESOURCE MANAGEMENT ACT 1991**

COPY

**IN THE MATTER OF DPs 454080 and 476550**

**FOR LOT 3 DP 454080 and Lots 201 and 202 DP 476550;  
CTs 658777 and 658778  
At Mahia Lane,  
For VJ Limited**

To: the Regional Regulatory Titles Officer at Wellington

Please be advised that pursuant to Section 221(3) of the Resource Management Act 1991 the Kapiti Coast District Council hereby gives notice that, in relation to Lot 3 DP 454080 only, it has consented to a variation of the following consent notice conditions from the consent notices dated 9 August 2012 for DP 454080:

1. With respect to Lots 2, 3, 5 and 107: Foundation design and construction for any new building or addition or alterations to a building shall take into account:
  - The findings and recommendations within the document prepared by Landlink Limited, dated 24 May, 2012 and entitled "Statement of Professional Opinion as to Suitability of Land for Building Construction" together with associated documents which were submitted to Council in relation to application No. RM100229; and
  - The requirements and intent of the report entitled "Waikanae Plan Change Application, Assessment of Environmental Effects – Geotechnical" dated August 2006.

Copies of the above documents are available in the Kapiti Coast District Council Office at any time the office is open to the public.

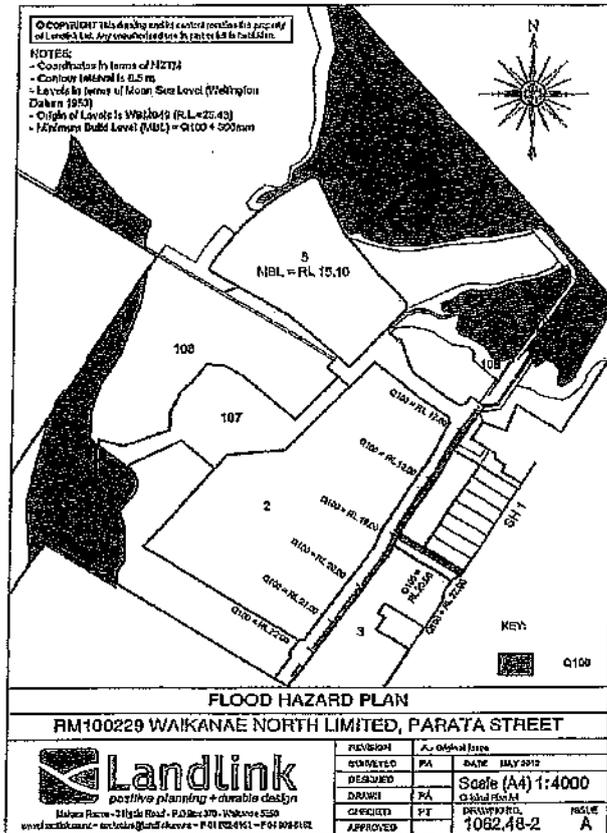
2. With respect to Lots 3 and 5: Any stormwater disposal design related to any development on the land must incorporate provision for and be constructed to the following design criteria to the satisfaction of the Kapiti Coast District Council:
  - provide all roads and vehicle carriageways with a primary system designed to convey the Q10 rainfall event and with a secondary overflow system designed to convey the Q100 rainfall event;
  - include appropriate control structures to ensure the stormwater discharging from lots 3 and 5 meet the parameters specified in the stormwater disposal designed approved under Condition 26;
  - protect and maintain existing overflow and natural drainage paths, unless otherwise altered during stage 1 as approved by the Kapiti Coast District Council Stormwater Engineer; and
  - be verified through hydraulic modelling by a suitably qualified hydrologist or hydraulic modelling specialist, and may be subject to peer review at the consent holder's expense.

It shall be the ongoing responsibility of the owner of the land to maintain any on site system so that it continues to meet the above performance standard as it applied at the time of approval.

4. With respect to Lots 3 and 107: Any habitable buildings shall be established so that the underside of the floor joists and/or floor slab is above the minimum recommended building level, which is 300 millimetres above the modelled 1 in 100 year return period flood level (Q100) as determined by the Kapiti Coast District Council at the time of the construction of the relevant building. Details of the recommended build levels can be obtained by consultation with Kapiti Coast District Council Stormwater Engineer and are, at the date of issue of this consent notice, related to the flood risk shown on the Waikanae north Flood Hazard Mitigation plan prepared by SKM, dated 17 July, 2012 and entitled "Proposed Adjustment to Flood Hazard Extent in the Vicinity of the Waikanae Both Development following Drainage Updates", a copy of which is replicated below for purposes of identification:



Furthermore, the current modelled Q100 levels are, at the date of issue of this consent notice, recorded on Landlink Flood Hazard Plan number 1062.48-2 Issue A, a copy of which is replicated below for purposes of identification:



Note: The above plans are held on Kapiti Coast District Council file RM10029 and are available from Council's office at any time the office is open to the public.

The owners of Lot 3 DP 454080; VJ Limited and the Kapiti Coast District Council hereby agree to change the above so that it reads as follows:

1. With respect to Lots 2, 5 and 107: Foundation design and construction for any new building or addition or alterations to a building shall take into account:
  - The findings and recommendations within the document prepared by Landlink Limited, dated 24 May, 2012 and entitled "Statement of Professional Opinion as to Suitability of Land for Building Construction" together with associated documents which were submitted to Council in relation to application No. RM100229; and
  - The requirements and intent of the report entitled "Waikanae Plan Change Application, Assessment of Environmental Effects – Geotechnical" dated August 2006.

Copies of the above documents are available in the Kapiti Coast District Council Office at any time the office is open to the public.

2. With respect to Lot 5: Any stormwater disposal design related to any development on the land must incorporate provision for and be constructed to the following design criteria to the satisfaction of the Kapiti Coast District Council:
  - provide all roads and vehicle carriageways with a primary system designed to convey the Q10 rainfall event and with a secondary overflow system designed to convey the Q100 rainfall event;

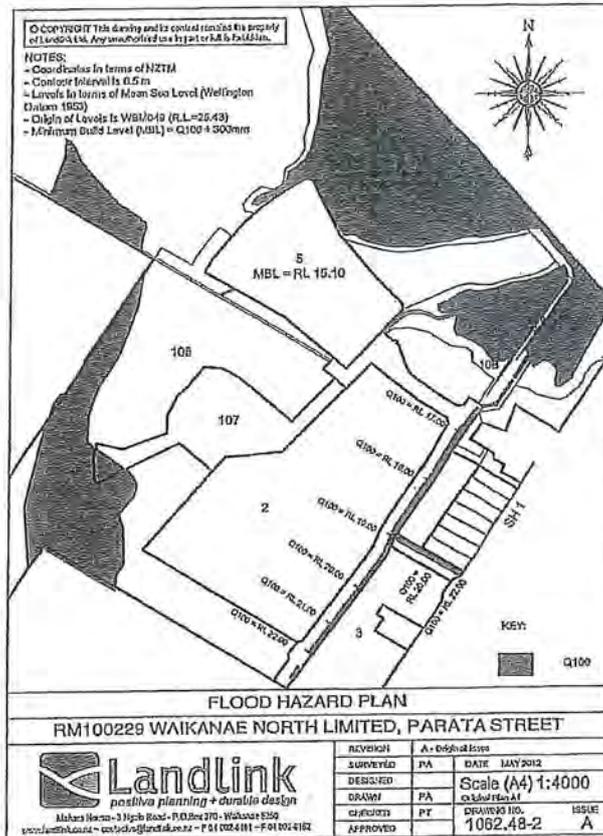
- include appropriate control structures to ensure the stormwater discharging from lots 3 and 5 meet the parameters specified in the stormwater disposal designed approved under Condition 26;
- protect and maintain existing overflow and natural drainage paths, unless otherwise altered during stage 1 as approved by the Kapiti Coast District Council Stormwater Engineer; and
- be verified through hydraulic modelling by a suitably qualified hydrologist or hydraulic modelling specialist, and may be subject to peer review at the consent holder's expense.

It shall be the ongoing responsibility of the owner of the land to maintain any on site system so that it continues to meet the above performance standard as it applied at the time of approval.

4. With respect to Lot 107: Any habitable buildings shall be established so that the underside of the floor joists and/or floor slab is above the minimum recommended building level, which is 300 millimetres above the modelled 1 in 100 year return period flood level (Q100) as determined by the Kapiti Coast District Council at the time of the construction of the relevant building. Details of the recommended build levels can be obtained by consultation with Kapiti Coast District Council Stormwater Engineer and are, at the date of issue of this consent notice, related to the flood risk shown on the Waikanae north Flood Hazard Mitigation plan prepared by SKM, dated 17 July, 2012 and entitled "Proposed Adjustment to Flood Hazard Extent in the Vicinity of the Waikanae Both Development following Drainage Updates", a copy of which is replicated below for purposes of identification:



Furthermore, the current modelled Q100 levels are, at the date of issue of this consent notice, recorded on Landlink Flood Hazard Plan number 1062.48-2 Issue A, a copy of which is replicated below for purposes of identification:



Note: The above plans are held on Kapiti Coast District Council file RM100029 and are available from Council's office at any time the office is open to the public.

Please be advised that pursuant to Section 221(3) of the Resource Management Act 1991 the Kapiti Coast District Council hereby gives notice that, in relation to Lot 3 DP 454080 and Lots 201 and 202 DP 476550 only, it has consented to a variation of the following consent notice conditions from the consent notices dated 9 August 2012 for DP 454080 and 17 April 2015 for DP 476550:

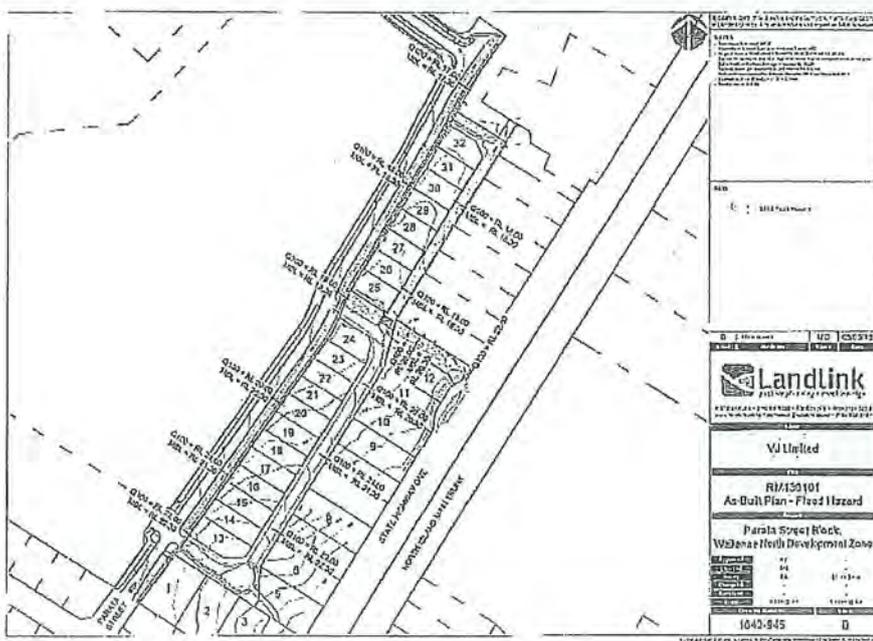
1. With respect to Lots 1, 13 to 32 and Lots 201 and 202: Foundation design and construction for any new building or additions and alterations to a building shall take into account the findings and recommendations within the following documents:
  - The Design Report for Parata St Block Waikanae north dated 8 October 2013 and prepared by J D Bell of Landlink; and
  - The report on Foundations, Roding and As Built Earthworks dated 13 November 2014 and prepared by DJ Munro of Landlink Limited

which were submitted to Council in relation to application No. RM130101. Copies of the above documents are available from file RM130101 in Council's Office at any time the office is open to the public and are also stored electronically under e-docs reference nos. 555006 and 555011 respectively.

2. With respect to Lots 1, 13 to 32 inclusive and Lots 201 and 202: The owner of the land has an ongoing responsibility for the construction and subsequent management and maintenance

of any on site stormwater disposal system to meet the performance standards given in the certified stormwater disposal design as set out in the document entitled "RM130101 – Subdivision of Lot 3 DP 454080 On site attenuation requirements for residential lots" dated 20 March 2015. This document is stored by Kapiti Coast District Council on file RM130101 and also electronically under e-docs reference no. 555042. Both documents are available in Council's office at any time the office is open to the public.

3. With respect to Lot 201 and 202: It is the ongoing responsibility of the landowner to protect and maintain any existing and proposed flow paths and natural drainage paths unless otherwise certified by Council's Development Engineer. One method of compliance with this requirement is the construction and maintenance of any vehicular access across any stormwater swale in general accordance with the design shown on Landlink Plan number 1642-E2-150 Issue A. A copy of this plan is held on file RM130101 and is also stored electronically at the Kapiti Coast District Council under e-docs reference no. 555609 and is available at any time the office is open to the public.
4. With respect to Lots 1, 13 to 32 inclusive and Lots 201 and 202: **All residential buildings shall be established so that the underside of the floor joists and/or floor slab is above the minimum build level as shown on the Flood Hazard map prepared by Landlink Limited and identified as Drawing Number 1642-945 issue B.** A copy of this plan is held on file RM130101 and is also stored electronically at the Kapiti Coast District Council under e-docs reference no. 555529 and is available at any time the office is open to the public. For ease of identification, an image of the Flood Hazard map is set out below:



5. With respect to Lot 202: the following are prohibited within area "X" as shown on DP 476550 unless otherwise approved by the Kapiti Coast District Council Stormwater Engineer:
  - The construction of an buildings or other works other than decks supported on poles;
  - The erection of any fences;
  - Earthworks of any nature'
  - Any other activity that may disturb the satisfactory operation of the secondary overflow

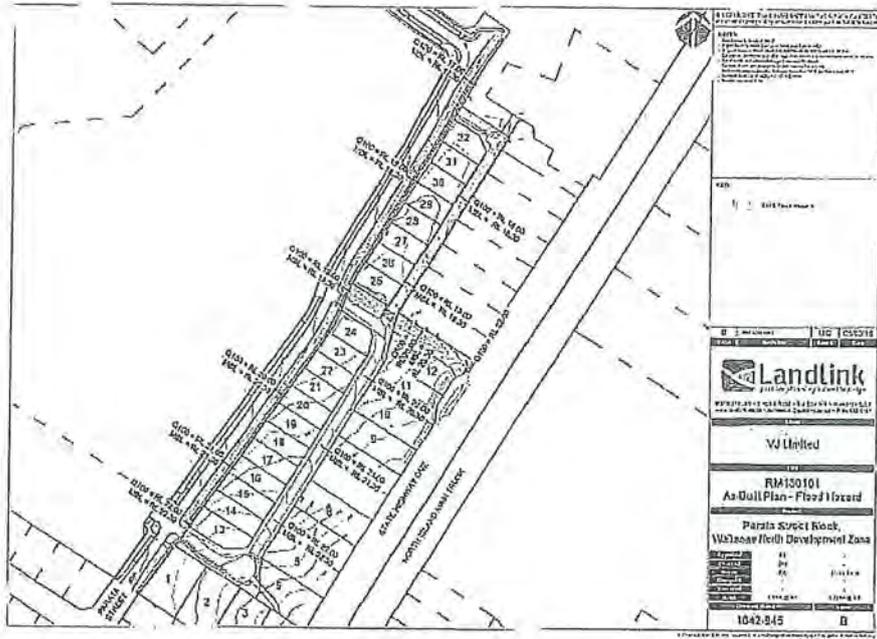
path and/or bund area which lies within area "X" on DP 476550.

The owners of Lots 201 and 202 DP 476550; VJ Limited and the Kapiti Coast District Council hereby agree to change the above so that it reads as follows:

1. With respect to Lots 1 and 13 to 32: Foundation design and construction for any new building or additions and alterations to a building shall take into account the findings and recommendations within the following documents:
  - The Design Report for Parata St Block Waikanae north dated 8 October 2013 and prepared by J D Bell of Landlink; and
  - The report on Foundations, Roading and As Built Earthworks dated 13 November 2014 and prepared by DJ Munro of Landlink Limited

which were submitted to Council in relation to application No. RM130101. Copies of the above documents are available from file RM130101 in Council's Office at any time the office is open to the public and are also stored electronically under e-docs reference nos. 555006 and 555011 respectively.

2. With respect to Lots 1 and 13 to 32 inclusive: The owner of the land has an ongoing responsibility for the construction and subsequent management and maintenance of any on site stormwater disposal system to meet the performance standards given in the certified stormwater disposal design as set out in the document entitled "RM130101 - Subdivision of Lot 3 DP 454080 On site attenuation requirements for residential lots" dated 20 March 2015. This document is stored by Kapiti Coast District Council on file RM130101 and also electronically under e-docs reference no. 555042. Both documents are available in Council's office at any time the office is open to the public.
3. Condition 3 will be removed in its entirety.
4. With respect to Lots 1 and 13 to 32 inclusive: All residential buildings shall be established so that the underside of the floor joists and/or floor slab is above the minimum build level as shown on the Flood Hazard map prepared by Landlink Limited and identified as Drawing Number 1642-945 issue B. A copy of this plan is held on file RM130101 and is also stored electronically at the Kapiti Coast District Council under e-docs reference no. 555529 and is available at any time the office is open to the public. For ease of identification, an image of the Flood Hazard map is set out below:



5. Condition 5 will be removed in its entirety.

Issued by the Kapiti Coast District Council in respect of RM140222A  
 this 15<sup>th</sup> day of January, 2016

  
 Marnie Shayne Rydon  
 Authorised Officer

  
 Rita Louise O'Brien  
 Authorised Officer

On Behalf of VJ Limited  
 Date:

**Fabricator / Designer Statement**

Job Ref: 8186

This statement may be used by the Building Consent Authority for compliance purposes and is issued by a licensed truss fabricator using the Pryda Build software.

**CLIENT Name:** KC Homes Ltd

**SITE Details:**

Address : Lot 16, 7 Mahia Lane Waikanae
City:
Post Code:

**Nominal Design Criteria:**

- Design working life: 50 years
- Building importance: Residential
- Roofing: Pressed metal tiles (7.5 kg/sq.m)
- Ceiling: 13mm Gib-board (8.5 kg/sq.m)
- Top chord battens: 380 mm
- BC restraints: Battens at 400 mm crs
- Standard truss spacing: 900 mm
- Standard roof pitch: 25.00 deg.
- Ult. design wind speed: 44 m/s (wind classification = High)
- Design roof snow load: 0 Pa (incl. probability factor)
- Ground snow load: 0 Pa
- Location: Region N1 - lower Nth Island
- Altitude above sea level: 100 m
- Max. eaves height: 3 m
- Max. ridge height: 6 m

Int pressure coeff. up: 0.2  
Overhang Condition: Metal fascia

The correctness of the Design Criteria used by the Pryda Build truss design software is the responsibility of the fabricator.

Note : Where relevant, a structural fascia beam is required at all hip and dutch hip corners to support the short creeper/rafter overhangs, as shown in AS4440-2004

Note: This statement must be read in conjunction with the truss layout and detail sheets.

Note: Some trusses in this job support ceiling materials that are different to this nominal data (see individual truss detail sheets).

All truss designs and their connections have been designed using Pryda design software. Additional items such as roof/ceiling plane bracing, special notes, supplementary timber, etc., which may be shown on the plan drawings are the responsibility of others.

All trusses have been manufactured in accordance with the fabrication specifications provided by Pryda, and shall be installed, connected and braced in accordance with the recommendations given in - : AS4440:2004 "Installation of nailplated timber roof trusses" and any other supplementary details that may be provided, such as the Pryda Installation Guides.

Timber verification and grading values are in accordance with clause B1 and timber treatment in accordance with clause B2 of the New Zealand Building Code.

I/we confirm that the trusses for this project have been manufactured in accordance with the fabrication specifications provided by Pryda New Zealand

Name: Steve Carson

Position: Detailer

Signed: 

Date: 17-02-2017

**Fabricator / Designer Statement**

Job Ref: 8186

Note 1: All timber framing nails are machine-driven, glue coated, or annular/helical deformed shank.  
Use specified fixings with Pryda connectors as noted.

Note 2: The following trusses have not yet fully passed all of the design criteria, eg:-

Truss Mark	Status
R2	Fixings and connections have not been designed.
R1	Fixings and connections have not been designed.

**Tie-downs to walls/beams:**

All trusses need to be fixed at each timber support with 2/ 90x3.15 dia Skew Nail

J1	1	-	2/Z	JD5	90	JD5	-0.90
J2	1	-	2/Z	JD5	90	JD5	-0.89
J5	1	-	2/Z	JD5	90	JD5	-0.88
J6	1	-	2/Z	JD5	90	JD5	-0.80
J7	1	-	2/Z	JD5	90	JD5	-0.68
J8	1	-	2/Z	JD5	90	JD5	-0.90
JE1	1	-	2/Z	JD5	90	JD5	-1.10
JE11	1	-	2/Z	JD5	90	JD5	-1.15
JE2	1	-	2/Z	JD5	90	JD5	-0.89
JE3	1	-	2/Z	JD5	90	JD5	-1.19
JE4	1	-	2/Z	JD5	90	JD5	-0.88
JE5	1	0	2/Z	JD5	90	JD5	-0.90
JE6	1	0	2/Z	JD5	90	JD5	-1.15
JE7	1	0	2/Z	JD5	90	JD5	-0.89
JE8	1	0	2/Z	JD5	90	JD5	-0.97
JE9	1	-	2/Z	JD5	90	JD5	-0.86
JS1	1	-	2/Z	JD5	90	JD5	-0.93
JS10	1	-	2/Z	JD5	90	JD5	-0.98
JS11	1	-	2/Z	JD5	90	JD5	-0.89
JS13	1	-	2/Z	JD5	90	JD5	-0.66
JS2	1	-	2/Z	JD5	90	JD5	-0.89
JS3	1	-	2/Z	JD5	90	JD5	-1.02
JS4	1	-	2/Z	JD5	90	JD5	-0.95
JS5	1	-	2/Z	JD5	90	JD5	-0.91
JS6	1	-	2/Z	JD5	90	JD5	-1.01
JS7	1	-	2/Z	JD5	90	JD5	-1.01
JS8	1	-	2/Z	JD5	90	JD5	-0.91
JS9	1	-	2/Z	JD5	90	JD5	-1.02
MG1	1	-	1/WS6E	JD5	90	JD4	-5.82
MTG1	1	-	2/Z	JD5	90	JD5	-3.09
S1	1	-	2/Z	JD5	90	JD5	-2.44
	7	6000	2/Z	JD5	90	JD5	-2.44
S10	1	-	2/Z	JD5	90	JD5	-0.97
S11	12	-	2/Z	JD5	90	JD5	-2.37
S12	1	-	2/Z	JD5	90	JD5	-2.47
S2	1	-	2/Z	JD5	90	JD5	-2.23
S3	1	-	2/Z	JD5	90	JD5	-2.10
	6	5200	2/Z	JD5	90	JD5	-2.41
S4	1	-	2/Z	JD5	90	JD5	-2.44
S5	1	-	2/MGL	JD5	90	JD5	-3.37
	7	6000	2/MGL	JD5	90	JD5	-3.37
S6	1	-	2/Z	JD5	90	JD5	-2.77
	7	8000	2/Z	JD5	90	JD5	-2.77
S7	11	-	2/Z	JD5	90	JD5	-2.36
S8	1	-	2/Z	JD5	90	JD5	-3.02
	7	8000	2/Z	JD5	90	JD5	-3.02
S9	1	-	2/Z	JD5	90	JD5	-1.04
SG1	1	-	2/Z	JD5	90	JD5	-1.16
TGG1	1	-	2/MGL	JD5	90	JD5	-3.94
	9	8000	1/WS6E	JD5	90	JD5	-6.38
TGG2	8	6700	2/WS6E	JD5	90	JD5	-10.34
TGG3	1	-	2/MGL	JD5	90	JD4	-5.49
	6	4590	1/WS6Ewr	JD5	90	JD4	-8.20
TS1	1	-	2/Z	JD5	90	JD5	-2.68
	8	8000	2/Z	JD5	90	JD5	-2.68

**Primary connections (truss to girder):**

Truss Marks			Fixing Details		
Girder	Supported	Connector	Girder	Supported	Supported
MG1	S12 S4	FB4590 FB4590	8/30x3.15d nails 8/30x3.15d nails		4/30x3.15d nails 4/30x3.15d nails

**Fabricator / Designer Statement**

Job Ref: **8186**

SG1	H6	LVSIA	6/12g-11x35 screws	1/12g-11x35 screws
TGG1	MG1	2/NPPC8	6/12g-11x35 screws	6/12g-11x35 screws
TGG2	H4	LVSIA	6/12g-11x35 screws	1/12g-11x35 screws
	MTG1	2/NPPC8	6/12g-11x35 screws	6/12g-11x35 screws
	S10	FB4590	8/30x3.15d nails	4/30x3.15d nails
	S11	FB4590	8/30x3.15d nails	4/30x3.15d nails
	S2	FB4590	8/30x3.15d nails	4/30x3.15d nails
	S7	FB45120	12/30x3.15d nails	4/30x3.15d nails
	S9	FB4590	8/30x3.15d nails	4/30x3.15d nails
	SG1	FB4590	8/30x3.15d nails	4/30x3.15d nails
TGG3	J4	FB4590	8/30x3.15d nails	4/30x3.15d nails
	TGG2	TB45/16	8/12g-11x35 screws	12/12g-11x35 screws

**Secondary fixings (hip & gable ends, valleys):**

All trusses are to be fixed at each support with the following:

Hip truss to truncated girder	3 face nails, bottom chords
Jack truss to truncated girder	3 skew nails or back face nails, bottom chords
Creep truss to hip truss	3 face nails, top and bottom chords
Top chord extensions	2 skew nails
Valley trusses	1 skew nail
Outriggers	2 skew nails

All additional connections are as follows:

Supporting Truss	Supported Truss	Top Chord	Bottom Chord
(Various)	JS1	1/MGL	-
	JS11	1/MGL	-
	JS12	1/MGL	-
	JS2	1/MGL	-
	JS4	1/MGL	-
	JS7	1/MGL	-
	JS8	1/MGL	-
	MV3	-	1/MGL
	MV4	-	1/MGL
	H1	JS3	1/QHS6
H3	JS9	1/QHS6	-
H7	JS13	1/QHS6	-
MG1	J2	1/MGL	-
MTG1	J4	1/MGL	-
	J5	1/MGL	-
	J6	1/MGL	-
	J1	1/MGL	-
S5	J1	1/MGL	-
TGG2	J8	1/MGL	-
TGG3	J7	1/MGL	-

**Fixing Summary:**

Connector	Description	Total	Fixing Method (per connector)	
<b>Primary</b>				
FB45120	Joist hanger	1	12/30x3.15d nails	4/30x3.15d nails
FB4590	Joist hanger	9	8/30x3.15d nails	4/30x3.15d nails
LVSIA	Angle Bracket	2	6/12g-11x35 screws	1/12g-11x35 screws
NPPC8	Purlin cleat	4	6/12g-11x35 screws	6/12g-11x35 screws
TB45/16	Truss boot	1	8/12g-11x35 screws	12/12g-11x35 screws
<b>Secondary</b>				
MGL	Multigrip (long)	21	6/30x3.15d nails	4/30x3.15d nails
QHS6	Cyclone strap	4	4/30x3.15d nails	4/30x3.15d nails



**Fabricator / Designer Statement**

Job Ref: 8186

**Tiedown**

MGL	Multigrip (long)	8
WS6E	Wind strap	4
WS6Ewr	Wind strap (wrap-around)	1
Z	Z nail	138

**Support**

6/30x3.15d nails
10/30x3.15d nails
10/30x3.15d nails

**Truss**

4/30x3.15d nails
1/30x3.15d nails
1/30x3.15d nails

**Producer Statement - PS1 - Design**

Job Ref:

**8186**

This producer statement applies to the structural engineering design software "Pryda Build" supplied by Pryda NZ to

Paraparaumu Prenail 2016 Ltd.

These truss designs are in accordance with sound and widely accepted engineering principles. I believe on reasonable grounds that if constructed in accordance with the design, the trusses will comply with relevant requirements of the New Zealand Building Code, Clause B1 and Verification Method B1/VM1. The durability shall comply with the New Zealand Building Code, Clause B2, for building importance level 2 and a design working life of 50 years.

In addition to the above, this software also complies in part with:

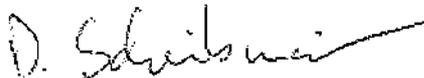
ANSI / TPI 1 - 2002 National Design Standard for metal plate connected wood truss construction.

AS 1649 - 2001 Timber - Methods of test for mechanical fasteners and connectors - Basic working loads and characteristic strengths.

The truss designs require that the supporting structure is stable in its own right, and that the trusses will be braced in accordance with the New Zealand Building Code Standard NZS 3604:2011, and any supplementary details provided, including but not limited to Pryda Installation Guides.

Pryda NZ holds a current policy of Professional Indemnity Insurance with cover no less than NZ\$2 million. The policy includes the engineering design processes used in the software.

**On behalf of Pryda NZ (a division of ITW New Zealand)**



**Daniel Scheibmaier**

NZ Engineering Manager

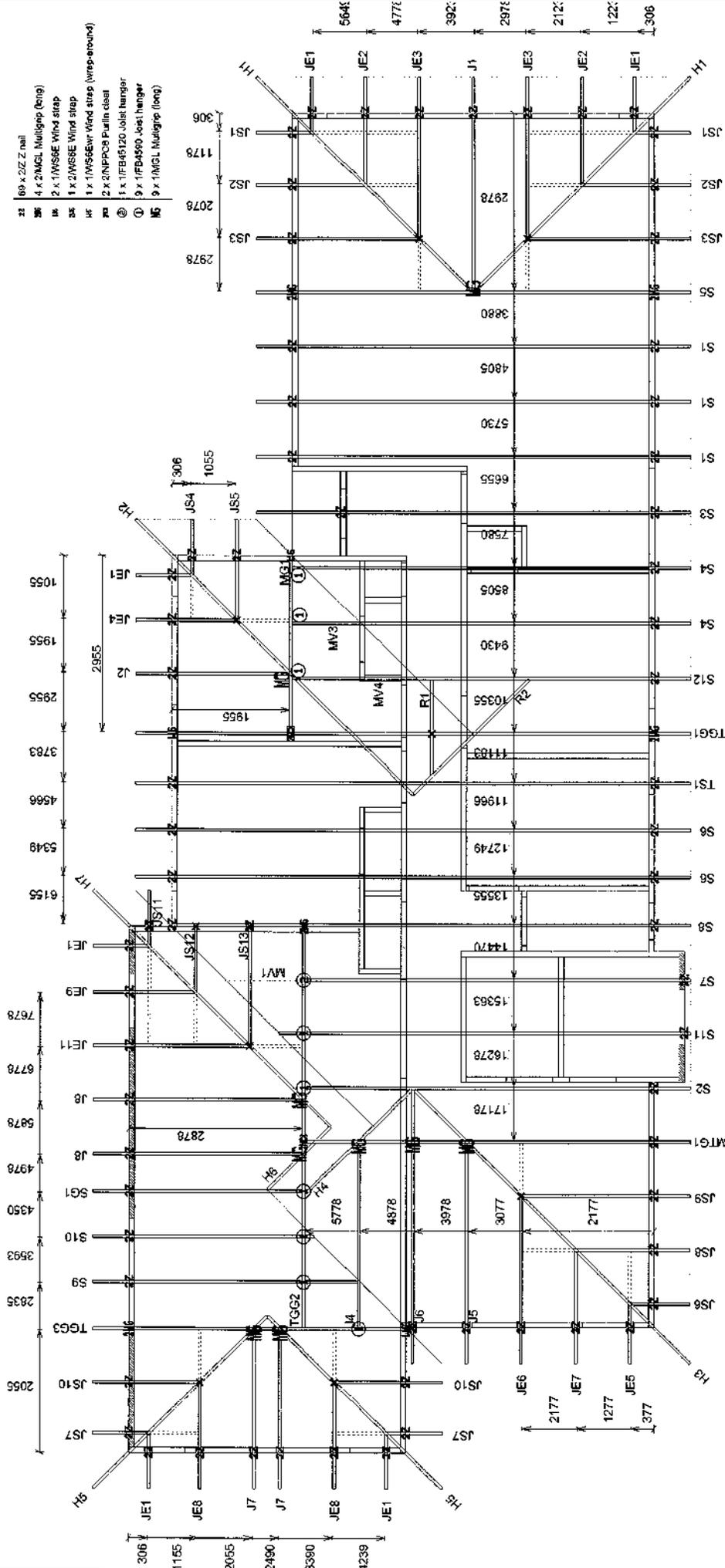
BE, ME (Hons), CPEng, IntPE, MIPENZ (261677)

**Pryda New Zealand**

**Truss Connections**

\* All tie-downs use 200x3.15 dia. Steel Nails unless otherwise noted.

- 22 89 x 2.2Z Nail
- 23 4 x 2MGL Multiprip (long)
- 24 2 x 1M5SE Wind strap
- 25 1 x 2M5SE Wind strap
- 26 1 x 1M5SE Wind strap (wrap-around)
- 27 2 x 2M5SE Wind strap (wrap-around)
- 28 2 x 2M5SE Wind strap (wrap-around)
- 29 1 x 1M5SE Wind strap (wrap-around)
- 30 1 x 1M5SE Wind strap (wrap-around)
- 31 1 x 1M5SE Wind strap (wrap-around)
- 32 1 x 1M5SE Wind strap (wrap-around)
- 33 1 x 1M5SE Wind strap (wrap-around)
- 34 1 x 1M5SE Wind strap (wrap-around)
- 35 1 x 1M5SE Wind strap (wrap-around)
- 36 1 x 1M5SE Wind strap (wrap-around)
- 37 1 x 1M5SE Wind strap (wrap-around)
- 38 1 x 1M5SE Wind strap (wrap-around)
- 39 1 x 1M5SE Wind strap (wrap-around)
- 40 1 x 1M5SE Wind strap (wrap-around)
- 41 1 x 1M5SE Wind strap (wrap-around)
- 42 1 x 1M5SE Wind strap (wrap-around)
- 43 1 x 1M5SE Wind strap (wrap-around)
- 44 1 x 1M5SE Wind strap (wrap-around)
- 45 1 x 1M5SE Wind strap (wrap-around)
- 46 1 x 1M5SE Wind strap (wrap-around)
- 47 1 x 1M5SE Wind strap (wrap-around)
- 48 1 x 1M5SE Wind strap (wrap-around)
- 49 1 x 1M5SE Wind strap (wrap-around)
- 50 1 x 1M5SE Wind strap (wrap-around)
- 51 1 x 1M5SE Wind strap (wrap-around)
- 52 1 x 1M5SE Wind strap (wrap-around)
- 53 1 x 1M5SE Wind strap (wrap-around)
- 54 1 x 1M5SE Wind strap (wrap-around)
- 55 1 x 1M5SE Wind strap (wrap-around)
- 56 1 x 1M5SE Wind strap (wrap-around)
- 57 1 x 1M5SE Wind strap (wrap-around)
- 58 1 x 1M5SE Wind strap (wrap-around)
- 59 1 x 1M5SE Wind strap (wrap-around)
- 60 1 x 1M5SE Wind strap (wrap-around)
- 61 1 x 1M5SE Wind strap (wrap-around)
- 62 1 x 1M5SE Wind strap (wrap-around)
- 63 1 x 1M5SE Wind strap (wrap-around)
- 64 1 x 1M5SE Wind strap (wrap-around)
- 65 1 x 1M5SE Wind strap (wrap-around)
- 66 1 x 1M5SE Wind strap (wrap-around)
- 67 1 x 1M5SE Wind strap (wrap-around)
- 68 1 x 1M5SE Wind strap (wrap-around)
- 69 1 x 1M5SE Wind strap (wrap-around)
- 70 1 x 1M5SE Wind strap (wrap-around)
- 71 1 x 1M5SE Wind strap (wrap-around)
- 72 1 x 1M5SE Wind strap (wrap-around)
- 73 1 x 1M5SE Wind strap (wrap-around)
- 74 1 x 1M5SE Wind strap (wrap-around)
- 75 1 x 1M5SE Wind strap (wrap-around)
- 76 1 x 1M5SE Wind strap (wrap-around)
- 77 1 x 1M5SE Wind strap (wrap-around)
- 78 1 x 1M5SE Wind strap (wrap-around)
- 79 1 x 1M5SE Wind strap (wrap-around)
- 80 1 x 1M5SE Wind strap (wrap-around)
- 81 1 x 1M5SE Wind strap (wrap-around)
- 82 1 x 1M5SE Wind strap (wrap-around)
- 83 1 x 1M5SE Wind strap (wrap-around)
- 84 1 x 1M5SE Wind strap (wrap-around)
- 85 1 x 1M5SE Wind strap (wrap-around)
- 86 1 x 1M5SE Wind strap (wrap-around)
- 87 1 x 1M5SE Wind strap (wrap-around)
- 88 1 x 1M5SE Wind strap (wrap-around)
- 89 1 x 1M5SE Wind strap (wrap-around)
- 90 1 x 1M5SE Wind strap (wrap-around)
- 91 1 x 1M5SE Wind strap (wrap-around)
- 92 1 x 1M5SE Wind strap (wrap-around)
- 93 1 x 1M5SE Wind strap (wrap-around)
- 94 1 x 1M5SE Wind strap (wrap-around)
- 95 1 x 1M5SE Wind strap (wrap-around)
- 96 1 x 1M5SE Wind strap (wrap-around)
- 97 1 x 1M5SE Wind strap (wrap-around)
- 98 1 x 1M5SE Wind strap (wrap-around)
- 99 1 x 1M5SE Wind strap (wrap-around)
- 100 1 x 1M5SE Wind strap (wrap-around)



NOTE: The end of the truss with the label on it, sits in relation to the way the label is set out on the truss layout plan supplied by Paraparaumu Prenail Ltd.



Customer : KC Homes Ltd  
 Site Address : Lot 16, 7 Mahia Lane  
 : Waikane

Roofing : Pressed metal (Res)  
 Pitch : 25.00 Deg.  
 Spacing : 900  
 Design Wind Velocity : 44.00 m/s (Ult)  
 Detailer : Steve Carson

Job Ref : 6166  
 Scale :  
 Level :



**PRODUCER STATEMENT  
- SUPPLY -**

**Issued By:** Larsens Concrete & Drainage  
**To:** Henderson Plumbing  
**In Respect of:** ELE5000Flat – 25000 L Tank for Burial

Larsens Concrete & Drainage Ltd were engaged to supply the above item design as per our standard information and AS /NZS Water Tank Standards at

**7 Mahia Lane, Waikanae**

The articles have been built and installed in accordance with the above standards and as described in our technical descriptions and drawings as issued by Larsens Concrete & Drainage and Septech Australia Pty Ltd.

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

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

Signed

A handwritten signature in black ink, appearing to be 'Larsens', is written over a horizontal dotted line.

Dated: 02/02/2017

**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

437 Heads Road  
WANGANUI

Phone: (06) 344 5911 Fax: (06) 344 8189



ENGINEERED SOLUTIONS FOR  
TLING, FLOORING & WATERPROOFING

# Standard Materials Warranty

**Warranty Number:** NZCSF-0077141

**Date of Installation:** 15-Jul-2017

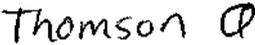
**Building/Project Address:** K.C Homes, Waikanae, Waikanae 5512

Company: CTL Tiling Installations ("the Applicator")

Address: 7 Rangatira street, Otaki, Otaki 5512

Phone: 0276278394

**Reference:** B.C 161030

Builder Name: Peter ~~Kender~~ Thomson 

**Product Type and Use:** ARDEX Superflex WPM 001, Bath cradle

Area Laid: 3.00 SquareMetres

Subject to the conditions appearing below, ARDEX NEW ZEALAND LIMITED ("ARDEX") warrants to K.C Homes that the ARDEX Membrane stated as the Product Type will retain its waterproofing properties for the following period from the date of installation of the Membrane:

This warranty is effective for (15) fifteen years from the date of installation of the Membrane.

## This Warranty is subject to the following conditions.

### Extent of Liability

1. Warranty shall only apply to any defect in the Membrane which permits the entry of water due solely to the natural deterioration of the Membrane or ridges or splits not caused by structural failure of movement of or cracks in the substrate or roof base or insulation over which the Membrane is applied. This Warranty does not cover workmanship which is and shall be the sole responsibility of the approved applicator who is not an agent, servant, or employee of ARDEX.
2. Failure to follow the ARDEX Specification and Instructions of use of the Product and/or all applicable laws will render this Warranty null and void. This includes protection of the Membrane when used in below ground DPM tanking, internal waterproofing and external waterproofing applications. ARDEX advise that products may have limitations as detailed in the product datasheets.
3. This Warranty will not apply where any other product or material has been added to or used in conjunction with the product, unless approved by ARDEX in writing (permission can be given or withheld at ARDEX's discretion and is not required when using ARDEX Tile adhesives in conjunction with ARDEX Undertile Membranes).
4. ARDEX's obligations under this Warranty shall be limited to the timely repair or replacement by ARDEX of any defective Membrane which permits the entry of water at ARDEX's cost. This is ARDEX's sole and total liability under this Warranty.
5. ARDEX shall have no further liability or responsibility other than set out in this Warranty. In particular, ARDEX shall not be liable for any loss of profits or loss of revenue or for any other economic loss or for any special, indirect, incidental, consequential damage, loss or injury of any kind, including but not limited to, damage to the structure or its contents arising under any theory of law whatsoever.
6. Without limiting the generality of the preceding clauses, this Warranty shall not cover and ARDEX shall have no liability for the following acts, conditions, or circumstances or any damage or defects which may arise there from:
  - a. Wars, strikes, lock-outs, delays, acts of God, fire, earthquake, flood, hail, lightning, hurricane, tornado, windstorm, governmental or environmental interference or any other cause (whether similar or dissimilar) beyond the reasonable control of ARDEX; or
  - b. The act, omission, default or representation of any party other than ARDEX or its servants or agents; or
  - c. Exposure to a chemical or solution, fire or radiation, or contamination by radioactivity from any nuclear fuel or waste; or
  - d. Settlement, distortion, failure of the walls or foundations of the building, ponding or cracking of the roof or the deck; or
  - e. Infiltration or condensation of moisture in, through, or around the walls, copings, building structure, or underlying or surrounding materials; or
  - f. Any design defect or structural failure of any framework or material in or on which the Membrane has been installed or applied which was not supplied by ARDEX; or
  - g. Materials other than the membrane, including, but not limited to, metal work expansion or control joints, fasteners, drains, vents, vapour retarders, walkways, pitch pockets, flashing materials and rooftop units and equipment; or
  - h. Expansion or contraction of any flashing or metal work, any adjacent or abutting building, structure or improved or unimproved property, or any component thereof, including but not limited to, structural failure or damage, leakage, or drainage; or
  - i. Any new installations, repairs, or other maintenance or construction on, to or through the Membrane; or
  - j. Damage caused directly or indirectly by falling objects or traffic of any nature on the roof; or



ENGINEERED SOLUTIONS FOR  
TILING, FLOORING & WATERPROOFING

- k. Improper installation of insulation or defects or failure of any material used in any roof base or insulation over which the Membrane is applied; or
- l. The failure of material or structures to conform to manufacturer's specifications as to roof slopes or other requirements; or
- m. Negligence, misuse, improper treatment or improper site preparations; or
- n. Storage, handling or installation of the Membrane otherwise than in accordance with ARDEX's published use and handling procedures and installation specifications.

**Claim**

- 7. This Warranty shall be invalid unless ARDEX receives the Owner's written claim within the warranty period and within fourteen (14) days after the date of reasonable discovery of any alleged defect.
- 8. This Warranty remains current for the period as specified previously in this document and is transferable should ownership of the property on which the membrane is applied change.

**Access to Material and Site**

- 9. In the event that it is necessary for ARDEX to repair or replace any defective Membrane, the Owner shall provide ARDEX with clear and unrestricted access to the Membrane. Nothing in this Warranty shall require ARDEX to remove and/or replace plant, equipment or any other object or substance in order to gain access to the defective Membrane. The Owner shall co-operate in all respects with ARDEX to accomplish the said repair or replacement. The cost of any site visit requested under a Warranty claim which does not reveal any problem which ARDEX has liability for under this Warranty shall be paid for, at ARDEX's sole discretion, by the party requesting the inspection at the then current trade consultancy rates.

**Consumer Guarantees Act**

- 10. Where the Membrane is being acquired by you in trade you agree that it is fair and reasonable in the circumstances that the Consumer Guarantees Act 1993 (CGA) not apply. Accordingly, to the maximum extent permitted by law, the CGA shall not apply.

**No Other Warranty**

- 12. Except as expressly set out in this Warranty, and with the exception of the relevant statutory warranties contained in the CGA that cannot be excluded, no other warranty or condition shall be implied against ARDEX by any statute, at common law or otherwise, and no representation, express condition, warranty or variation of this warranty shall be binding on ARDEX unless it is in writing and signed for or on behalf of ARDEX. This Warranty shall prevail despite any indication to the contrary by any person acting or purporting to act on ARDEX's behalf and shall replace all or any other alleged rights or remedies contained in any other document or representation whether issued or made prior to or subsequent upon the granting of this Warranty by ARDEX.

**Validity of Warranty**

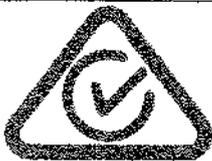
- 13. This Warranty is valid and enforceable on the condition that ARDEX has been paid in full for the Membrane supplied.

**Applicable Law**

- 14. This Warranty is governed by the laws of New Zealand.

By: 

Date: 24-Jul-2017



# ELECTRICAL CERTIFICATE OF COMPLIANCE & ELECTRICAL SAFETY CERTIFICATE (RETAIN FOR 7 YEARS)

CERTIFICATE ID NO AS PER INVOICE:

INV-1889 and INV-2034

Customer name: KC Homes

Location of installation: 7 Mahia Lane, Waikanae

Name of Electrical worker:

Michael Dunn

Registration/Practising licence number:

E246282

Company details:

2 Connect Electrical Limited / 04 974 0573 / info@2connect.co.nz

Name of person(s) supervised:

J Walburn - EW113044

## CoC / ESC

Type of work:

Additions

Alterations

New work

The prescribed electrical work is:

Low risk

General

High-risk (Specify):

See ROI

Reference Standards:

Part 1 of AS/NZS 3000

Part 2 of AS/NZS 3000

Additional Standards:

Type of Supply system: \_\_\_\_\_

### Description of Work - full details and dates on invoice:

Supply and install electrical service and switchgear for new dwelling as per attached quotation dated 31/01/2017:

- excluding 1 x alarm sensor not required
- plus 1 x additional downlight and switch

### Select those that apply:

- Has been installed in accordance with the specified certified design<sup>1</sup>
- Has an earthing system that is correctly rated (where applicable)
- Contains fittings that are safe to connect to a power supply
- Relies on a supplier Declaration of Conformity<sup>1</sup>
- Relies on a manufacturer's instructions<sup>1</sup>
- Has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010
- Is safe to connect

Electronic/Other reference: \_\_\_\_\_

<sup>1</sup> Attach or reference.

### Test Results

Polarity (Independent earth):	Correct
Insulation resistance:	>1mΩ
Earth Continuity:	<.5Ω
Bonding:	<.5Ω
Fault Loop impedance	<1Ω
Other (specify):	-

I **certify** that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct in that the installation, or part of the installation.

This certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1) of the Building Act 2004. I **certify** that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name:

Michael Dunn

Registration/Practising licence number:

E246282

Certifier's signature:

Certificate Issue Date:

20/07/2017

Connection Date:

20. 7. 17

Certified Design / Suppliers Declaration of conformity

All materials supplied by Stewarts Electrical Ltd

# Independent Electrical Inspectors Ltd.

3 Celtic Way, Paraparaumu.  
 Andrew Stellingwerf -I2866 ph:027 280 4588

INV - 1889 and  
 INV - 2034

## COMBINED COC / ROI / ESC

Customer Name: 2 Connect Reference: 150617/4

Location of Installation: 7 MAHIA LN  
WAIKANAPE

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

Vircom EMS testhouse       Indeserve testhouse       Other \_\_\_\_\_

**Record of Inspection:** Description of work inspected: NEW HOUSE MAINS  
MAIN + MAIN EARTH.

Certificate of compliance supplied  
 Reference: 653 Issued by: M DUNN Reg Number: E246282 Dated: 15-6-17  
 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>2 Connect</u>	Electra acknowledgement #	<u>2598629</u>	
Job Type:	<u>NK TTP</u>	Time on:	<u>1200</u>	
Asset #:	<u>10517A</u>	Time off:	<u>1345</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>CUTTER GLOVES + APE</u>	Inspect & Liven <input checked="" type="checkbox"/>
Heights	Gravity			1 PH tie in <input checked="" type="checkbox"/>
Falls, trips & slips	Injury			3 PH tie in
Outdoor/Weather	Cold/Heat/Rain			Disco/Reco
Traffic	Hit by			Fuse
Public Access	Danger to public	<u>MINIMISE</u>	<u>SLOW AT WORK AREA</u>	

CONSIDER ALSO: SITE SECURITY, OTHER SERVICES, ENVIROMENTAL 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>.28</u> Ω	R Ω	B: Ω	
PSSC:	R: <u>.86</u> ka	W: ka	B: ka	
Insulation Resistance:	<u>7500</u> MΩ	Earth Lead Resistance: <u>0.00</u> Ω	Bonding: <u>0.00</u> Ω	
Polarity <input checked="" type="checkbox"/>	Visual Check <input checked="" type="checkbox"/>	R.C.D Test	ms	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: 15-6-17  
 Reviewed 08/12/2015



**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.)

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: suppliers instructions left on site at installation time.   
 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:

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:  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:

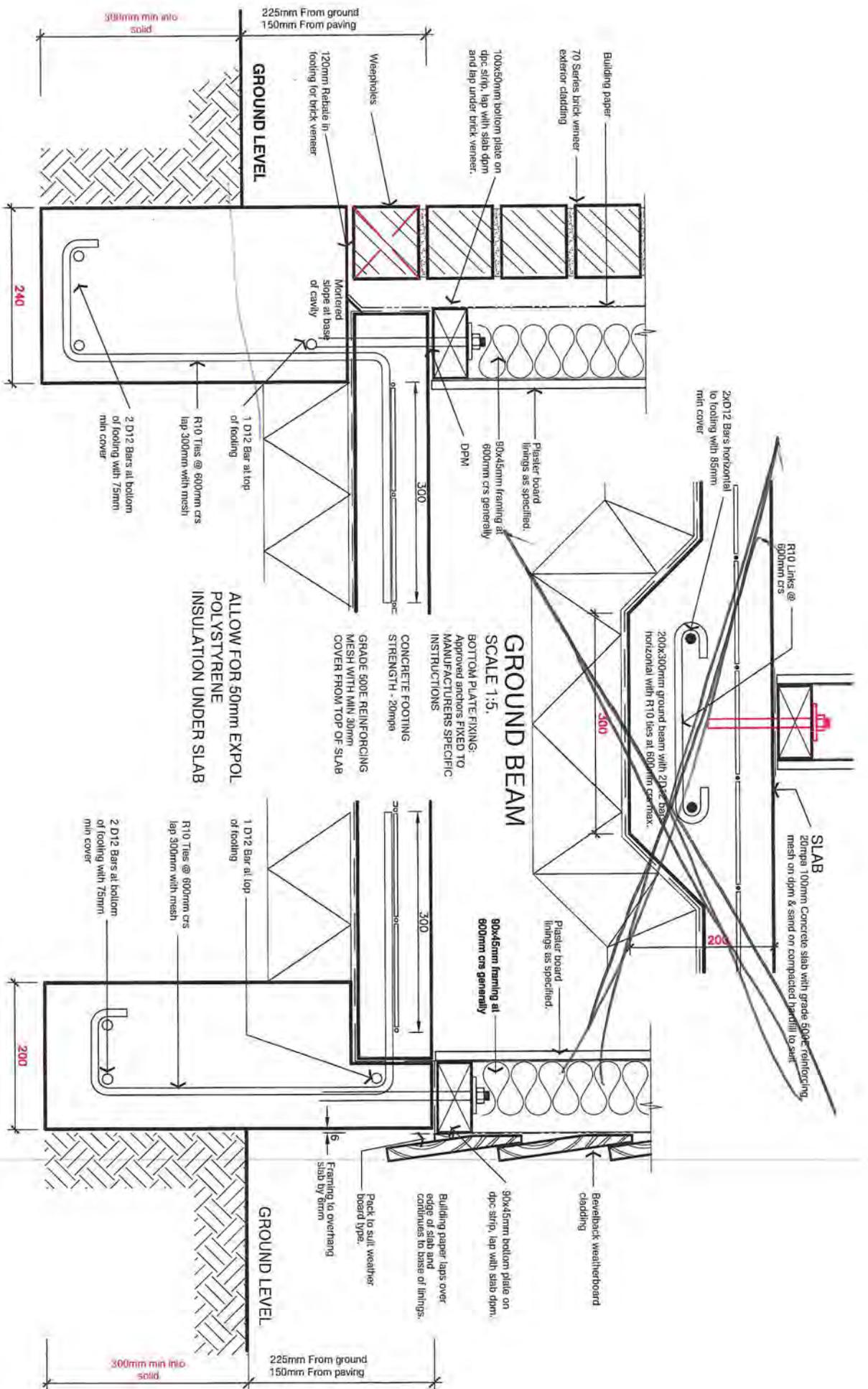
Registration number:  Date of completion or connection:

Certifier Signature:  Date:

This Gas Safety Certificate confirms that the gasfitting work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

*reviewed current Gasfitting  
 26/7/17*





**FOOTING DETAIL**  
SCALE 1:5

**FOOTING DETAIL**  
SCALE 1:5

All work shall be in accordance with the NZBC. It is the responsibility of the Contractor to ensure that all work is done in accordance with the NZBC. The Designer is not responsible for any work not done in accordance with the NZBC. The Designer is not responsible for any work not done in accordance with the NZBC. The Designer is not responsible for any work not done in accordance with the NZBC.

Revisions: NOVEMBER 2016 FEBRUARY 2017 MARCH 2017 rev A rev B rev C	Project: <b>NEW DWELLING</b>	Drawing Title: KC HOMES LTD LOT 1B, 7 MAHIA LANE, WAIKANAE	Drawing Title: <b>DETAILS</b>	Designer: <b>COASTAL ARCHITECTURE</b> 11 Kōkoi Place New Zealand Tel: 01 294 1348 e-mail: billfrancis@coastal-arch.co.nz	Designer: Bill Francis Scale: as shown	Job: 175	Page of: 9	Rev: C
---	---------------------------------	--	----------------------------------	---	---	-------------	---------------	-----------



**GoGet Inspection Audit Report**

---

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Final Inspection**  
 Inspection Outcome: **Pass**  
 Inspected By: **Gareth McCullagh**  
 Inspection Date: **25 July 2017 1:34 p.m.**  
 Duration: **30 minutes**

<b>Inspection Element</b>	<b>Status</b>
Exterior	Pass
Inspection notes	Pass
<b>All passed items on this inspection have been assessed against the consented documentation.</b>	
Drawings	Pass
Additional information/plan	N/A
Sub-floor ventilation	N/A
Roof fixings	Pass
Spouting and down-pipes <b>all connected</b>	Pass
Deck structure	N/A
Flashings - roof	Pass
Penetrations - flashings	Pass
Barriers	N/A
Gully dishes <b>in place</b>	Pass
Stormwater and site drainage	Pass
Handrails	N/A
Wastes to gully	Pass
Fixings - durability	Pass
Steps/stairs	Pass
Terminal vents/AAVs <b>50mm completed</b>	Pass
Cladding painted/sealed	Pass
Flashings - windows/doors	Pass
Cladding ground clearance	Pass
Road crossing complete	Pass
Final check complete	Pass
Other	Pass
<b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b>	
Interior	Pass
Inspection notes	Pass
Drawings	Pass
Additional information/plan	N/A
Service areas-floors/walls <b>all sealed as required</b>	Pass
Stair design	N/A
Handrails	N/A

Balustrades	N/A
Lightings	Pass
Laundering	Pass
Cooking facilities	Pass
Smoke detectors in place	Pass
Food storage/preparation	Pass
Ventilation	Pass
Insulation and clearance	Pass
HWC flues	Pass
HWC restraint	Pass
Tempering valve	N/A
Glazing - human impact	Pass
Hot water temp 51 degrees	Pass
Solid fuel heater	N/A
Water supply tank	Pass
Trap seals and AAVS	Pass
Cistern flushing	Pass
WC pan connection	Pass
Septic tank	N/A
Window labels	Pass
Final check complete	Pass
<b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b>	
Other	Pass
<b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b>	
Intertenancy/commercial	N/A
Other	N/A

---

### Support Documentation

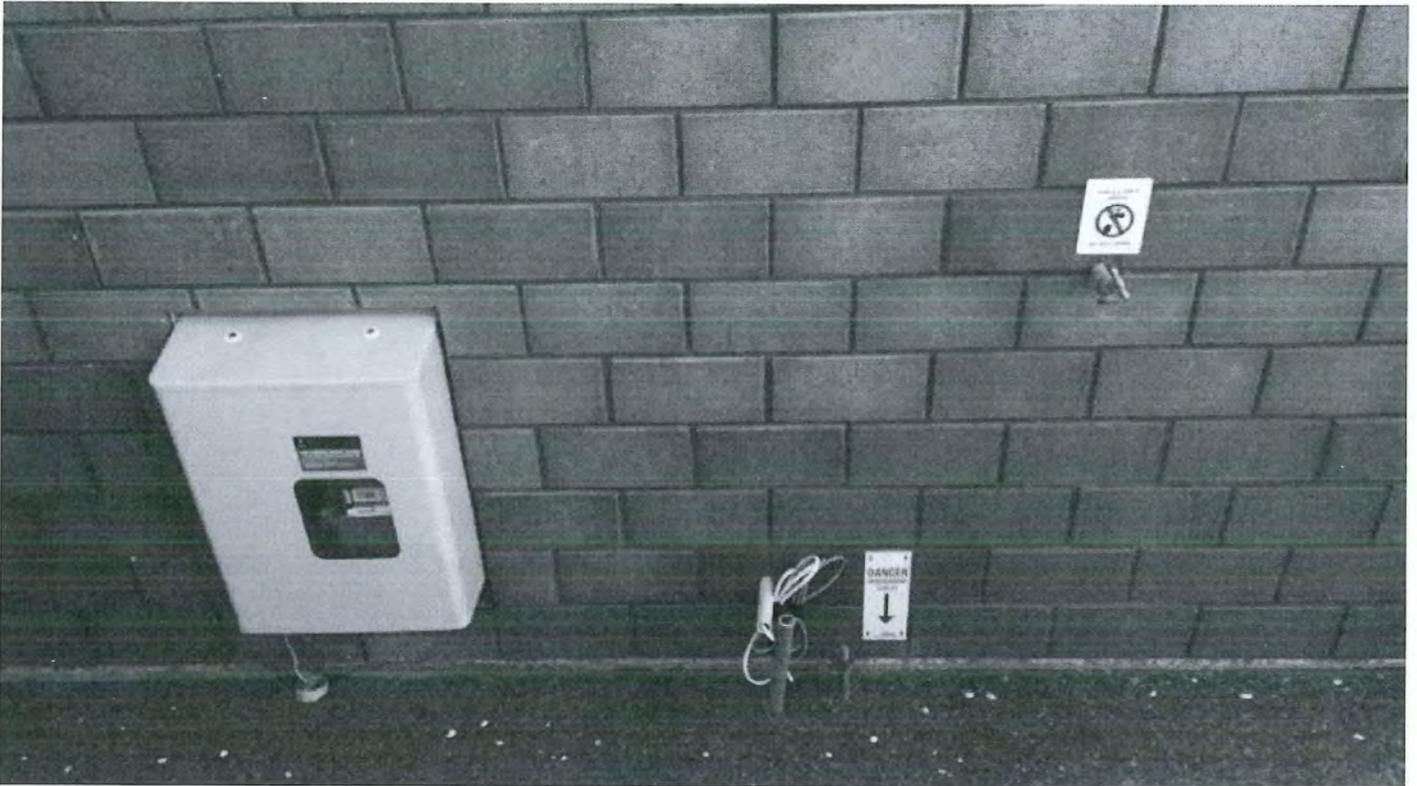
Application for CCC	Accepted
Electrical safety certificate	Accepted
Gas safety certificate	Accepted
As-built drainage plan	Accepted
Drainage (Form 126) for stormwater installation	Accepted
Drainage (Form 127) for private sewer installation	Accepted
Plumbing (Form 125) for pressure test and installation piped services	Accepted
Membrane applicator certificates - internal wet area	Accepted
Timber framing and truss certification	Accepted
Roof product manufacturers warranty	Accepted
Record of Work	Accepted
Roof installers warranty	Clear
Window manufacturers producer statement	Clear
Water tank warranty 20,000lt	Accepted



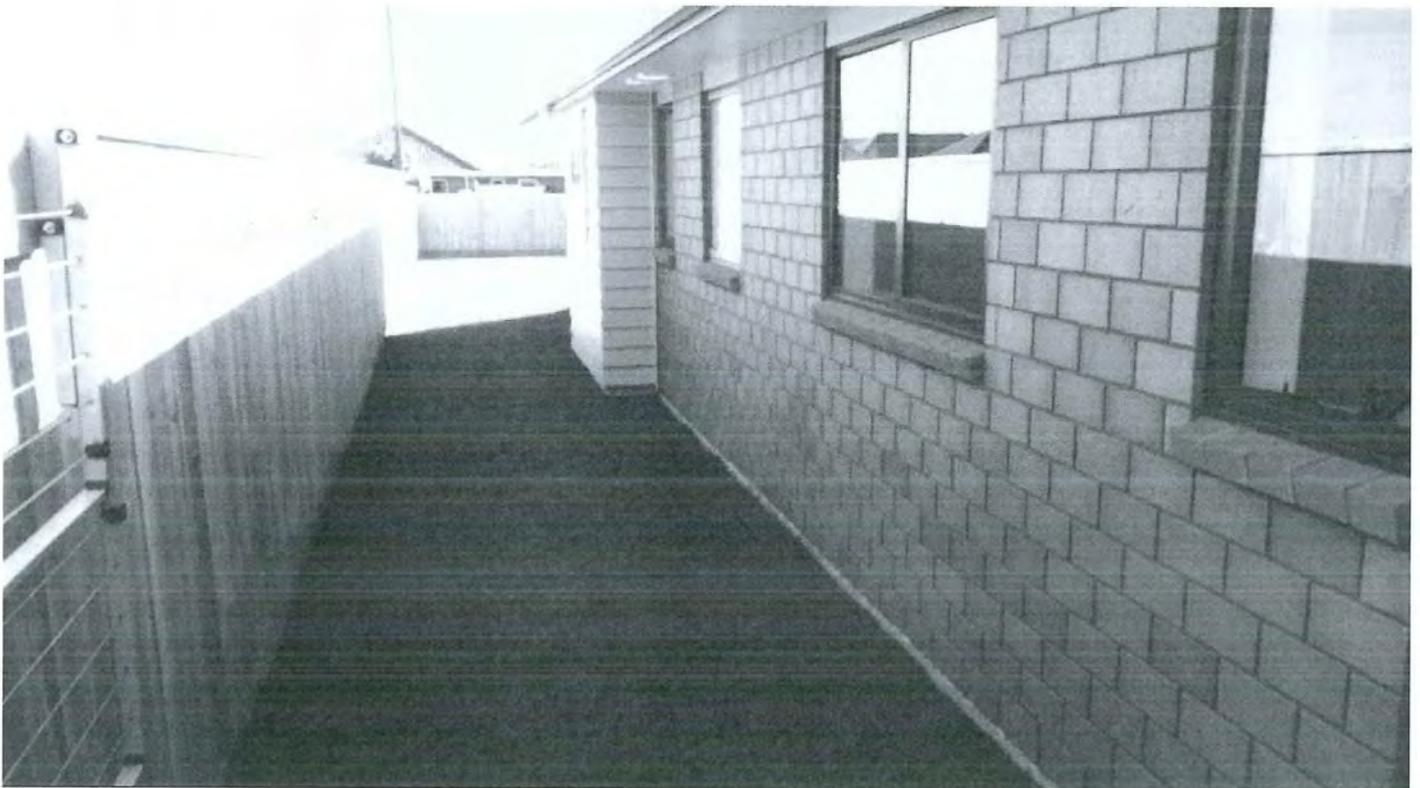
Taken at 1:04 PM on Tuesday 25/07/2017



Taken at 1:04 PM on Tuesday 25/07/2017



Taken at 1:05 PM on Tuesday 25/07/2017



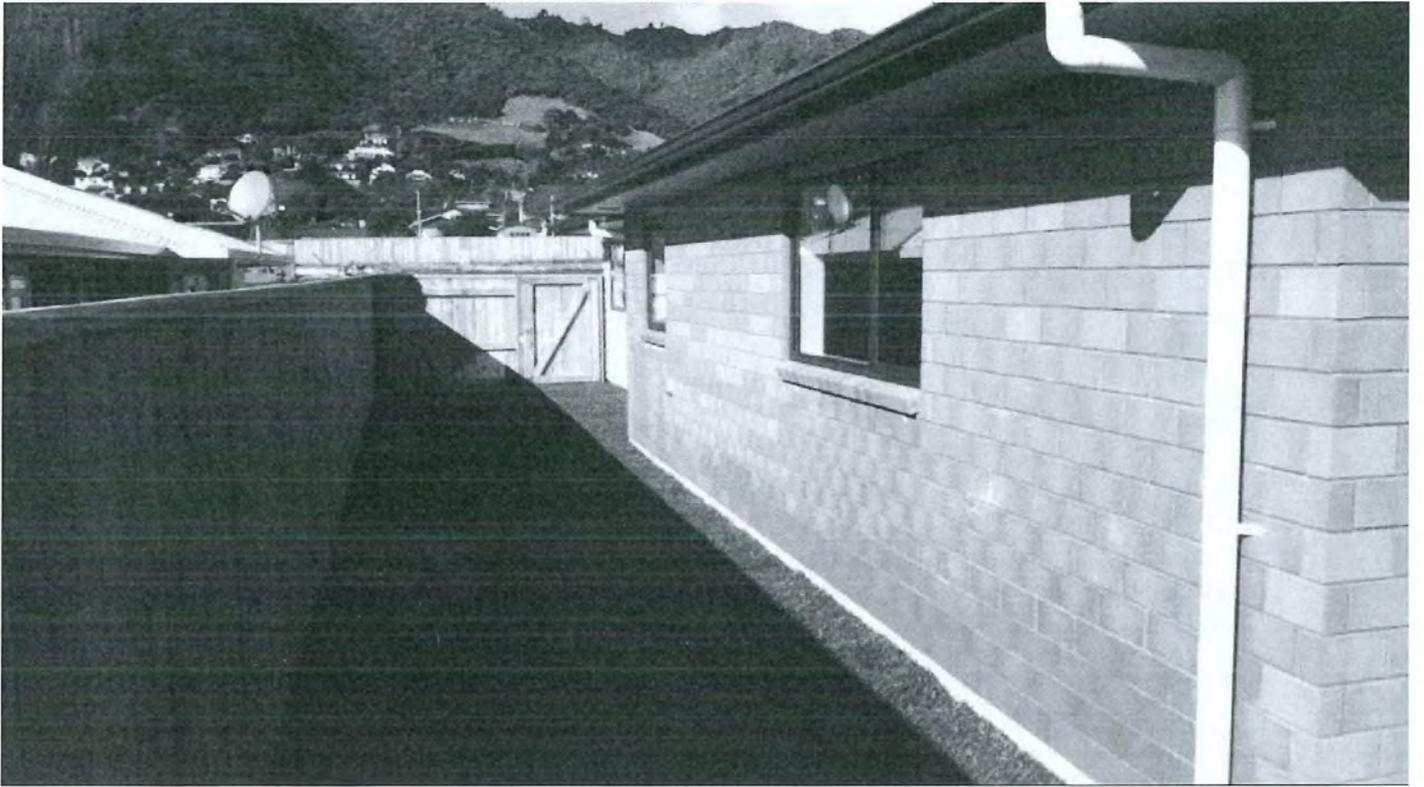
Taken at 1:05 PM on Tuesday 25/07/2017



Taken at 1:06 PM on Tuesday 25/07/2017



Taken at 1:07 PM on Tuesday 25/07/2017



Taken at 1:07 PM on Tuesday 25/07/2017



## Statement of Compliance with the NZ Building Code

Consent No: 161030

ISSUED BY: **Kapiti Coast District Council**

### PROJECT

Site Address: 7 Mahia Lane, Waikanae  
Legal Description: LOT 16 DP 476550 CT 658759  
Work Description: New single level brick & Linea Weatherboard dwelling with attached double garage.  
Building Category: R1

### OWNER

Name(s): K C Homes Ltd  
Address: 17 Hei Hei Place, Parāparaumu

- [ P ] Application for CCC received and accepted
- [ P ] Confirm all required inspections completed and documented in GoGet
- [NA] If inspection(s) have been missed, have they been compensated for?
- [NA] If supervision was required for any inspection - did it occur?
- [ P ] Work in accordance with approved consent and approved amendments
- [NA] Have any notices to fix been uplifted?
- [ P ] Supporting documentation required in building consent addenda received
- [ P ] Quality assurance documentation
- [ P ] Restricted building work
- [NA] Additional information required and received
- [NA] Compliance schedule issued
- [NA] Earthquake prone building
- [NA] Swimming Pool details updated
- [ P ] Approve to issue Code Compliance Certificate if all fees paid
- [NA] Approve to issue Certificate for Public Use if all fees paid
- [NA] Approve to issue Certificate of Acceptance if all fees paid
- [NA] Supervision review

#### NOTES:

Inspections Prepaid:

Inspections Done:

#### LICENSED BUILDING PRACTITIONERS:

Carpentry 1 BP103940  
Bricklaying and Blocklaying 1 BP109132  
Roofing 1 BP100649

---

On review of the documentation and inspection notes it can be considered on reasonable grounds that all work has been completed in compliance with the building consent.

Signed:



Date: 26 July 2017

Name: Gareth McCullagh

Position: Building Officer

# BUILDING CONSENT DOCUMENTATION FILED



Building Consent Number: <b>161030</b>
Street Address: <b>7 Mahia Lane Waikanae</b>

Tick indicates documents (s) included in this Building Consent						✓
Building Consent Documentation						✓
Application Workflow Coversheet						✓
Application for a Building Consent Form						✓
Application for a Building Consent Checksheet						✓
Proof of ownership						
Costing Schedule						✓
Building plans and specifications						✓
Production Checklist						✓
GoGet Processing Summary						
Scope of Inspection Sheet and Inspection Checksheets						
<b>1-13</b>	<b>15</b>	<b>20-23</b>				
Building consent and memorandum						
Inspection reports						✓
Application for CCC						✓
Site Plan						
PIM						
Certificate of Design Work						
Copy of electrical certificate						✓
Copy of gas certificate						✓
An "as-built" drainage plan						✓
Plumbing (Form 125) for pressure test and installation piped services						✓
Drainage (Form 126) for stormwater installation						✓
Drainage (Form 127) for private sewer installation						✓
A Construction Review (PS4) statement for structural engineering						
A Construction Review (PS4) statement for fire engineering						
A Construction Review (PS4) statement for geo-technical engineering						
Roof cladding warranty						✓
Solar water heating technical specifications						
Wall cladding/texture coating installation applicator warranty						
A copy of the lift certificate						
A certificate from the fire alarm installer						
A certificate from the sprinkler certifier						
A copy of wet-area membrane installers warranty						✓
A copy of deck membrane manufacturer's installers warranty/guarantee						



# BUILDING CONSENT PRODUCTION CHECKLIST



Proposal: <i>single level dwelling</i>		BC:
Address: <i>7 Mahia Lane Waikanae</i>		<i>161030</i>
Officer:		Category: <i>Residential</i>
		Residential: <input checked="" type="checkbox"/> Commercial: <input type="checkbox"/>
		Date:

Key	
N/A <input type="checkbox"/>	Not Applicable to this application. (The deletion of whole sections as N/A is permitted. For alternatives comment below each section).
No <input type="checkbox"/>	Plans, specifications & documentation not complying with the Building Code &/or Bld Act (The reason specified alongside each prompt)
Yes <input type="checkbox"/>	Plans, specifications & documentation complying with Category Bld Code &/or Bld Act (The reason specified alongside each prompt)

Site Plan (NZS 3604 Sec 3.4, 4, 5 Code clB1, B2, E1, E2, F1 & F2 Sect. 72, 75 BA04)			
N/A	No	Yes	Comments
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Wind zone <i>High</i> V/ High Specific <i>(GIS)</i> Site specific (3604)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Flooding / ponding hazards <i>(GIS)</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Slippage / fault line hazards <i>(GIS)</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Erosion, river & coastal hazards <i>(GIS)</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Subsidence / soft soil hazards <i>(Site inspection notes)</i> <i>Pass</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Corrosion zone Zone D or <i>Zone C</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Soil contamination (F1 GIS)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Distances to boundaries / siting (District plan) <i>RM160298 in Process</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Floor levels / contours (E2/AS1 & NZS 3604 E1) <i>FGL 22.0 RPL 223 contours 21.5</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Two or More Allotments (Sec 75 – 83 Bld Act)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Noise / sound insulation ( <i>airport &amp; highway</i> )
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CT(2) notice reviewed <i>RM 130101</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Outstanding Building Consents, No CCC
			BC:
			BC:
Additional comments:			

Ambiguity / Contradictions			
N/A	No	Yes	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Manufacturers Specs
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Engineer compared with Designer/Arch
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Any Other contradictions
Additional comments:			

Commercial Fire report (C/NM1, C/As1, C/AS2, C/A34, C/AS4, C/AS5, C/AS6, C/AS7, F6, F7, F8)			
N/A	No	Yes	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Referral to NZFS Fire Engineering unit
Additional Comments:			



**Dialogue Record**

List further information requested, info received, records / reference of communication etc.  
via Phone / Email / letter / counter / fax

Date / time	State content of discussion!!!	Initials
8/2/17	RFI emailed to Agent	UH
10/2/17	Phone call from Bill Francis - Clarified	
	the issue with foundation. - He will consider	
	using core in lieu of block. Clarified	
	ply brace within veneer cavity over wrap	KFW
15/2/17	RFI - further request building items	
	emailed.	KFW
4:45	Discuss Bill Francis - considers that	
	bracing meets 360A because braced lines	
	at 6m dc. Says note on dug re	
	clearances around garage	KFW
15/2/2017	Revised plans/info provided and scanned to the B.C	J

<b>Change of Use – Sec 114:</b> <i>(Record decisions and basis for decisions – confirm whether sec 115 applies)</i>		
Date:		
<b>Alteration to Existing Building - Sec 112</b> <i>(Record decisions and basis for decisions – confirm whether sec 118 applies and if so, has it been complied with?). List conditions / communications / actions:</i>		
Date:		
<b>Hazards – Sec 71-74:</b> <i>(Record decisions and basis for decisions – see under "site plan above already done")</i>	Letter Sent	
	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Date:		
<b>Compliance Schedule – Sec 100 - 107:</b> <i>(Record if new / amended compliance schedule required, and attach copy of replica compliance schedule. Ensure that note is recorded on building consent that new / amended compliance schedule will be issued).</i>		
Date:		

Declaration of Owner-builder		
N/A	Yes	Comments
<input type="checkbox"/>	<input type="checkbox"/>	Declaration of Owner-builder
<input type="checkbox"/>	<input type="checkbox"/>	Design
<input type="checkbox"/>	<input type="checkbox"/>	Building

Owner-builder register – Edocs: 406692

Inspections		
No of inspections estimated on application	No of inspections estimated at processing	Additional fees actioned if required

## VEHICLE CROSSING INSPECTION FORM

Building Consent: \_\_\_\_\_

Date: \_\_\_\_\_

To: **Building Inspectors**

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

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Can you please inspect the above Vehicle Crossing, footpath and berm and return the completed form to me signed.

Thank you

Inspected by:	_____
Date Inspected:	_____
Approved:	<input type="checkbox"/> YES <input type="checkbox"/> NO

<b>COMMENTS:</b>

# Memorandum from licensed building practitioner: Record of building work

## Section 88, Building Act 2004

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

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

THE BUILDING	
Street address:	lot 16 7 Mahia lane
Suburb:	
Town/City:	Waikanae
Postcode:	

THE PROJECT
Building consent number:

THE OWNER(S)	
Name(s):	
Mailing address:	
Suburb:	PO Box/Private Bag:
Town/City:	Postcode:
Phone number:	Email address:

**RECORD OF WORK THAT IS RESTRICTED BUILDING WORK**

**PRIMARY STRUCTURE**

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick <input checked="" type="checkbox"/>	If necessary, describe the restricted building work.	Tick <input checked="" type="checkbox"/> whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Foundations and subfloor framing <input type="checkbox"/>	/	<input type="radio"/> Carried out <input type="radio"/> Supervised
Walls <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Roof <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Columns and beams <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Bracing <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised
Other <input type="checkbox"/>		<input type="radio"/> Carried out <input type="radio"/> Supervised

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work.	
Name: <b>Kerry Mather</b>	LBP number: <b>100649</b>
Class(es) licensed in:	
<b>R2 R3</b>	
Plumbers, Gasfitters and Drainlayers registration number (if applicable):	
Mailing address (if different from below):	
Street address/Registered office: <b>Unit 4, 55 Kenepuru Dr</b>	
Suburb: <b>Porirua</b>	Town/City: <b>Wellington</b>
PO Box/Private Bag	Postcode: <b>5249</b>
Phone number:	Mobile: <b>0274 432 531</b>
After hours:	Fax: <b>04 232 8946</b>
Email address: <b>wgtnlightweight@actrix.co.nz</b>	Website:

### DECLARATION

I, **Kerry Mather** ~~carried out~~ or supervised the restricted building work recorded on this form.

Signature: \_\_\_\_\_

*Kerry Mather*

Date: \_\_\_\_\_

**030517**

Memorandum from Licensed Building Practitioner:  
 Record of building work  
 Section 88, Building Act 2004



**THE BUILDING**

Street address: 7 Mahia Lane  
 Suburb: Waikeano  
 Town/City: \_\_\_\_\_ Postcode: \_\_\_\_\_

**THE PROJECT**

Building consent number: 161030

**THE OWNER(S)**

Name(s): K C HOMES LTD  
 Mailing address:  
 Suburb: \_\_\_\_\_ PO Box/Private Bag: \_\_\_\_\_  
 Town/City: \_\_\_\_\_ Postcode: \_\_\_\_\_  
 Phone number: \_\_\_\_\_ Email address: \_\_\_\_\_

**RECORD OF WORK THAT IS RESTRICTED BUILDING WORK**

PRIMARY STRUCTURE		Carried out or supervised
Work that is restricted building work Tick	Description of restricted building work If necessary, describe the restricted building work	Tick <input checked="" type="checkbox"/> whether you carried out the RBW or supervised someone else.
Foundations and subfloor framing	<input checked="" type="checkbox"/> Placed steel & concrete as per consented plans.	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Walls	<input checked="" type="checkbox"/> Erected and fixed down as per details supplied by pre nailed truss & consented plans	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Roof	<input checked="" type="checkbox"/> Erected and fixed down as per details supplied by truss manufacturer and consented plans	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Columns and beams	<input type="checkbox"/>	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Bracing	<input checked="" type="checkbox"/> Fixed as per bracing plan	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Other	<input type="checkbox"/>	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised

# RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

## EXTERNAL MOISTURE MANAGEMENT SYSTEMS

Damp proofing <input checked="" type="checkbox"/>	DPC to frames as per needed.	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Roof cladding or roof cladding system <input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Ventilation system (for example, subfloor or cavity) <input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Wall cladding or wall cladding system <input checked="" type="checkbox"/>	W/B on cavity system as per consented plans.	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Waterproofing <input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Other <input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised

### ISSUED BY

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

Name: Peter Demson	LBP number: 103940
Class(es) licensed in: Carpentry	
Plumbers, Gasfitters and Drainlayers registration number (if applicable):	
Mailing address (if different from below): 98 Matotua Rd	
Street address/Registered office:	
Suburb: Rarotua Beach	Town/City:
PO Box/Private Bag:	Postcode:
Phone number: 0274484314	Mobile:
After hours:	Fax:
Email address:	Website:

### DECLARATION

I, Peter Demson, carried out or supervised the restricted building work recorded on this form.

Signature: *Peter Demson* Date: 7-6-17

# NZ BRICK & BLOCKLAYERS ASSOCIATION



Memorandum from licensed building practitioner:  
Record of building work  
Section 88, Building Act 2004 Form 6A

JOB No. \_\_\_\_\_ INVOICE No. **17490**

The Building  
Street address of building: **7 Mahia Lane**  
**Whikarua**

The project  
Building consent number: **161030**

The owner  
Name: **K.C. Homes** Address: **17 Heikoi Place**  
**Paraparaumu**

Telephone: \_\_\_\_\_  
Email: \_\_\_\_\_

Record of work that is restricted building work		Description	Carried out/ supervised
Work that is restricted building work			
<b>Primary structure</b>			
Foundations and subfloor framing	<input type="checkbox"/>	<b>Brick Veneer</b>	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Walls	<input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Columns and beams	<input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Other	<input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
<b>External moisture management systems</b>			
Damp proofing & Penetrations	<input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Wall cladding or wall system	<input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Other	<input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised

Issued by  
Name: **Don Watson** Class(es) licensed in **B1 & B2**  
LBP number: **109132**  
Mailing address: **29 Main Road, Titahi Bay**  
Street address or registered office: \_\_\_\_\_  
Telephone: Landline: \_\_\_\_\_ Mobile: **0274 548377**  
Daytime: \_\_\_\_\_ After hours: \_\_\_\_\_  
Facsimile: \_\_\_\_\_ Email: \_\_\_\_\_

Declaration  
**Don Watson** (name of practitioner)  
carried out or supervised the restricted building work recorded on this form.  
Signature: Date: **25/8/2017**



**COMPUTER FREEHOLD REGISTER  
UNDER LAND TRANSFER ACT 1952**



**Search Copy**

**Identifier** 658759  
**Land Registration District** Wellington  
**Date Issued** 21 April 2015

**Prior References**  
657176

---

<b>Estate</b>	Fee Simple
<b>Area</b>	522 square metres more or less
<b>Legal Description</b>	Lot 16 Deposited Plan 476550

**Proprietors**  
KC Homes Limited

---

**Interests**

9099897.6 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 1.10.2012 at 11:53 am  
Land Covenant in Easement Instrument 9099897.7 - 1.10.2012 at 11:53 am  
9099897.8 Encumbrance to Charles Fleming Retirement Village Limited - 1.10.2012 at 11:53 am  
9897467.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 21.4.2015 at 11:17 am  
10268001.1 Variation of Consent Notice 9897467.1 pursuant to Section 221(5) Resource Management Act 1991 -  
19.1.2016 at 4:29 pm  
10268001.2 Variation of Consent Notice 9099897.6 pursuant to Section 221(5) Resource Management Act 1991 -  
19.1.2016 at 4:29 pm  
Fencing Covenant in Transfer 10679112.2 - 20.1.2017 at 1:38 pm

## Naomi Hollingsworth

---

**From:** Katharine.Wheeler  
**Sent:** Thursday, 16 February 2017 8:48 a.m.  
**To:** billfrancis@paradise.net.nz  
**Subject:** BC 161030 7 Mahia Lane; documents added to consent 16/2/17

Hi Bill

Following on from our telephone discussion yesterday, I did some research on the Web and discussion in the office.

Winstones do have an option for a diaphragm of the size you propose which I can accept as an alternative solution as a means of compliance. I propose that Winstone's ceiling diaphragm instructions and the extract of clause 9.1.3 referenced in your document be included in the building consent documents.

I have been unable to make contact by phone this morning and in order not to hold this consent up (I am away from the office until next Monday otherwise) I have inserted these documents.

Regards

**Katharine Wheeler**  
Building Officer

Tel 04 296 4700



[www.kapiticoast.govt.nz](http://www.kapiticoast.govt.nz)



## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Brick Veneer**

Inspection Outcome: **Pass**

Inspected By: **Craig Harrison**

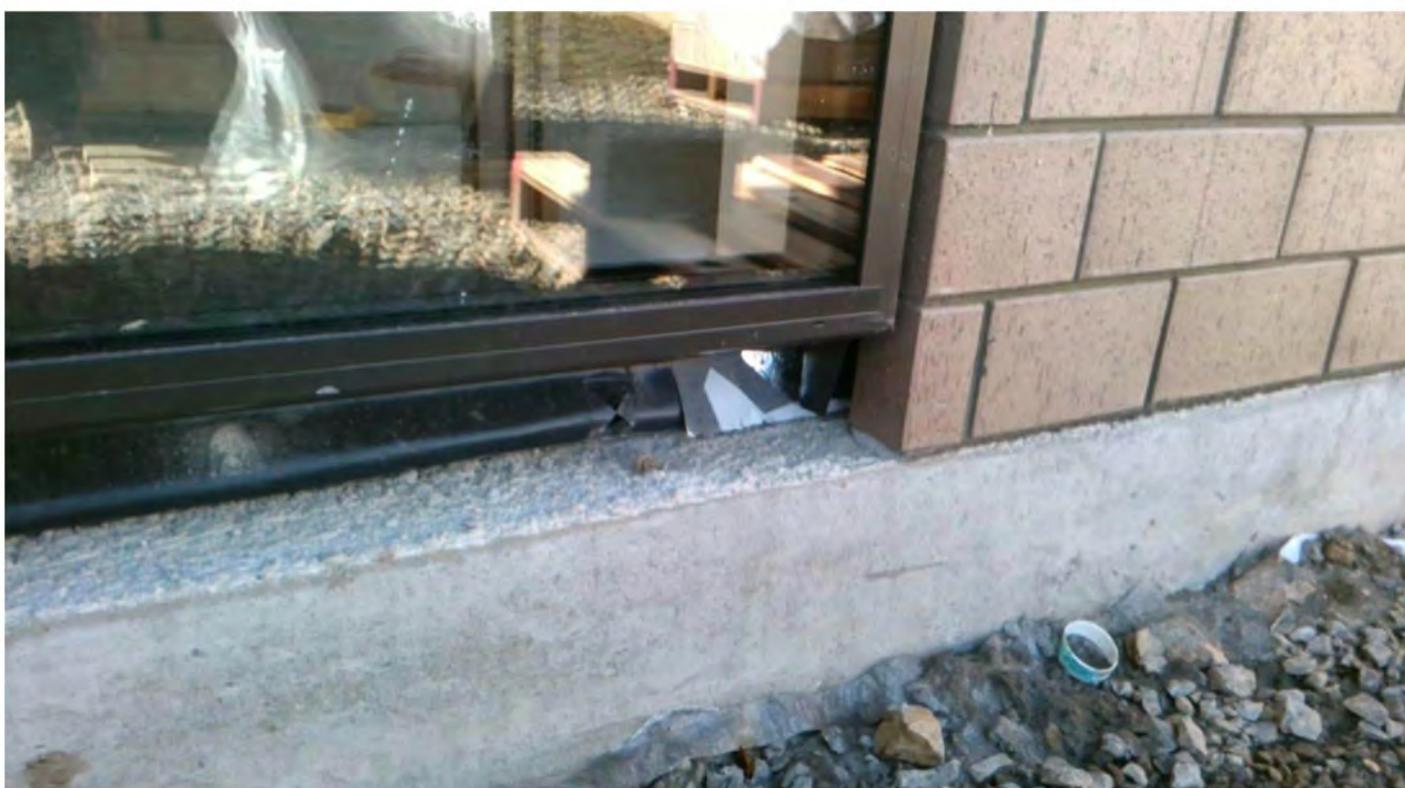
Inspection Date: **19 May 2017 11:44 a.m.**

Duration: **30 minutes**

<b>Inspection Element</b>	<b>Status</b>
General	Pass
Min/max cavity achieved <b>40 to 50mm</b>	Pass
Brick tie fixings <b>Tex screwed</b>	Pass
Washouts <b>In place and clear</b>	Pass
Weep holes <b>Ever 3rd vertical joint</b>	Pass
Mortar strength <b>Mix not known as brick layer was not at inspection.</b>	Pass
Mortar bedding <b>10mm</b>	Pass
Flashings <b>As per consented drawings</b>	Pass
Brick tie durability <b>Galvanized as per consented drawings masons</b>	Pass
Building wrap <b>Tekton</b>	Pass
Under window vents <b>Not completed at time of inspection. Check at Pre line</b>	Pass
Rebate <b>Not painted, DPC up and under building wrap.</b>	Pass
Veneer overhang <b>5 to 10 mm over hang slab</b>	Pass
Brick tie spacing <b>One on first course and then every stud and third couse</b>	Pass
Head lintels	N/A
Control joints	N/A
Other	Pass
<b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b>	



Taken at 11:45 AM on Friday 19/05/2017



Taken at 11:45 AM on Friday 19/05/2017



Taken at 11:46 AM on Friday 19/05/2017



Taken at 11:46 AM on Friday 19/05/2017



Taken at 11:46 AM on Friday 19/05/2017



Taken at 11:47 AM on Friday 19/05/2017



Taken at 11:47 AM on Friday 19/05/2017



Taken at 11:47 AM on Friday 19/05/2017



Taken at 11:48 AM on Friday 19/05/2017

## SITE NOTICE

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
 Building Category: **R1**

Inspection Type: **Brick Veneer**  
 Inspection Outcome: **Pass**  
 Inspected By: **Craig Harrison**  
 Inspection Date: **19 May 2017**

### Passed Items

#### General

Min/max cavity achieved	<b>40 to 50mm</b>
Brick tie fixings	<b>Tex screwed</b>
Washouts	<b>In place and clear</b>
Weep holes	<b>Ever 3rd vertical joint</b>
Mortar strength	<b>Mix not known as brick layer was not at inspection.</b>
Mortar bedding	<b>10mm</b>
Flashings	<b>As per consented drawings</b>
Brick tie durability	<b>Galvanized as per consented drawings masons</b>
Building wrap	<b>Tekton</b>
Under window vents	<b>Not completed at time of inspection. Check at Pre line</b>
Rebate	<b>Not painted, DPC up and under building wrap.</b>
Veneer overhang	<b>5 to 10 mm over hang slab</b>
Brick tie spacing	<b>One on first course and then every stud and third course</b>
Other	<b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b>

### Support Documentation

	<b>Status</b>
Application for CCC	Required
Electrical safety certificate	Required
Gas safety certificate	Required
As-built drainage plan	Required
Drainage (Form 126) for stormwater installation	Required
Drainage (Form 127) for private sewer installation	Required
Plumbing (Form 125) for pressure test and installation piped services	Required
Timber framing and truss certification	Required
Water tank warranty <b>20,000lt</b>	Required

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Cavity System**

Inspection Outcome: **Pass**

Inspected By: **Alan Tinney**

Inspection Date: **27 April 2017 2:01 p.m.**

Duration: **15 minutes**

<b>Inspection Element</b>	<b>Status</b>
General	Pass
Inspection notes	Pass
Drawings	Pass
Additional information/plan	Pass
Additional strapping to wrap	Pass
Batten timber treatment	Pass
<b>H3</b>	
Cavity closers	Pass
Battens in place	Pass
Battens structural fixing	N/A
Cavity spacers	N/A
Cavity spacers size and slope	N/A
Reinforcing fixed in place (stucco)	N/A
Proprietary self spacing mesh	N/A
Mesh spacers (stucco)	N/A
Proprietary control joints (stucco)	N/A
Rigid backing type (stucco)	N/A
Fixings (galvanised or stainless) (stucco)	Pass
Waterproofing to slab-edge	Pass
<b>DPC</b>	
Other	N/A



Taken at 2:00 PM on Thursday 27/04/2017



Taken at 2:01 PM on Thursday 27/04/2017

## SITE NOTICE

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
 Building Category: **R1**

Inspection Type: **Pre Clad**  
 Inspection Outcome: **Pass**  
 Inspected By: **Alan Tinney**  
 Inspection Date: **27 April 2017**

### Passed Items

#### General

Inspection notes	
Drawings	
Additional information/plan	
Building wrap type	<b>Tekton</b>
Flexible sealing tape	<b>Protecto</b>
Flashing penetrations	
Ground/deck cladding clearance	
Other	<b>Wanz bars completed</b>

Inspection Type: **Cavity System**  
 Inspection Outcome: **Pass**  
 Inspected By: **Alan Tinney**  
 Inspection Date: **27 April 2017**

### Passed Items

#### General

Inspection notes	
Drawings	
Additional information/plan	
Additional strapping to wrap	
Batten timber treatment	<b>H3</b>
Cavity closers	
Battens in place	
Fixings (galvanised or stainless) (stucco)	
Waterproofing to slab-edge	<b>DPC</b>

### Support Documentation

	<b>Status</b>
Application for CCC	Required
Electrical safety certificate	Required
Gas safety certificate	Required

As-built drainage plan	Required
Drainage (Form 126) for stormwater installation	Required
Drainage (Form 127) for private sewer installation	Required
Plumbing (Form 125) for pressure test and installation piped services	Required
Timber framing and truss certification	Required
Water tank warranty <b>20,000lt</b>	Required

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Drainage**

Inspection Outcome: **Pass**

Inspected By: **Gareth McCullagh**

Inspection Date: **4 April 2017 1:03 p.m.**

Duration: **30 minutes**

<b>Inspection Element</b>	<b>Status</b>
General	Pass
Pipe diameter <b>stormwater only 100 mm</b>	Pass
Bedding material <b>bedded in peametal</b>	Pass
Gully trap	N/A
Connections/angles	Pass
Branch length	N/A
Direction/fall <b>good fall to tank overflow to connection to rear of property</b>	Pass
Holding water	N/A
Terminal vent	N/A
Registration number <b>04479</b>	Pass
Other <b>in for all down pipes</b>	Pass

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Drainage**

Inspection Outcome: **Pass**

Inspected By: **Gareth McCullagh**

Inspection Date: **26 April 2017 1:49 p.m.**

Duration: **30 minutes**

<b>Inspection Element</b>	<b>Status</b>
General	Pass
<b>inspection on sewer</b>	
Pipe diameter	Pass
<b>100mm</b>	
Bedding material	Pass
<b>bedded un peametal chip stones</b>	
Gully trap	Pass
<b>in place and changed</b>	
Connections/angles	Pass
<b>swept junctions and inspection points in place</b>	
Branch length	Pass
Direction/fall	Pass
<b>good fall to lanteral</b>	
Holding water	Pass
<b>air tested and holding</b>	
Terminal vent	Pass
<b>completed</b>	
Registration number	Pass
<b>04479</b>	
Other	N/A

## SITE NOTICE

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
 Building Category: **R1**

Inspection Type: **Drainage**  
 Inspection Outcome: **Pass**  
 Inspected By: **Gareth McCullagh**  
 Inspection Date: **4 April 2017**

### Passed Items

#### General

Pipe diameter	<b>stormwater only 100 mm</b>
Bedding material	<b>bedded in peametal</b>
Connections/angles	
Direction/fall	<b>good fall to tank overflow to connection to rear of property</b>
Registration number	<b>04479</b>
Other	<b>in for all down pipes</b>

### Support Documentation

#### Status

Application for CCC	Required
Electrical safety certificate	Required
Gas safety certificate	Required
As-built drainage plan	Required
Drainage (Form 126) for stormwater installation	Required
Drainage (Form 127) for private sewer installation	Required
Plumbing (Form 125) for pressure test and installation piped services	Required
Timber framing and truss certification	Required
Water tank warranty <b>20,000lt</b>	Required

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Final Inspection**

Inspection Outcome: **Pass**

Inspected By: **Gareth McCullagh**

Inspection Date: **25 July 2017 1:34 p.m.**

Duration: **30 minutes**

<b>Inspection Element</b>	<b>Status</b>
Exterior	Pass
Inspection notes	Pass
<b>All passed items on this inspection have been assessed against the consented documentation.</b>	
Drawings	Pass
Additional information/plan	N/A
Sub-floor ventilation	N/A
Roof fixings	Pass
Spouting and down-pipes <b>all connected</b>	Pass
Deck structure	N/A
Flashings - roof	Pass
Penetrations - flashings	Pass
Barriers	N/A
Gully dishes <b>in place</b>	Pass
Stormwater and site drainage	Pass
Handrails	N/A
Wastes to gully	Pass
Fixings - durability	Pass
Steps/stairs	Pass
Terminal vents/AAVs <b>50mm completed</b>	Pass
Cladding painted/sealed	Pass
Flashings - windows/doors	Pass
Cladding ground clearance	Pass
Road crossing complete	Pass
Final check complete	Pass
Other	Pass
<b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b>	
Interior	Pass
Inspection notes	Pass
Drawings	Pass
Additional information/plan	N/A
Service areas-floors/walls <b>all sealed as required</b>	Pass
Stair design	N/A
Handrails	N/A

---

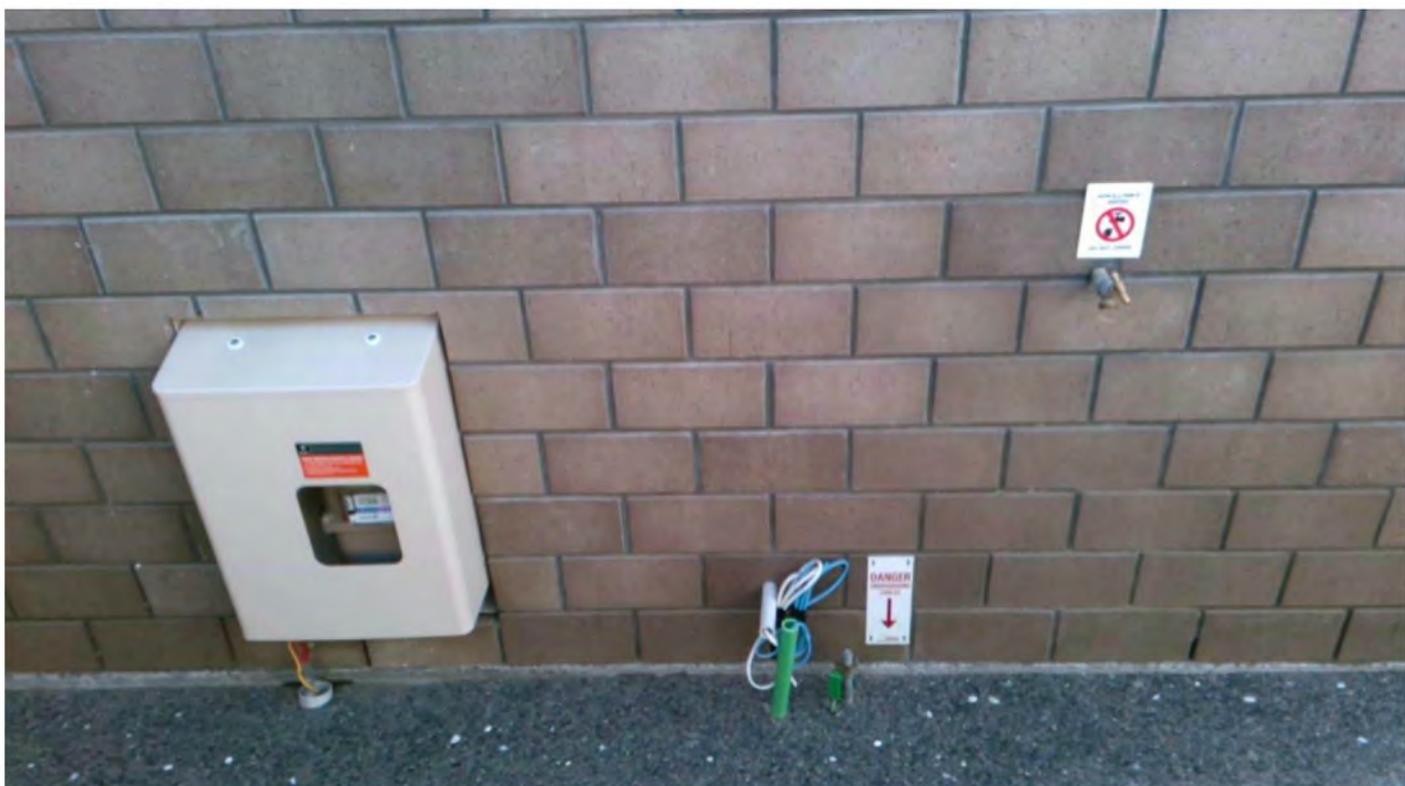
Balustrades	N/A
Lightings	Pass
Laundering	Pass
Cooking facilities	Pass
Smoke detectors <b>in place</b>	Pass
Food storage/preparation	Pass
Ventilation	Pass
Insulation and clearance	Pass
HWC flues	Pass
HWC restraint	Pass
Tempering valve	N/A
Glazing - human impact	Pass
Hot water temp <b>51 degrees</b>	Pass
Solid fuel heater	N/A
Water supply tank	Pass
Trap seals and AAVS	Pass
Cistern flushing	Pass
WC pan connection	Pass
Septic tank	N/A
Window labels	Pass
Final check complete	Pass
<b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b>	
Other	Pass
<b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b>	
Intertenancy/commercial	N/A
Other	N/A
<hr/>	
<b>Support Documentation</b>	
Application for CCC	Accepted
Electrical safety certificate	Accepted
Gas safety certificate	Accepted
As-built drainage plan	Accepted
Drainage (Form 126) for stormwater installation	Accepted
Drainage (Form 127) for private sewer installation	Accepted
Plumbing (Form 125) for pressure test and installation piped services	Accepted
Membrane applicator certificates - internal wet area	Accepted
Timber framing and truss certification	Accepted
Roof product manufacturers warranty	Accepted
Record of Work	Accepted
Roof installers warranty	Clear
Window manufacturers producer statement	Clear
Water tank warranty <b>20,000lt</b>	Accepted



Taken at 1:04 PM on Tuesday 25/07/2017



Taken at 1:04 PM on Tuesday 25/07/2017



Taken at 1:05 PM on Tuesday 25/07/2017



Taken at 1:05 PM on Tuesday 25/07/2017



Taken at 1:06 PM on Tuesday 25/07/2017



Taken at 1:07 PM on Tuesday 25/07/2017



Taken at 1:07 PM on Tuesday 25/07/2017

## SITE NOTICE

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
 Building Category: **R1**

Inspection Type: **Final Inspection**  
 Inspection Outcome: **Pass**  
 Inspected By: **Gareth McCullagh**  
 Inspection Date: **25 July 2017**

### Passed Items

#### Exterior

<p>Inspection notes</p> <p>Drawings</p> <p>Roof fixings</p> <p>Spouting and down-pipes</p> <p>Flashings - roof</p> <p>Penetrations - flashings</p> <p>Gully dishes</p> <p>Stormwater and site drainage</p> <p>Wastes to gully</p> <p>Fixings - durability</p> <p>Steps/stairs</p> <p>Terminal vents/AAVs</p> <p>Cladding painted/sealed</p> <p>Flashings - windows/doors</p> <p>Cladding ground clearance</p> <p>Road crossing complete</p> <p>Final check complete</p> <p>Other</p>	<p><b>All passed items on this inspection have been assessed against the consented documentation.</b></p> <p><b>all connected</b></p> <p><b>in place</b></p> <p><b>50mm completed</b></p> <p><b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b></p>
--	--

#### Interior

<p>Inspection notes</p> <p>Drawings</p> <p>Service areas-floors/walls</p> <p>Lightings</p> <p>Laundering</p> <p>Cooking facilities</p> <p>Smoke detectors</p> <p>Food storage/preparation</p>	<p><b>all sealed as required</b></p> <p><b>in place</b></p>
---	---

Ventilation  
 Insulation and clearance  
 HWC flues  
 HWC restraint  
 Glazing - human impact  
 Hot water temp  
 Water supply tank  
 Trap seals and AAVS  
 Cistern flushing  
 WC pan connection  
 Window labels  
 Final check complete

**51 degrees**

**All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.**

Other

**All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.**

**Support Documentation**

**Status**

Application for CCC	Accepted
Electrical safety certificate	Accepted
Gas safety certificate	Accepted
As-built drainage plan	Accepted
Drainage (Form 126) for stormwater installation	Accepted
Drainage (Form 127) for private sewer installation	Accepted
Plumbing (Form 125) for pressure test and installation piped services	Accepted
Membrane applicator certificates - internal wet area	Accepted
Timber framing and truss certification	Accepted
Roof product manufacturers warranty	Accepted
Record of Work	Accepted
Water tank warranty <b>20,000lt</b>	Accepted

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Foundations**

Inspection Outcome: **Pass**

Inspected By: **Alan Tinney**

Inspection Date: **14 March 2017 11:27 a.m.**

Duration: **15 minutes**

<b>Inspection Element</b>	<b>Status</b>
General	Pass
Footing depth <b>400x300</b>	Pass
Engineers details required	N/A
Good bearing	N/A
Reinforcing <b>D12mm/10mm</b>	Pass
Siting	Pass
Sub-floor vents	N/A
Other	N/A



Taken at 11:25 AM on Tuesday 14/03/2017



Taken at 11:25 AM on Tuesday 14/03/2017



Taken at 11:25 AM on Tuesday 14/03/2017

## SITE NOTICE

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
 Building Category: **R1**

Inspection Type: **Foundations**  
 Inspection Outcome: **Pass**  
 Inspected By: **Alan Tinney**  
 Inspection Date: **14 March 2017**

### Passed Items

#### General

Footing depth	<b>400x300</b>
Reinforcing	<b>D12mm/10mm</b>
Siting	

### Support Documentation

### Status

Application for CCC	Required
Electrical safety certificate	Required
Gas safety certificate	Required
As-built drainage plan	Required
Drainage (Form 126) for stormwater installation	Required
Drainage (Form 127) for private sewer installation	Required
Plumbing (Form 125) for pressure test and installation piped services	Required
Timber framing and truss certification	Required
Water tank warranty <b>20,000lt</b>	Required

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Postline / Wet area Pre Application**

Inspection Outcome: **Pass**

Inspected By: **Gareth McCullagh**

Inspection Date: **1 June 2017 8:50 a.m.**

Duration: **30 minutes**

<b>Inspection Element</b>	<b>Status</b>
General	Pass
Sighted previous inspection notes	Pass
Conforms with approved drawings <b>as per consent</b>	Pass
Confirm additional information/amended plan	Pass
Sheet bracing <b>all gs1 in place and ceiling diaphragm</b>	Pass
Sheet fixings <b>all screw fixed as required</b>	Pass
Fire/acoustic separation	N/A
Other	Pass
<b>used aqualine to bathrooms</b> <b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b>	
Wet area substrate system	N/A

## SITE NOTICE

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
 Building Category: **R1**

Inspection Type: **Postline / Wet area Pre Application**  
 Inspection Outcome: **Pass**  
 Inspected By: **Gareth McCullagh**  
 Inspection Date: **1 June 2017**

### Passed Items

#### General

Sighted previous inspection notes	
Conforms with approved drawings	<b>as per consent</b>
Confirm additional information/amended plan	
Sheet bracing	<b>all gs1 in place and ceiling diaphragm</b>
Sheet fixings	<b>all screw fixed as required</b>
Other	<b>used aqualine to bathrooms</b>
	<b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b>

### Support Documentation

### Status

Application for CCC	Required
Electrical safety certificate	Required
Gas safety certificate	Required
As-built drainage plan	Required
Drainage (Form 126) for stormwater installation	Required
Drainage (Form 127) for private sewer installation	Required
Plumbing (Form 125) for pressure test and installation piped services	Required
Timber framing and truss certification	Required
Water tank warranty <b>20,000lt</b>	Required

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Pre Clad**

Inspection Outcome: **Pass**

Inspected By: **Alan Tinney**

Inspection Date: **27 April 2017 1:59 p.m.**

Duration: **15 minutes**

<b>Inspection Element</b>	<b>Status</b>
General	Pass
Inspection notes	Pass
Drawings	Pass
Additional information/plan	Pass
Building wrap type <b>Tekton</b>	Pass
Flexible seling tape <b>Protecto</b>	Pass
Deck membrane fixed in accordance with specification	N/A
Head flashings	N/A
Sill flashings	N/A
Back flashings	N/A
Saddle flashings	N/A
Internal/external corner flashings	N/A
Jamb flashings	N/A
Capillary clearances	N/A
Flashing penetrations	Pass
Ground/deck cladding clearance	Pass
Other <b>Wanz bars completed</b>	Pass



Taken at 1:58 PM on Thursday 27/04/2017

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Pre Wrap**

Inspection Outcome: **Pass**

Inspected By: **Craig Watson**

Inspection Date: **29 March 2017 1:35 p.m.**

Duration: **45 minutes**

<b>Inspection Element</b>	<b>Status</b>
General	Pass
Inspection notes	Pass
Drawings	Pass
Additional information/plan	N/A
Cladding type identified <b>Brick</b>	Pass
Framing moisture meets cladding requirements	N/A
Stud spacing appropriate for cladding <b>600 cts</b>	Pass
Exterior sheet bracing and angle brace fixing <b>ply bracing fitted</b>	Pass
Bottom plate connections <b>Not yet completed, check next inspection</b>	N/A
Building wrap type	Pass
Bracing requirements <b>Handi bracs fitted</b>	Pass
Purlin fixing	N/A
Decking substrate	N/A
Top Plate Connection <b>stud to top plates strapped.</b>	Pass
Lintel Connections <b>All strapped</b>	Pass
Truss connections <b>All as per truss plan</b>	Pass
Other	N/A

## SITE NOTICE

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
 Building Category: **R1**

Inspection Type: **Pre Wrap**  
 Inspection Outcome: **Pass**  
 Inspected By: **Craig Watson**  
 Inspection Date: **29 March 2017**

### Passed Items

#### General

Inspection notes	
Drawings	
Cladding type identified	<b>Brick</b>
Stud spacing appropriate for cladding	<b>600 cts</b>
Exterior sheet bracing and angle brace fixing	<b>ply bracing fitted</b>
Building wrap type	
Bracing requirements	<b>Handi bracs fitted</b>
Top Plate Connection	<b>stud to top plates strapped.</b>
Lintel Connections	<b>All strapped</b>
Truss connections	<b>All as per truss plan</b>

### Support Documentation

	<b>Status</b>
Application for CCC	Required
Electrical safety certificate	Required
Gas safety certificate	Required
As-built drainage plan	Required
Drainage (Form 126) for stormwater installation	Required
Drainage (Form 127) for private sewer installation	Required
Plumbing (Form 125) for pressure test and installation piped services	Required
Timber framing and truss certification	Required
Water tank warranty <b>20,000lt</b>	Required

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Preline Building**

Inspection Outcome: **Pass**

Inspected By: **Gareth McCullagh**

Inspection Date: **25 May 2017 1:49 p.m.**

Duration: **30 minutes**

Inspection Element	Status
General	Pass
Sighted previous inspection notes	Pass
Conforms with approved drawings	Pass
Confirm additional information/amended plan	N/A
Max moisture content <b>18-20% all ok</b>	Pass
Ventilation to rooms <b>Window sizes and openings as per consented documentation</b>	Pass
Timber treatment <b>sg8</b>	Pass
Lintel/beam size and fixing	Pass
Insulation <b>ceiling 5-0 and walls 2.6</b>	Pass
Top plate connection	Pass
Ceiling batten spacing <b>600mm centres and double nailed</b>	Pass
Stud spacing	Pass
Bracing connections <b>all completed</b>	Pass
Air seals <b>rod and foam</b>	Pass
Bottom plate fixings	Pass
Other <b>ceiling diaphragm solid timber round perimeter and back blocking being done</b> <b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b>	Pass
Weathertightness	Pass
Cladding selection	Pass
Roof material	Pass
Sheets fixed to manufacturer's specification	N/A
Roofing fixing	N/A
Fixings	N/A
Sheet layout	N/A
Ridge/hip flashings in place	N/A
Roof/wall junctions flashed	N/A
Control joints where appropriate	N/A
Penetrations correctly flashed	N/A
Fixings appropriate for bracing elements	N/A
Flashings in place	Pass

Clearance provided for fascia and spouting	Pass
Ground clearances achieved	Pass
Clearance off deck surface	N/A
Flashings/wraps in place, parapets/barriers	N/A
Glazing - human impact	Pass
Truss/rafter fixings	Pass
Other	N/A

## SITE NOTICE

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
 Building Category: **R1**

Inspection Type: **Preline Building**  
 Inspection Outcome: **Pass**  
 Inspected By: **Gareth McCullagh**  
 Inspection Date: **25 May 2017**

### Passed Items

#### General

Sighted previous inspection notes	
Conforms with approved drawings	
Max moisture content	<b>18-20% all ok</b>
Ventilation to rooms	<b>Window sizes and openings as per consented documentation</b>
Timber treatment	<b>sg8</b>
Lintel/beam size and fixing	
Insulation	<b>ceiling 5-0 and walls 2.6</b>
Top plate connection	
Ceiling batten spacing	<b>600mm centres and double nailed</b>
Stud spacing	
Bracing connections	<b>all completed</b>
Air seals	<b>rod and foam</b>
Bottom plate fixings	
Other	<b>ceiling diaphragm solid timber round perimeter and back blocking being done</b> <b>All aspects relating to this inspection have been assessed and checked against the consented documentation and deemed to comply.</b>

#### Weathertightness

Cladding selection  
 Roof material  
 Flashings in place  
 Clearance provided for fascia and spouting  
 Ground clearances achieved  
 Glazing - human impact  
 Truss/rafter fixings

### Support Documentation

	<b>Status</b>
Application for CCC	Required
Electrical safety certificate	Required

Gas safety certificate	Required
As-built drainage plan	Required
Drainage (Form 126) for stormwater installation	Required
Drainage (Form 127) for private sewer installation	Required
Plumbing (Form 125) for pressure test and installation piped services	Required
Timber framing and truss certification	Required
Water tank warranty <b>20,000lt</b>	Required

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Preline Plumbing**

Inspection Outcome: **Pass**

Inspected By: **Gareth McCullagh**

Inspection Date: **26 April 2017 1:46 p.m.**

Duration: **30 minutes**

<b>Inspection Element</b>	<b>Status</b>
General	Pass
Sighted previous inspection notes	Pass
Conforms with approved drawings	Pass
Confirm additional information/amended plan	N/A
Plumber <b>04479</b>	Pass
Soil pipe size and test	N/A
Pipes fixed/supported <b>all clipped in ceiling space</b>	Pass
System used <b>AS3500</b> <b>also non potable from tank to toilets and hoesetaps</b>	Pass
TPR line	N/A
Inbuilt S/W pipes tested	N/A
Vents terminated <b>50mm completed</b>	Pass
Pressure test <b>all dux segura in for fiXtures</b>	Pass
Waste pipe size and test <b>waste pipes in place</b>	Pass
Floor wastes	N/A
Shut off valves <b>in garage</b>	Pass
Fire wraps and collars	N/A
Other	N/A

## SITE NOTICE

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
 Building Category: **R1**

Inspection Type: **Drainage**  
 Inspection Outcome: **Pass**  
 Inspected By: **Gareth McCullagh**  
 Inspection Date: **26 April 2017**

### Passed Items

General	<b>inspection on sewer</b>
Pipe diameter	<b>100mm</b>
Bedding material	<b>bedded un peametal chip stones</b>
Gully trap	<b>in place and changed</b>
Connections/angles	<b>swept junctions and inspection points in place</b>
Branch length	
Direction/fall	<b>good fall to lanteral</b>
Holding water	<b>air tested and holding</b>
Terminal vent	<b>completed</b>
Registration number	<b>04479</b>

Inspection Type: **Preline Plumbing**  
 Inspection Outcome: **Pass**  
 Inspected By: **Gareth McCullagh**  
 Inspection Date: **26 April 2017**

### Passed Items

General	
Sighted previous inspection notes	
Conforms with approved drawings	
Plumber	<b>04479</b>
Pipes fixed/supported	<b>all clipped in ceiling space</b>
System used	<b>AS3500</b> <b>also non potable from tank to toilets and hosetaps</b>
Vents terminated	<b>50mm completed</b>
Pressure test	<b>all dux segura in for fiXtures</b>
Waste pipe size and test	<b>waste pipes in place</b>
Shut off valves	<b>in garage</b>

### Support Documentation

Application for CCC

### Status

Required

Electrical safety certificate	Required
Gas safety certificate	Required
As-built drainage plan	Required
Drainage (Form 126) for stormwater installation	Required
Drainage (Form 127) for private sewer installation	Required
Plumbing (Form 125) for pressure test and installation piped services	Required
Timber framing and truss certification	Required
Water tank warranty <b>20,000lt</b>	Required

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Pre-site Inspection**

Inspection Outcome: **Fail**

Inspected By: **Alan Tinney**

Inspection Date: **5 January 2017 9:54 a.m.**

Duration: **15 minutes**

### Inspection Element

	<b>Status</b>
<b>General</b>	<b>Fail</b>
Contours match application	Pass
Datum point identified	Pass
Boundaries identified	Fail
Ground conditions checked	Pass
Footpath checked	N/A
Kerb and channel checked	N/A
Grass berm checked	N/A
Existence damage	N/A
Vehicle crossing installed	N/A
Dogs	N/A
Further investigation	N/A
Conforms with approved drawings	N/A
Resource consent	N/A
Producer statement	N/A
Driveway checked	N/A
Position of boundaries and datum height checked	N/A
Surveyor	Pass
<b>N/A</b>	



Taken at 9:53 AM on Thursday 5/01/2017



Taken at 9:54 AM on Thursday 5/01/2017

## SITE NOTICE

---

Consent No: **161030**  
Applicant: **K C Homes Ltd**  
Site Address: **7 Mahia Lane, Waikanae**  
Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
Building Category: **R1**

---

Inspection Type: **Pre-site Inspection**  
Inspection Outcome: **Fail**  
Inspected By: **Alan Tinney**  
Inspection Date: **5 January 2017**

### Passed Items

#### General

Contours match application  
Datum point identified  
Ground conditions checked  
Surveyor

N/A

### Failed Items

#### General

Boundaries identified

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Pre-site Inspection**

Inspection Outcome: **Pass**

Inspected By: **Gareth McCullagh**

Inspection Date: **26 July 2017 9:15 a.m.**

Duration: **15 minutes**

### Inspection Element

### Status

General

Pass

Boundaries identified

Pass

## SITE NOTICE

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
 Building Category: **R1**

Inspection Type: **Pre-site Inspection**  
 Inspection Outcome: **Pass**  
 Inspected By: **Gareth McCullagh**  
 Inspection Date: **26 July 2017**

### Passed Items

#### General

Boundaries identified

### Support Documentation

	<b>Status</b>
Application for CCC	Accepted
Electrical safety certificate	Accepted
Gas safety certificate	Accepted
As-built drainage plan	Accepted
Drainage (Form 126) for stormwater installation	Accepted
Drainage (Form 127) for private sewer installation	Accepted
Plumbing (Form 125) for pressure test and installation piped services	Accepted
Membrane applicator certificates - internal wet area	Accepted
Timber framing and truss certification	Accepted
Roof product manufacturers warranty	Accepted
Record of Work	Accepted
Water tank warranty <b>20,000lt</b>	Accepted

### Licensed Building Practitioners

	<b>Status</b>
Bricklaying and Blocklaying 1	Accepted
Carpentry 1	Accepted
Roofing 1	Accepted

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Pre-Slab Building**

Inspection Outcome: **Pass**

Inspected By: **Andrew Hawea**

Inspection Date: **22 March 2017 11:03 a.m.**

Duration: **30 minutes**

<b>Inspection Element</b>	<b>Status</b>
General	Pass
<b>Foundation completed as revision C.</b>	
Engineers details required	N/A
Rebate for brick veneer <b>in place</b>	Pass
Ground clearance <b>achieved at time of inspection</b>	Pass
Concrete cover	Pass
Driveway S/W control	N/A
Sand blinding	Pass
Slab thickenings	N/A
Vapour barrier <b>polythene under 50mm poly</b>	Pass
Bottom plate fixings	N/A
Steel reinforcing <b>SE62 mesh</b>	Pass
Bar chairs	Pass
DPC penetrations taped	Pass
Minimum floor level	Pass
Other	N/A



Taken at 10:55 AM on Wednesday 22/03/2017



Taken at 10:56 AM on Wednesday 22/03/2017

## SITE NOTICE

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
 Building Category: **R1**

Inspection Type: **Pre-Slab Building**  
 Inspection Outcome: **Pass**  
 Inspected By: **Andrew Hawea**  
 Inspection Date: **22 March 2017**

### Passed Items

#### General

Rebate for brick veneer  
 Ground clearance  
 Concrete cover  
 Sand blinding  
 Vapour barrier  
 Steel reinforcing  
 Bar chairs  
 DPC penetrations taped  
 Minimum floor level

**Foundation completed as revision C.  
 in place  
 achieved at time of inspection**

**polythene under 50mm poly  
 SE62 mesh**

### 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  
 Timber framing and truss certification  
 Water tank warranty  
**20,000lt**

### Status

Required  
 Required  
 Required  
 Required  
 Required  
 Required  
 Required  
 Required

## GoGet Inspection Audit Report

---

Consent No: **161030**

Applicant: **K C Homes Ltd**

Site Address: **7 Mahia Lane, Waikanae**

Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**

---

Inspection Type: **Pre-Slab Plumbing**

Inspection Outcome: **Pass**

Inspected By: **Andrew Hawea**

Inspection Date: **20 March 2017 11:24 a.m.**

Duration: **30 minutes**

<b>Inspection Element</b>	<b>Status</b>
General	Pass
Secondary flow path	N/A
Pipe material <b>PVC primed and glued all 100mm except 40 mm to kitchen sink, int 50mm vent will be off ensuite vanity, rodding eye off bathroom</b>	Pass
Pipe protection <b>sleeved</b>	Pass
TRP line <b>gas</b>	N/A
Plumbing layout <b>layout as consent, revised underfloor pipe layout required</b>	Pass
Pipes supported <b>sand and pee metal</b>	Pass
Wastes and drains	N/A
Water/air <b>all 100mm under test</b>	Pass
Leak check	Pass
Other <b>Steve Henderson (plumber)</b>	Pass



Taken at 11:18 AM on Monday 20/03/2017



Taken at 11:19 AM on Monday 20/03/2017



Taken at 11:20 AM on Monday 20/03/2017



Taken at 11:21 AM on Monday 20/03/2017

## SITE NOTICE

Consent No: **161030**  
 Applicant: **K C Homes Ltd**  
 Site Address: **7 Mahia Lane, Waikanae**  
 Work Type: **New single level brick & Linea Weatherboard dwelling with attached double garage.**  
 Building Category: **R1**

Inspection Type: **Pre-Slab Plumbing**  
 Inspection Outcome: **Pass**  
 Inspected By: **Andrew Hawea**  
 Inspection Date: **20 March 2017**

### Passed Items

#### General

Pipe material	<b>PVC primed and glued all 100mm except 40 mm to kitchen sink, int 50mm vent will be off ensuite vanity, rodding eye off bathroom</b>
Pipe protection	<b>sleeved</b>
Plumbing layout	<b>layout as consent, revised underfloor pipe layout required</b>
Pipes supported	<b>sand and pee metal</b>
Water/air	<b>all 100mm under test</b>
Leak check	
Other	<b>Steve Henderson (plumber)</b>

### Support Documentation

### Status

Application for CCC	Required
Electrical safety certificate	Required
Gas safety certificate	Required
As-built drainage plan	Required
Drainage (Form 126) for stormwater installation	Required
Drainage (Form 127) for private sewer installation	Required
Plumbing (Form 125) for pressure test and installation piped services	Required
Timber framing and truss certification	Required
Water tank warranty <b>20,000lt</b>	Required

Council's Manifold/meter box and base and lid are to be protected/reinstated if disturbed to original specification. The cost to reinstate any damage to Council's assets will be paid for by the contractor/property owner.

APPROVED BY  
PLUMBING  
AND  
DRAINAGE

RBW

RECEIVED  
21 DEC 2016  
BY LH 1-15

APPROVED BY  
BUILDING  
katharinew  
OFFICER  
16/02/2017

# PROPOSED DWELLING

## FOR KC HOMES LTD LOT 16, 7 MAHIA LANE, WAIKANAE

CAUTION  
Plans have been digitally  
reproduced and may not  
be to scale.

Endorsements made on any single  
page apply equally to the entire  
project.

### CONTENTS:

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

### 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.



**COASTAL**  
ARCHITECTURE LTD.



BC161030  
 Information Received  
 14/02/2017

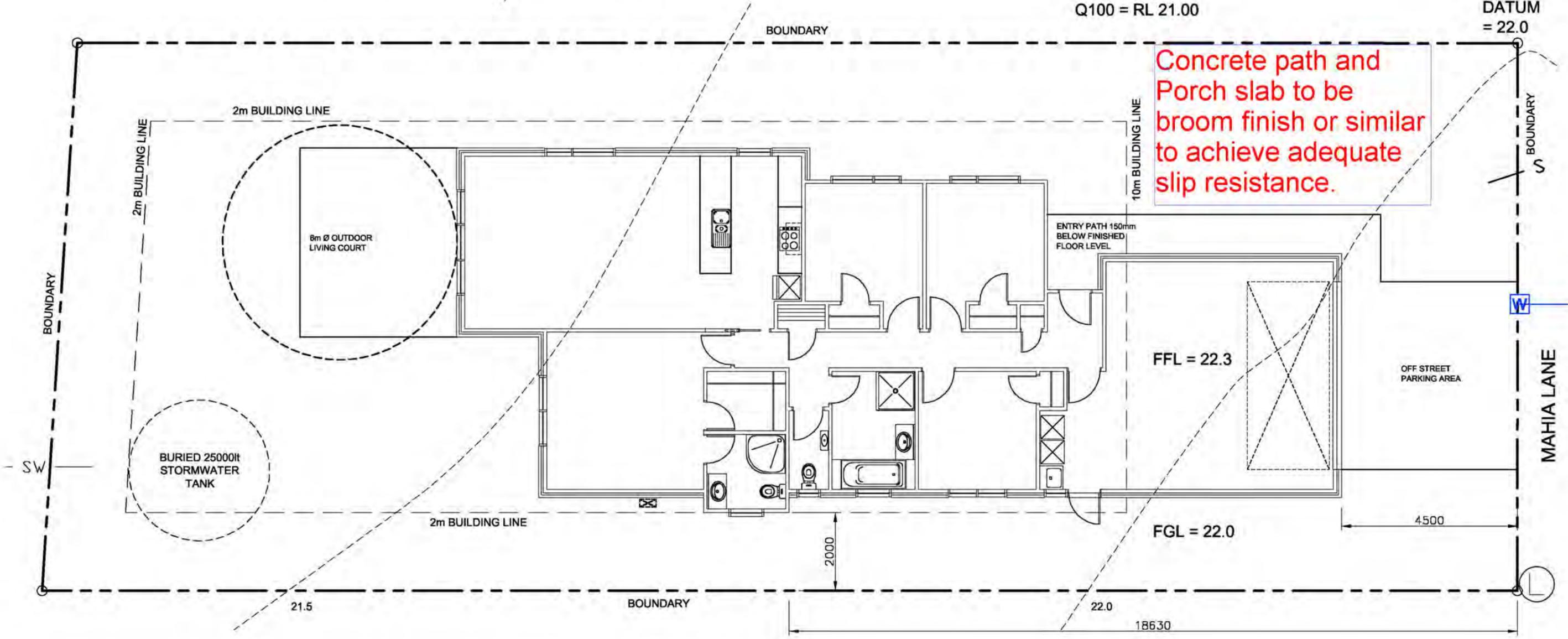


LOT 16  
 DP - 476550  
 SITE AREA = 522m<sup>2</sup>  
 DWELLING = 168m<sup>2</sup>  
 SITE COVERAGE = 32%

HIGH WIND ZONE  
 CORROSION ZONE C

Q100 = RL 21.00

CORNER  
 PEG IS  
 DATUM  
 = 22.0



SITE PLAN

SCALE 1:100

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 Coastal Architecture Ltd. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Coastal Architecture Ltd

Revisions:	rev A
NOVEMBER 2016	rev B
FEBRUARY 2017	

Project:  
**NEW DWELLING**

Drawing Title:  
 KC HOMES LTD

LOT 16,  
 7 MAHIA LANE,  
 WAIKANA

Drawing Title:  
**SITE PLAN**

Designer:  
**COASTAL ARCHITECTURE LTD.**

11 Kodex Place  
 Paraparaumu  
 New Zealand

Tel: 04 296 1248  
 e-mail : billfrancis@paradise.net.nz

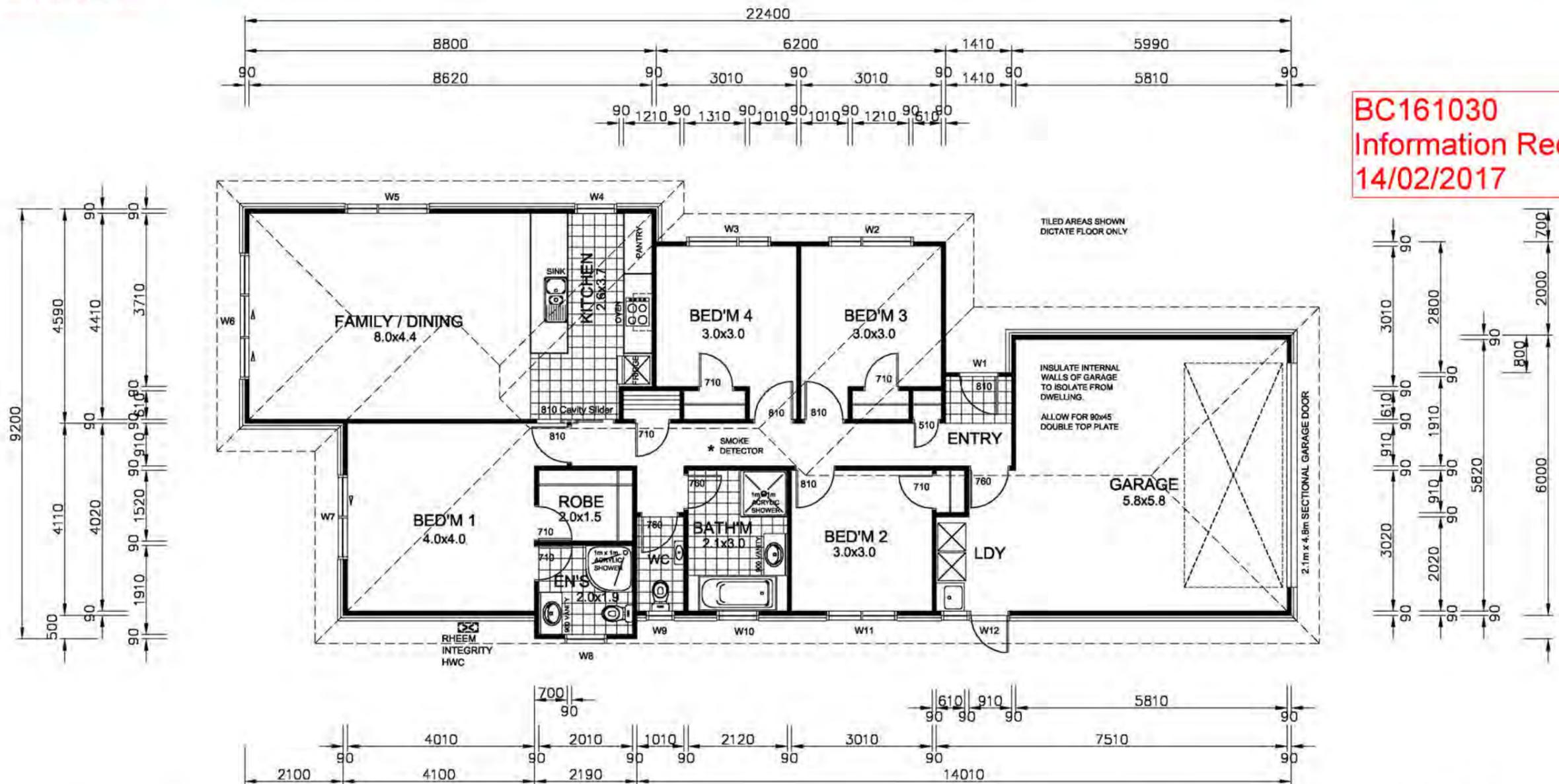
Design:	Bill Francis	Drawn:	bf
		Scale:	as shown
Job:	175	Page of:	1
		Rev:	B



Hot water pipework from the HWC is to be insulated in accordance with NZBC H1.

All frost prone pipes are to be lagged with a suitable type of insulation

BC161030  
Information Received  
14/02/2017



**NOTES:**

**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 at least 5% of their floor area as opening windows or approved alternative to achieve ventilation requirements
- All habitable rooms have windows providing at least 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.
- Prenail 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 balconys 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)

**FRAMING**

- Exterior Walls & Internal Load Bearing Walls:
- Up to 2.4m - 90x45 SG8 at 600 crs H1.2
- Interior Non Load Bearing Walls:
- Up to 2.4m - 90x45 SG8 at 600 crs H1.2

**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

- Top Plate Fixing**  
The fixing of top plates supporting roof trusses to wall studs or lintels shall be in accordance with figure 8.14, 8.15 & 8.18 NZS 3604:2011  
Joints in top plates to comply with clause 8.7.3 NZS 3604:2011
- Bottom Plate Fixing**  
10mm Ø cast in @ max 900 crs  
12mm Ø cast in @ max 1400 crs  
Approved anchors (fixed to manufacturers specific instructions)
- Holes in plates to comply with clause 8.5.1.6 & figure 8.4, NZS 3604:2011
- Refer to Bracing Plan and Manufacturers specifications for additional framing fixings.

**BENCHTOPS & VANITIES**

- To be selected at owners discretion. To be continuously smooth and easily maintained in a hygienic condition e.g. stainless steel, high pressure laminate, acrylic, granite, or engineered stone surface. Must be sealed to adjoining impervious, easily cleaned walls e.g. aquaenamel paint, tiles, or glass

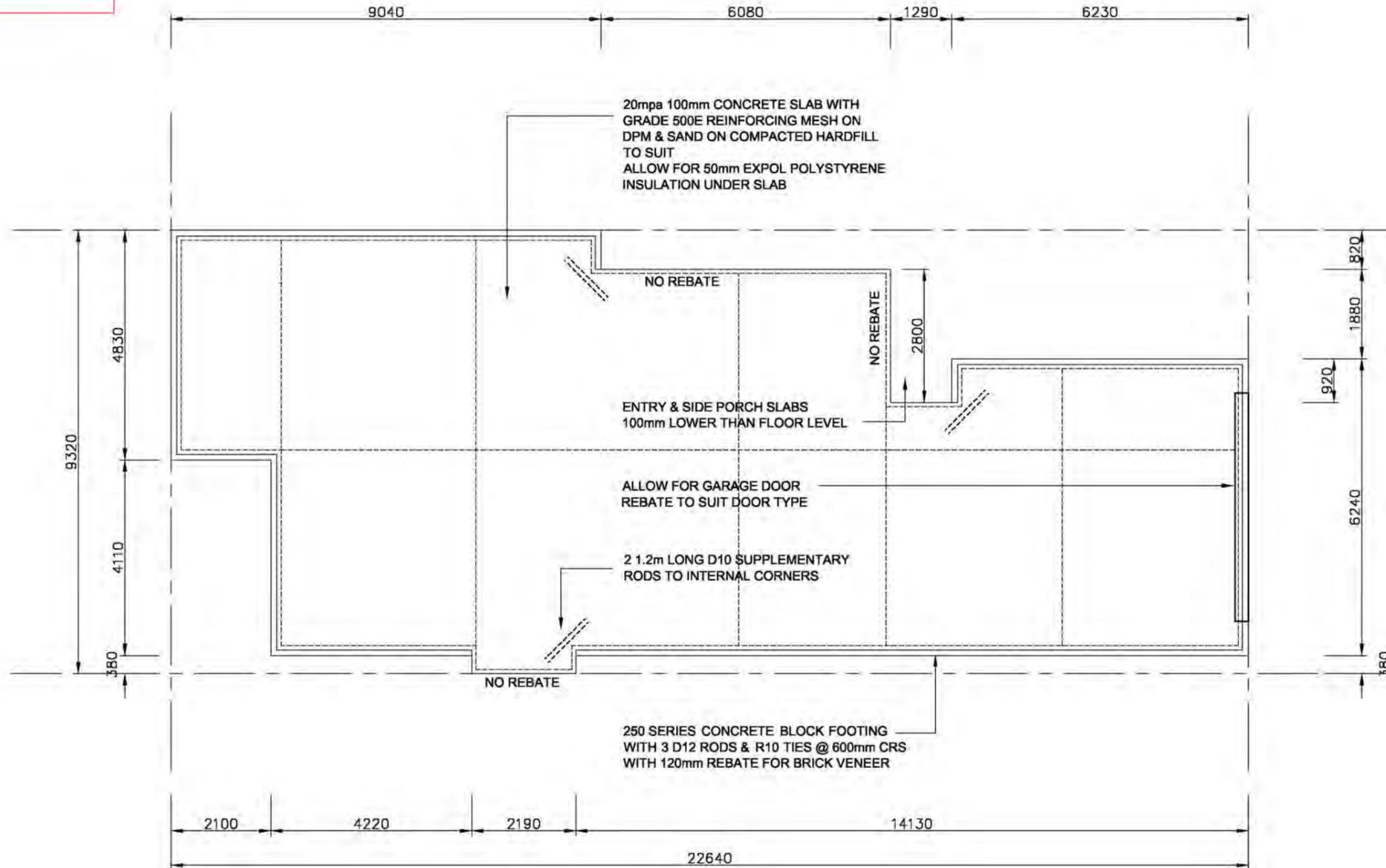
**FLOOR PLAN**

SCALE 1:100

AREA = 162m<sup>2</sup> (168m<sup>2</sup> OVER CLADDING)

<p>Revisions:</p> <p>NOVEMBER 2016 rev A FEBRUARY 2017 rev B</p>	<p>Project:</p> <p><b>NEW DWELLING</b></p>	<p>Drawing Title:</p> <p>KC HOMES LTD</p> <p>LOT 16, 7 MAHIA LANE, WAIKANAE</p>	<p>Drawing Title:</p> <p><b>FLOOR PLAN</b></p>	<p>Designer:</p> <p><b>COASTAL ARCHITECTURE LTD.</b></p> <p>11 Kodex Place Paraparaumu New Zealand Tel: 04 296 1248 e-mail : billfrancis@paradise.net.nz</p>	<p>Design:</p> <p>Bill Francis</p> <p>Job: 175</p>	<p>Drawn:</p> <p>bf</p> <p>Scale:</p> <p>as shown</p> <p>Page of: 2</p>	<p>Rev:</p> <p>B</p>	
--	--	---	--	--	--	---	----------------------	--

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 Coastal Architecture Ltd. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Coastal Architecture Ltd



NZS 3604 2011 RECOMMENDS A CONTROL JOINT AROUND THE PERIMETER OF ANY AREAS WITH SOLID TILES ON FLOOR TO AVOID CRACKING. BUILDER TO VERIFY WITH OWNER SPECIFIC AREAS

AREA OF FOUNDATION (OVER BRICK) = 168m<sup>2</sup>

ALL CONSTRUCTION TO COMPLY WITH NZS 3604:2011, NZBC AND BEST POSSIBLE TRADE PRACTICES

BOTTOM PLATES FIXING  
THE FIXING OF BOTTOM PLATES SHALL BE IN ACCORDANCE WITH 7.5.12 NZS 3604:2011.  
APPROVED ANCHORS (FIXED TO MANUFACTURERS SPECIFIC INSTRUCTIONS) IN ACCORDANCE WITH 7.5.12.2 NZS 3604:2011

MINIMUM FLOOR HEIGHT

PROTECTED GROUND  
100MM BRICK VENEER  
150MM OTHER CLADDINGS  
UNPROTECTED GROUND  
150MM BRICK VENEER  
225MM OTHER CLADDINGS  
HEIGHTS AS PER NZS3604 2011 SECTION 7

**FOUNDATION PLAN** SCALE 1:100

Revisions: NOVEMBER 2016 rev A FEBRUARY 2017 rev B	Project: <b>NEW DWELLING</b>	Drawing Title: KC HOMES LTD  LOT 16, 7 MAHIA LANE, WAIKANAE	Drawing Title: <b>FOUNDATION PLAN</b>	Designer: <b>COASTAL ARCHITECTURE LTD.</b>  11 Kodex Place Paraparaumu New Zealand Tel: 04 296 1248 e-mail : billfrancis@paradise.net.nz	Design: Bill Francis	Drawn: bf
					Job: <b>175</b>	Page of: <b>3</b>



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 Coastal Architecture Ltd. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Coastal Architecture Ltd



NOTES

TRUSSES  
WHERE THE BOTTOM CHORD OF A TRUSS CROSSES AN INTERNAL WALL CONTAINING ONE OR MORE WALL BRACING ELEMENTS, THE TRUSS SHALL BE CONNECTED TO THE TOP PLATE OF THE WALL EITHER DIRECTLY OR BY A CEILING BATTEN RUNNING PARALLEL TO THE PLATE AND FIXED TO BOTH THE PLATE AND THE BOTTOM CHORD. AS PER CLAUSE 10.4.1.2 NZS 3604:1999

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

ALL ROOF FRAMING TO BE H1.2

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  
FIX TO COMPLY WITH TABLE 10.12 OF NZS 3604 2011

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

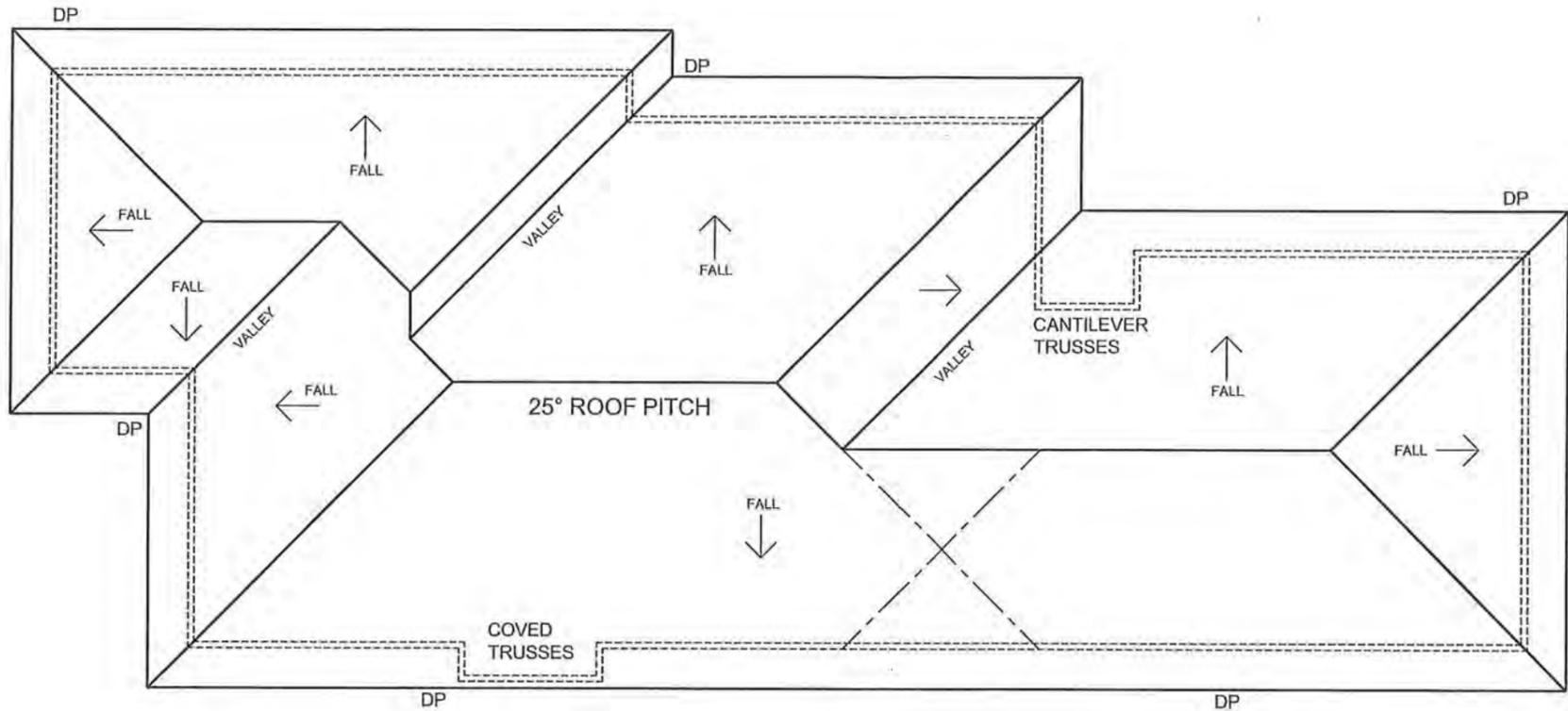
ROOFING MATERIAL TO BE INSTALLED TO MANUFACTURERS REQUIREMENTS IN PARTICULAR, FIXING & MINIMUM PITCH (REFERENCE ALSO SECT 8 OF E2 NZ BUILDING CODE)

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



PRESSED METAL TILE ROOF  
OVER TILE BATTENS @ 370mm  
CRS. TILE BATTEN FIXING:  
2 / 90x3.15 GUN NAILS (0.8kN  
FIXING CAPACITY)

600mm SOFFIT OVERHANG  
LINED WITH 4.5mm  
HARDIFLEX & PVC JOINTERS.

GANGNAIL TRUSSES @ 900mm  
CRS FIXED EACH END TO TRUSS  
MANUFACTURERS DESIGN

ALL DOWNPIPES 80mm Ø

METAL STRAP ROOF PLANE  
BRACE TO NZS 3604 2011

COLOURSTEEL SPOUTING  
& FASCIA SYSTEM

ROOF PLAN SCALE 1:100

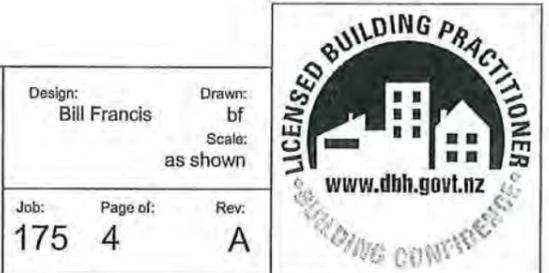
All work shall be in accordance with the NZBC. If in doubt ASK The Contractor must verify all dimensions on the job before commencing any work or shop drawings. Figured dimensions are to be used, scaled dimensions must be verified. This drawing and concept are copyright of Coastal Architecture Ltd. The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

Revisions:	Project:
NOVEMBER 2016    rev A	NEW DWELLING

Drawing Title:	Project:
KC HOMES LTD	NEW DWELLING
LOT 16, 7 MAHIA LANE, WAIKANAE	

Drawing Title:	Designer:
ROOF PLAN	COASTAL ARCHITECTURE LTD.
	11 Kodex Place Paraparaumu New Zealand Tel: 04 296 1248 e-mail : billfrancis@paradise.net.nz

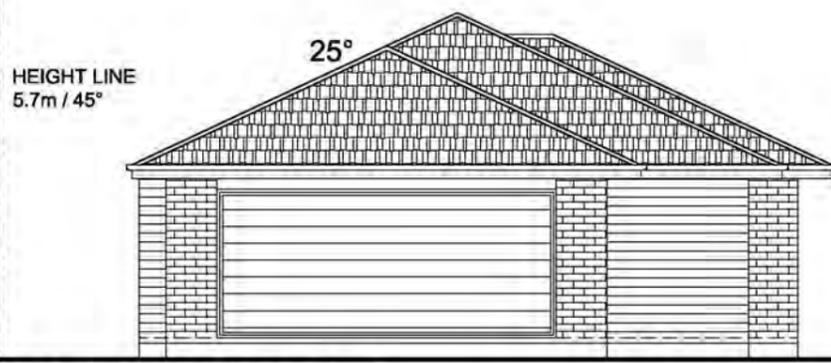
Design:	Drawn:
Bill Francis	bf
	Scale: as shown
Job:	Page of:
175	4
Rev:	
A	



GLAZING CONFORM NZS 4223  
PARTS 1, 2, 3.

FIT SUITABLE FLASHINGS ETC  
JOINERY

High Wind - 1100pa DWP  
Very High Wind - 1550pa DWP



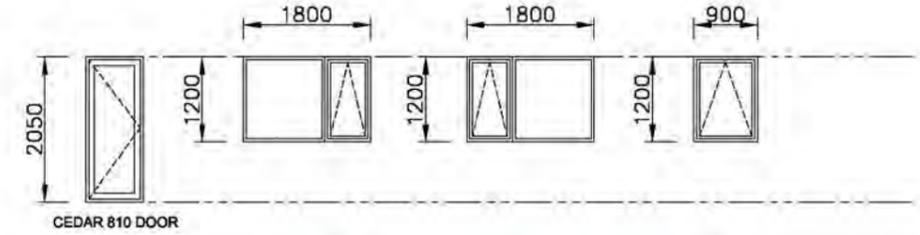
**EAST ELEVATION 1** SCALE 1:100

PRESSED METAL ROOF TILES  
OVER TILE BATTENS TO  
MANUFACTURERS SPECI

600mm SOFFIT OVERHANG  
LINED WITH 4.5mm  
HARDIFLEX & PVC JOINTERS.

BEVELBACK  
WEATHERBOARD CLADDING  
TO FEATURE WALLS

POWDER COATED  
ALUMINIUM JOINERY WITH  
SUITABLE HEAD FLASHINGS



CEDAR 810 DOOR



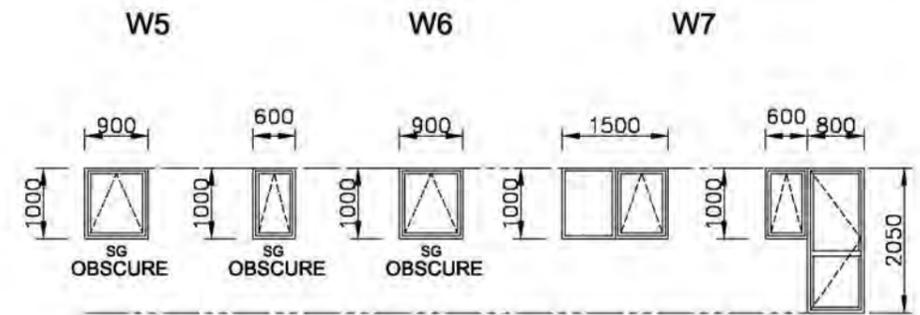
W1

W2

W3

W4

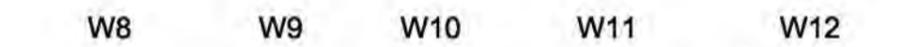
SLIDER



W5

W6

W7



W8

W9

W10

W11

W12

**WINDOW SCHEDULE**  
SCALE 1:100

ALL WINDOWS HAVE DOUBLE GLAZING

The supplier and the main contractor shall check all dimensions on site and confirm prior to manufacture.

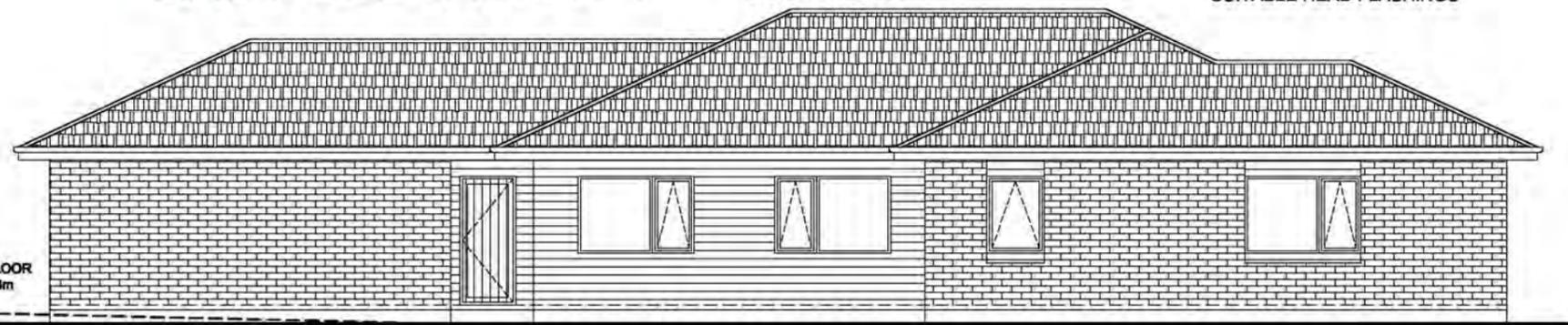
Exterior joinery to comply with NZS 4211, design to high wind pressure and suitable head flashings to be fitted to all units.

GLAZING TO CONFORM NZS 4223 PT 1, 2 & 3 2016 VERSION  
HIGH WIND 1100pa DWP

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



**NORTH ELEVATION 2** SCALE 1:100

70 SERIES BRICK VENEER  
EXTERIOR CLADDING

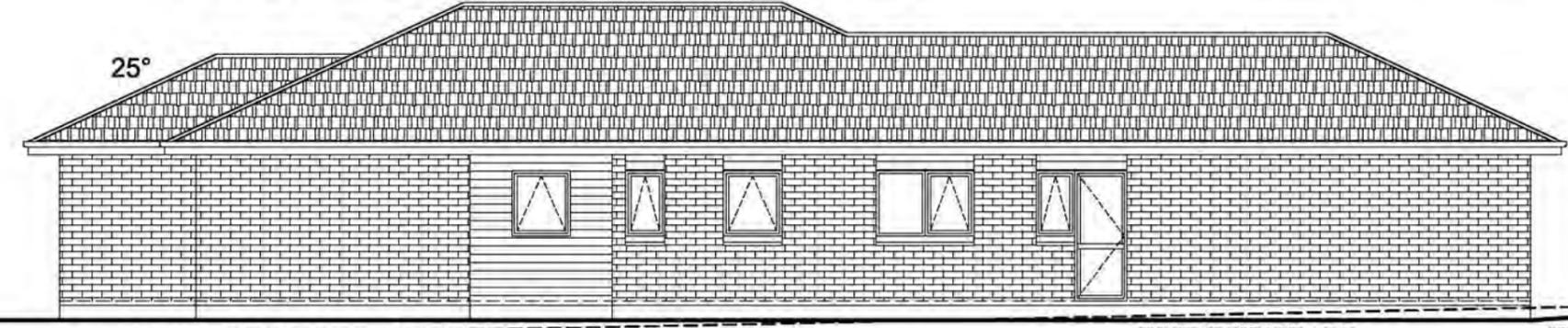
COLOURSTEEL SPOUTING  
& FASCIA SYSTEM

BUILDING WRAP - TEKTON  
THERMAKRAFT 215 ROOFING  
UNDERLAY

INSULATION:  
R4.6 BATTS TO CEILINGS  
R2.6 BATTS TO EXTERIOR WALLS



**WEST ELEVATION 3** SCALE 1:100

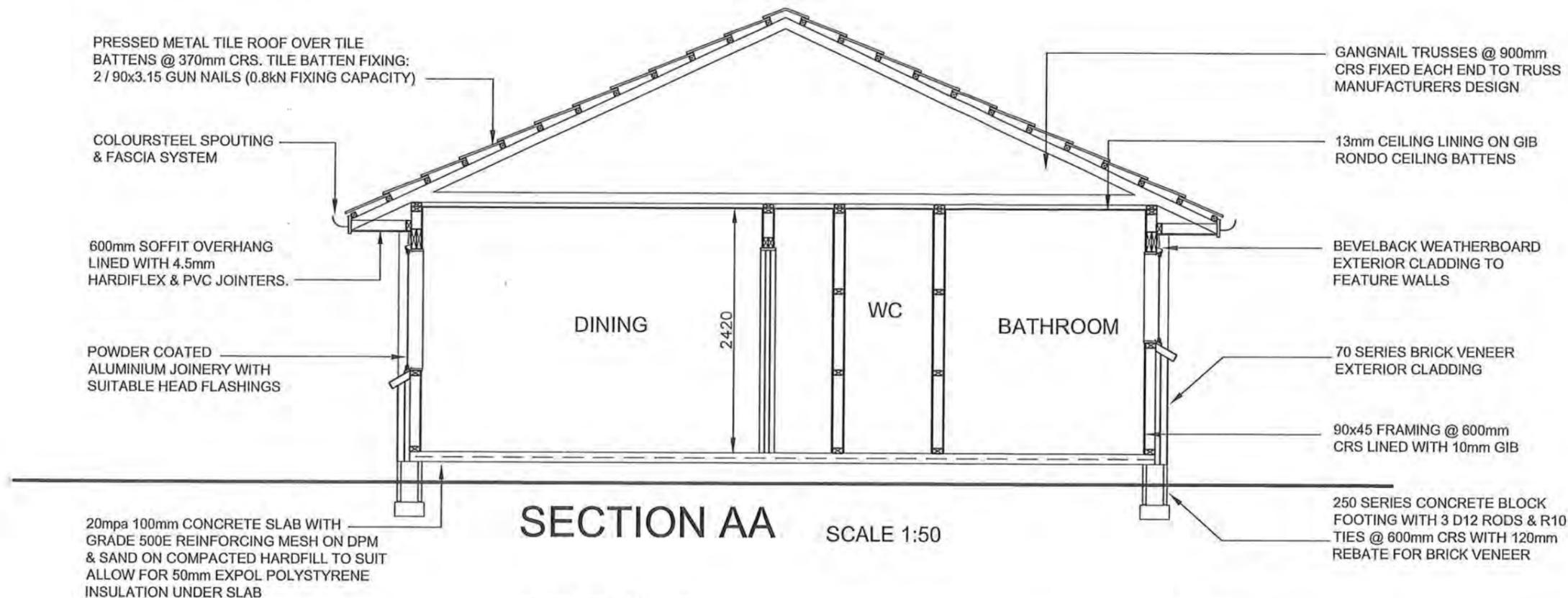


**SOUTH ELEVATION 4** SCALE 1:100

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

Revisions: NOVEMBER 2016 rev A FEBRUARY 2017 rev B	Project: <b>NEW DWELLING</b>	Drawing Title: KC HOMES LTD	Drawing Title: <b>ELEVATIONS</b>	Designer: <b>COASTAL ARCHITECTURE LTD.</b> 11 Kodex Place Paraparaumu New Zealand Tel: 04 296 1248 e-mail: billfrancis@paradise.net.nz	Design: Bill Francis	Drawn: bf	Job: 175 Page of: 5 Rev: B	
	LOT 16, 7 MAHIA LANE, WAIKANAE	FINISHED GROUND LEVEL = 22.00 DRIVEWAY GRADIENT 1:8 MAX	SILL SUPPORTS TO MANUFACTURERS SPECIFICATIONS & DETAILS	Scale: as shown				

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 Coastal Architecture Ltd. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Coastal Architecture Ltd



PRESSED METAL TILE ROOF OVER TILE BATTENS @ 370mm CRS. TILE BATTEN FIXING: 2 / 90x3.15 GUN NAILS (0.8kN FIXING CAPACITY)

COLOURSTEEL SPOUTING & FASCIA SYSTEM

600mm SOFFIT OVERHANG LINED WITH 4.5mm HARDIFLEX & PVC JOINTERS.

POWDER COATED ALUMINIUM JOINERY WITH SUITABLE HEAD FLASHINGS

20mpa 100mm CONCRETE SLAB WITH GRADE 500E REINFORCING MESH ON DPM & SAND ON COMPACTED HARDFILL TO SUIT ALLOW FOR 50mm EXPOL POLYSTYRENE INSULATION UNDER SLAB

GANGNAIL TRUSSES @ 900mm CRS FIXED EACH END TO TRUSS MANUFACTURERS DESIGN

13mm CEILING LINING ON GIB RONDO CEILING BATTENS

BEVELBACK WEATHERBOARD EXTERIOR CLADDING TO FEATURE WALLS

70 SERIES BRICK VENEER EXTERIOR CLADDING

90x45 FRAMING @ 600mm CRS LINED WITH 10mm GIB

250 SERIES CONCRETE BLOCK FOOTING WITH 3 D12 RODS & R10 TIES @ 600mm CRS WITH 120mm REBATE FOR BRICK VENEER

**CROSS SECTION NOTES**

- CLADDING TO BE INSTALLED TO MANUFACTURERS REQUIREMENTS IN PARTICULAR FIXING AND GROUND CLEARANCE
- ALSO REFER TO NZBC, CLAUSE E2/AS1, EXTERNAL MOISTURE: THIRD EDITION FOR CLARITY
- ALL JUNCTIONS TO CLADDINGS AND OTHER EXTERNAL MOISTURE PROTECTION AREAS, TO HAVE CAPILLARY GAPS/BREAKS AND INSEAL WHERE RELEVANT, STOPPING WIND DRIVEN OR SURFACE TENSION WATER

**NOTE:**

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

BUILDING WRAP - TEKTON THERMAKRAFT 215 ROOFING UNDERLAY

INSULATION:  
R4.6 BATTS TO CEILINGS  
R2.6 BATTS TO EXTERIOR WALLS

ALLOW FOR 90x45 DOUBLE TOP PLATE

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

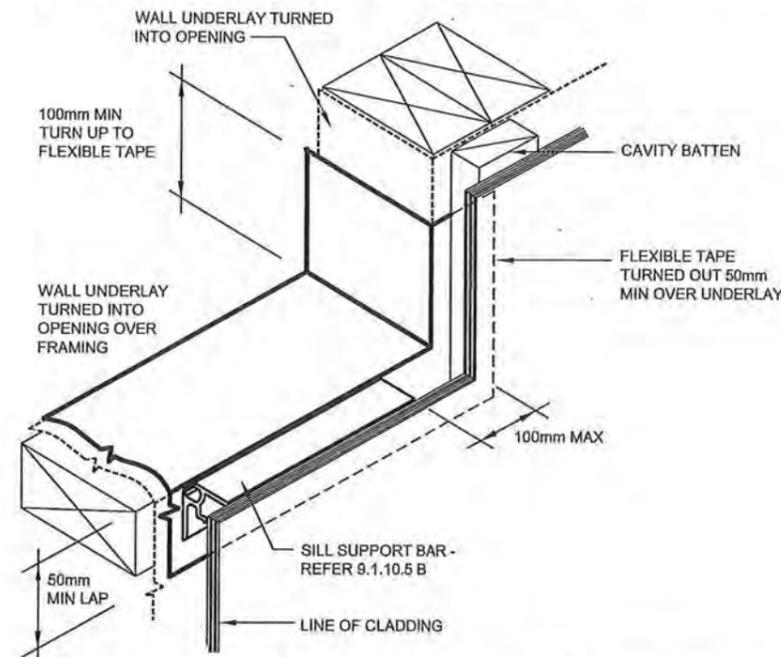
**INTERNAL LININGS**

**WALLS:**

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

**CEILING:**

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

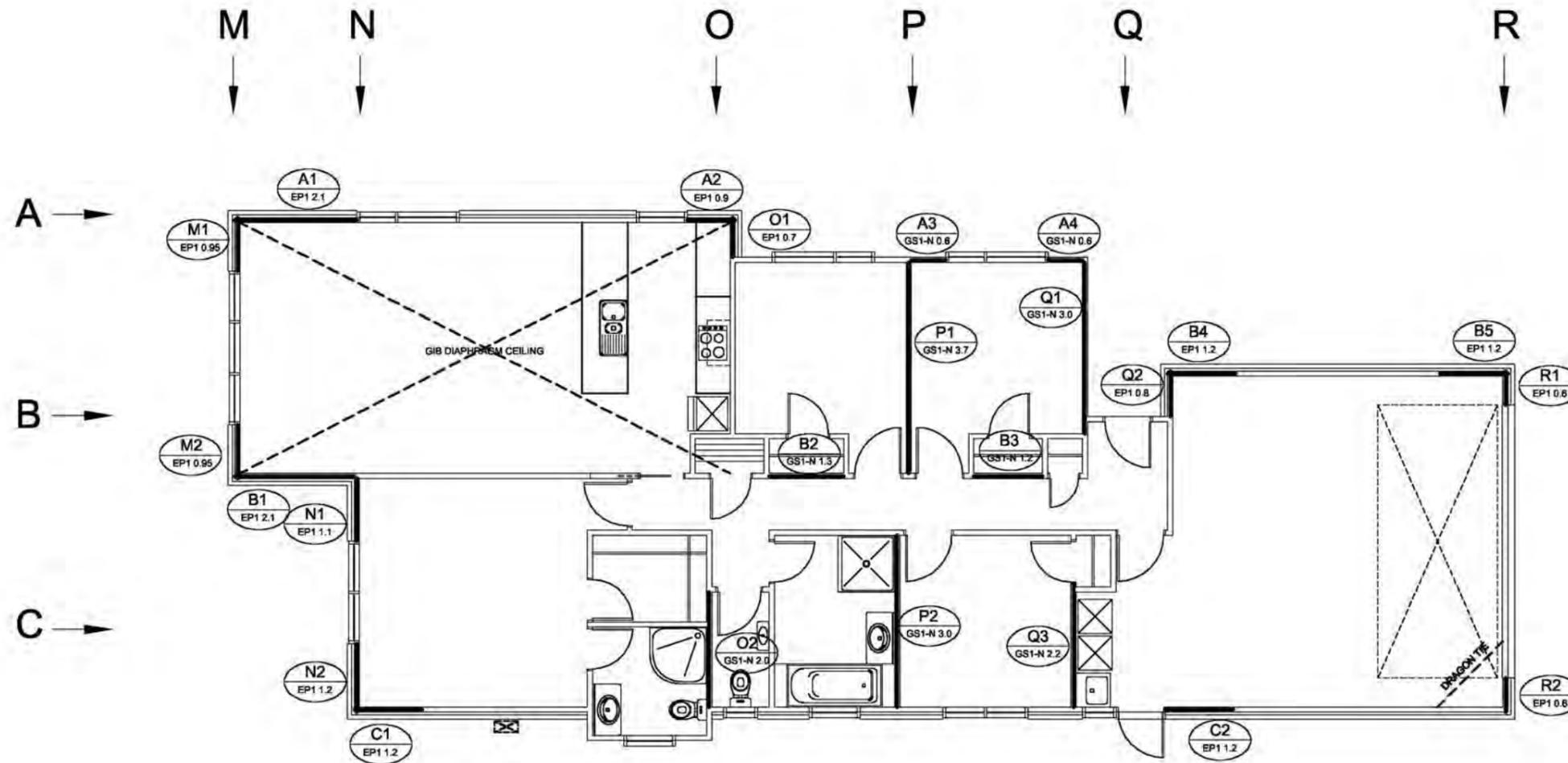


**BUILDING WRAP OPENING DETAIL n.t.s**

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 Coastal Architecture Ltd. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Coastal Architecture Ltd

Revisions: NOVEMBER 2016 rev A	Project: <b>NEW DWELLING</b>	Drawing Title: KC HOMES LTD  LOT 16, 7 MAHIA LANE, WAIKANAE	Drawing Title: <b>SECTION AA</b>	Designer: <b>COASTAL ARCHITECTURE LTD.</b>  11 Kodex Place Paraparaumu New Zealand Tel: 04 296 1248 e-mail : billfrancis@paradise.net.nz	Design: Bill Francis	Drawn: bf
					Job: 175	Page of: 6





**NOTES:**

- THIS SITE IS A HIGH WIND ZONE
- BRACING TO BE INSTALLED TO MANUFACTURERS SPECIFICATIONS - WINSTONES GIB BRACING SYSTEMS 2011
- BRACING DISTRIBUTION TO NZS 3604 CLAUSE 5.5.3
- BATH INSTALLATION MUST NOT PENETRATE THE INTEGRITY OF THE WALL LINING SHEET - ESPECIALLY BRACING ELEMENTS ENSURE CONTRACTORS/PREAILERS ARE ADVISED OF THE BRACING DESIGN REQUIREMENTS
- A CEILING DIAPHRAGM MAY BE SQUARE OR RECTANGULAR. ITS LENGTH SHALL NOT EXCEED TWICE ITS WIDTH AND EACH BRACING LINE MUST HAVE A MINIMUM OF 100 BU'S UNDER.

Refer to Winstone's ceiling diaphragm technical literature for fixings

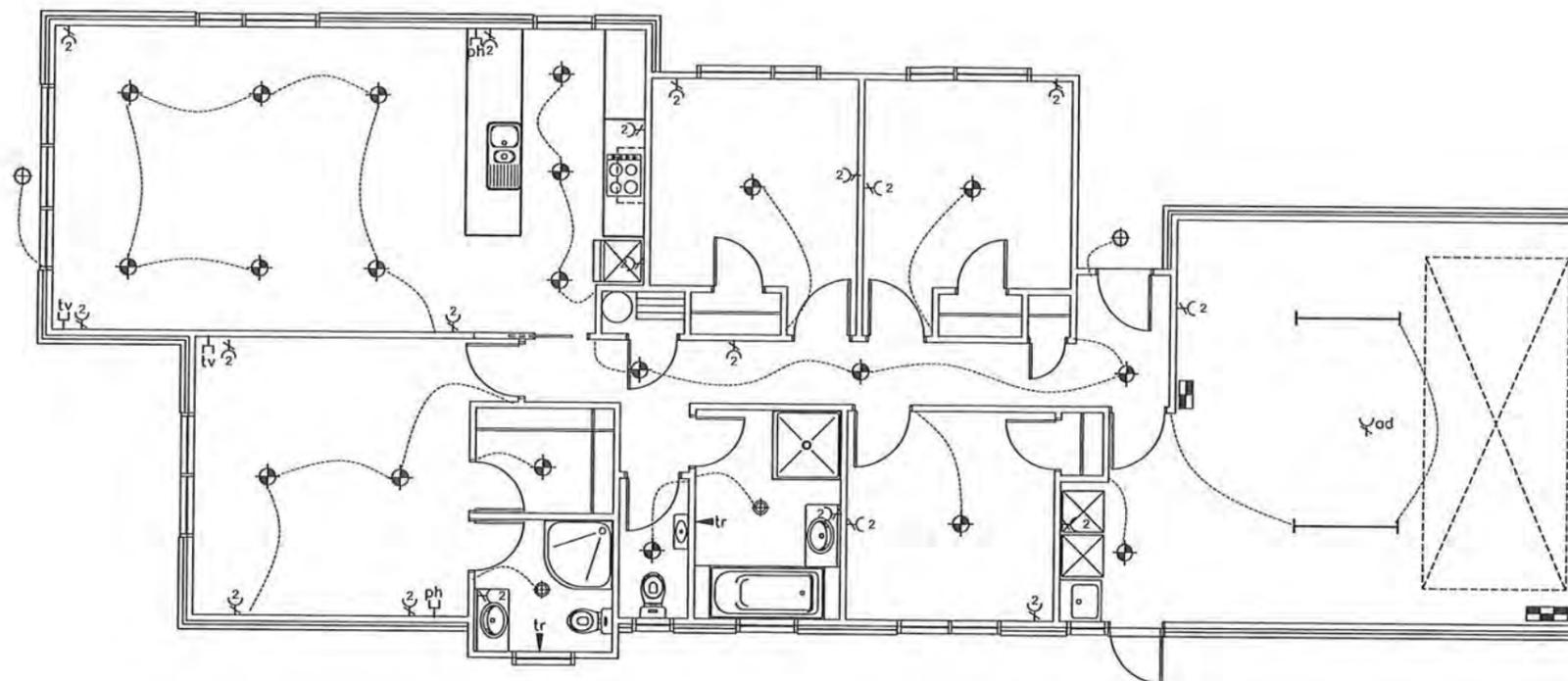
**BRACING PLAN** SCALE 1:100

<p>Revisions:</p> <p>NOVEMBER 2016 rev A FEBRUARY 2017 rev B</p>	<p>Project: <b>NEW DWELLING</b></p>	<p>Drawing Title: KC HOMES LTD</p> <p>LOT 16, 7 MAHIA LANE, WAIKANAЕ</p>	<p>Drawing Title: <b>BRACING PLAN</b></p>	<p>Designer: <b>COASTAL ARCHITECTURE LTD.</b></p> <p>11 Kodex Place Paraparaumu New Zealand Tel: 04 296 1248 e-mail : billfrancis@paradise.net.nz</p>	<p>Design: Bill Francis Drawn: bf Scale: as shown</p> <p>Job: 175 Page of: 7 Rev: B</p>	
--	---	--	---	---	---	--

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 Coastal Architecture Ltd. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Coastal Architecture Ltd



Provide electrical certification after completion and prior to Code Compliance Certificate being issued



**ELECTRICAL**

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

NOTE: ALLOW FOR POWER SUPPLY TO KITCHEN APPLIANCES  
 - DISHWASHER  
 - RANGEHOOD  
 - MICROWAVE  
 - WASTEMASTER

**ELECTRICAL KEY**

⊕	External lighting point	tv	Television Point
⊙	Recessed Downlight	ph	Telephone Point
⊗	Ceiling Light / Extract Fan	tr	Heated Towel Rail
⌚	Power Point (2 denotes double)	ad	Auto Garage Door Opener
— —	Fluorescent tube	SB	Switch Board
*	Smoke detector	MB	Meter Board

**ELECTRICAL PLAN** SCALE 1:100

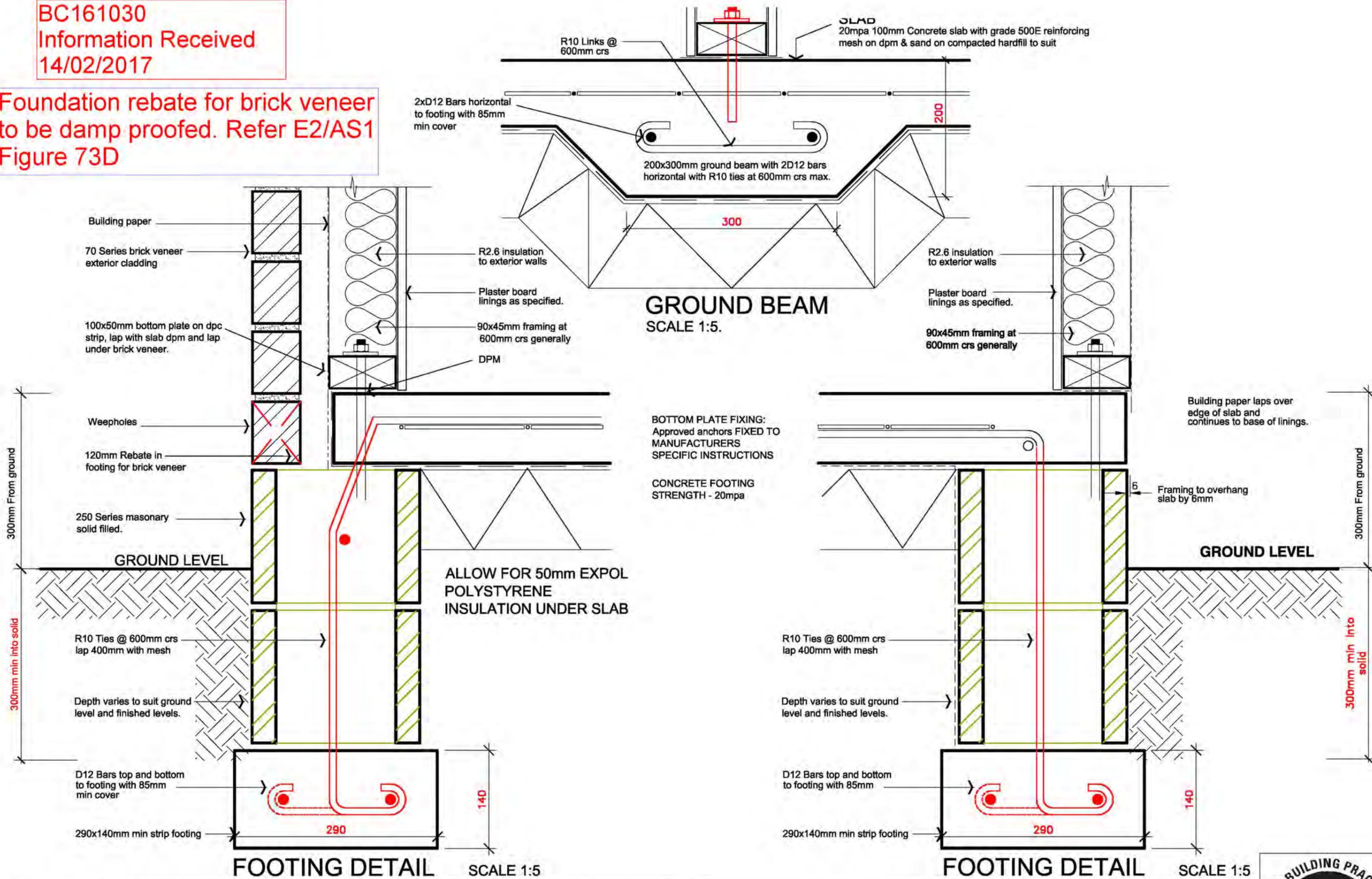
All work shall be in accordance with the NZBC. If in doubt ASK The Contractor must verify all dimensions on the job before commencing any work or shop drawings. Figured dimensions are to be used, scaled dimensions must be verified. This drawing and concept are copyright of Coastal Architecture Ltd. The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

Revisions: NOVEMBER 2016 rev A	Project: <b>NEW DWELLING</b>	Drawing Title: KC HOMES LTD  LOT 16, 7 MAHIA LANE, WAIKANAЕ	Drawing Title: <b>ELECTRICAL PLAN</b>	Designer: <b>COASTAL ARCHITECTURE LTD.</b> 11 Kodex Place Paraparaumu New Zealand Tel: 04 296 1248 e-mail : hillfrancis@paradise.net.nz	Design: Bill Francis  Job: 175 Page of: 8	Drawn: bf Scale: as shown  Rev: A
-----------------------------------	---------------------------------	--	--	---	---	---



BC161030  
Information Received  
14/02/2017

Foundation rebate for brick veneer to be damp proofed. Refer E2/AS1 Figure 73D



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 Coastal Architecture Ltd. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Coastal Architecture Ltd

Revisions:	rev A
NOVEMBER 2016	rev B
FEBRUARY 2017	

Project:	NEW DWELLING
----------	--------------

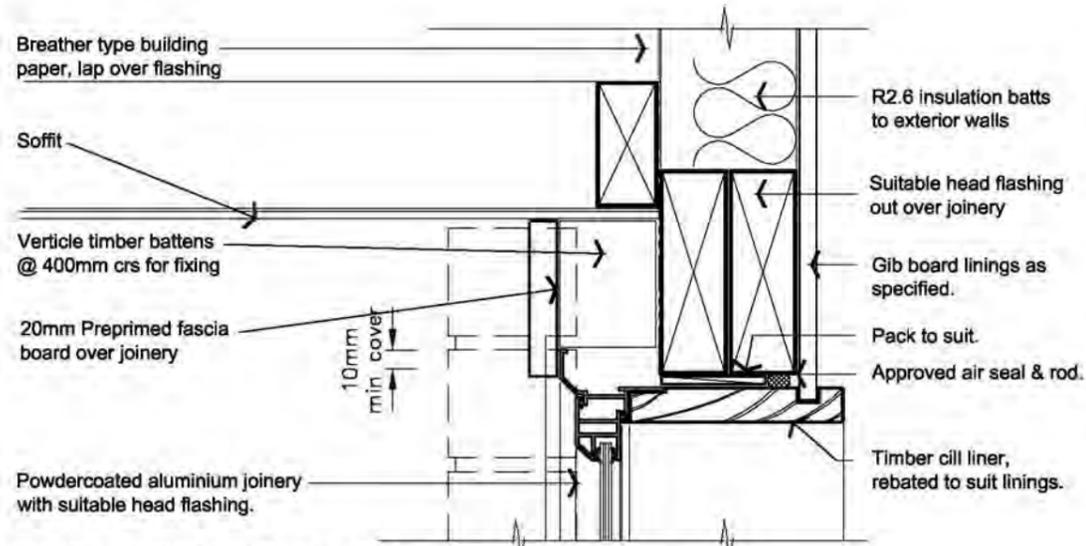
Drawing Title:	KC HOMES LTD
	LOT 16, 7 MAHIA LANE, WAIKANAE

Drawing Title:	DETAILS
----------------	---------

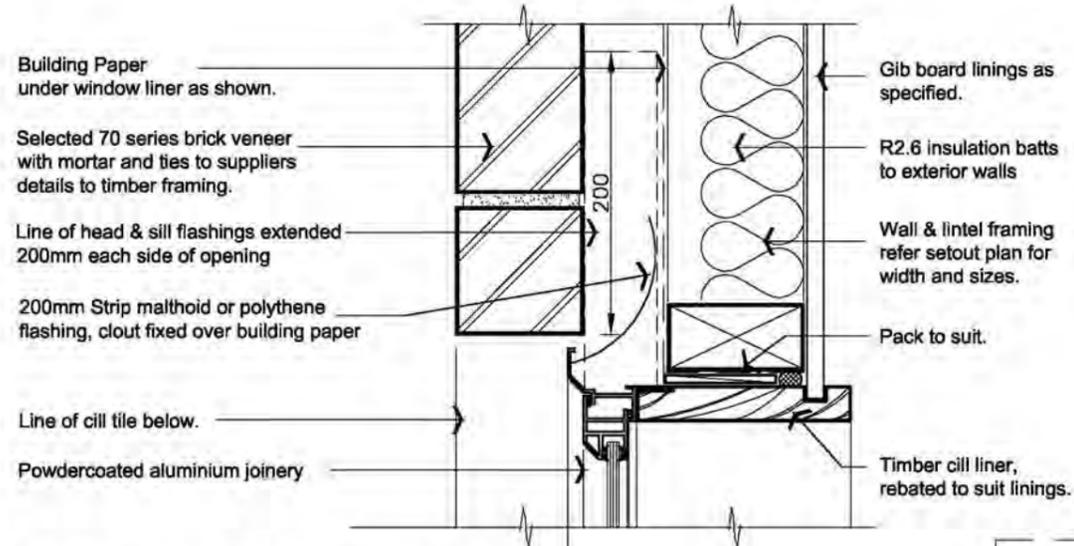
Designer:	COASTAL ARCHITECTURE LTD.
	11 Kodex Place Paraparaumu New Zealand
	Tel: 04 296 1248 e-mail : billfrancis@paradise.net.nz

Design:	Bill Francis	Drawn:	bf
		Scale:	as shown
Job:	175	Page of:	9
		Rev:	B



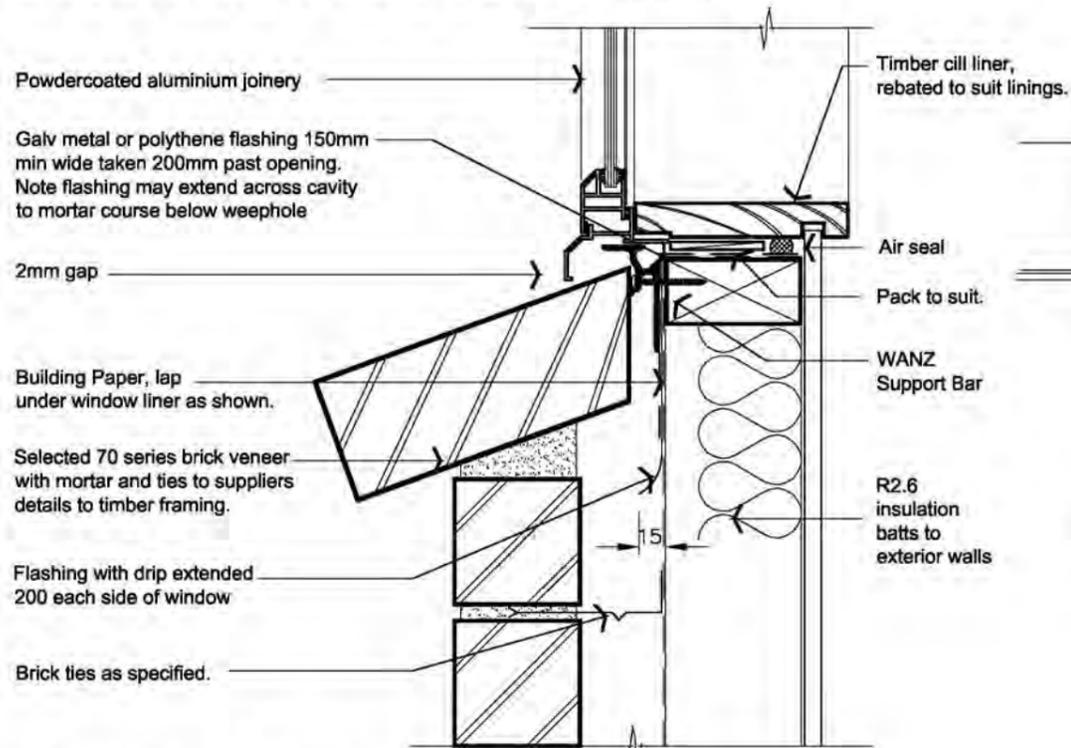


**BRICK WINDOW HEAD DETAIL** SCALE 1:5



**BRICK WINDOW JAMB DETAIL**

SCALE 1:5



**BRICK WINDOW SILL DETAIL** SCALE 1:5

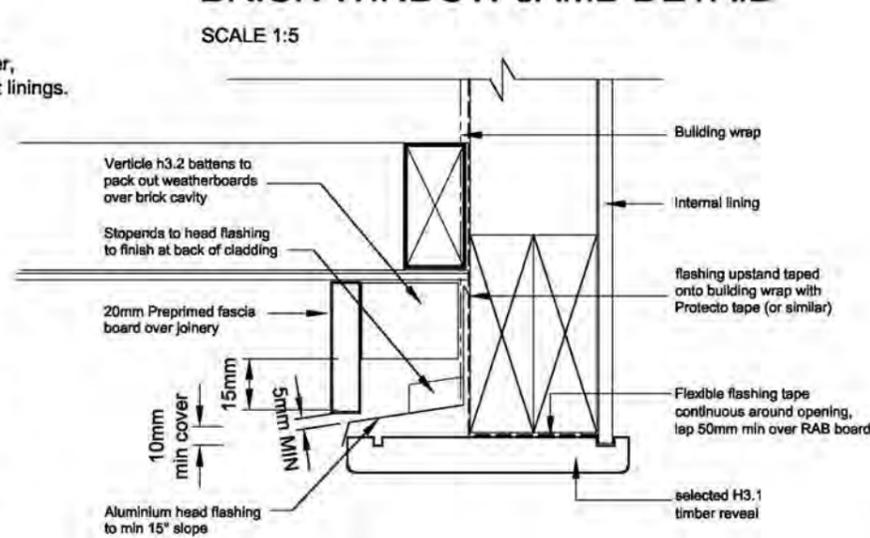
**MASONRY NOTES:**

NZS 3604 2011 & NZS 4210 2001 REQUIRE ALL STRUCTURAL MASONRY WORK TO BE CARRIED OUT BY AN EXPERIENCED TRADSMAN REGISTERED WITH THE NZ MASONRY REGISTRATION BOARD.

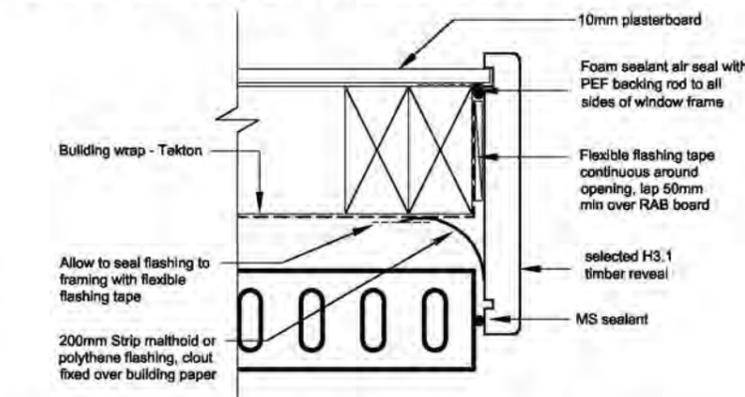
THE CAVITY BETWEEN THE MASONRY VENEER & THE EXTERIOR FACE OF TIMBER STUD WALL SHALL BE NOT LESS THAN 40mm NOR MORE THAN 75mm. PIPES & SERVICES SHALL NOT BE PLACED IN THE CAVITY.

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

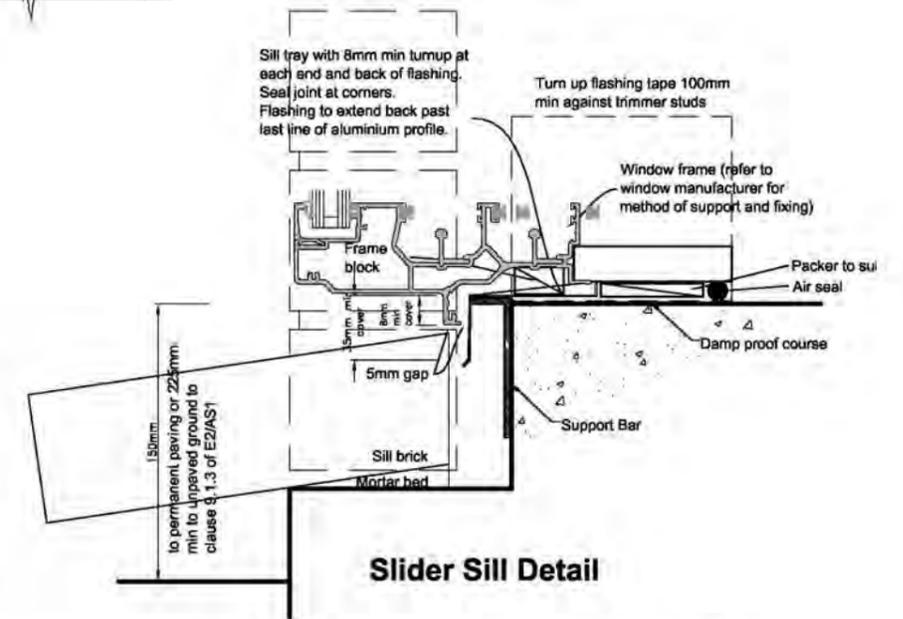
85mm GALV BRICK TIES POSITIONED 450mm HORIZONTALLY & 450mm VERTICALLY, WITHIN 200mm AROUND OPENINGS, WITHIN THE TOP 2 MORTAR COURSES, WITHIN THE BOTTOM 400mm OF VENEER & IN THE 2 COURSES WHERE A BOND BREAKER HAS BEEN USED



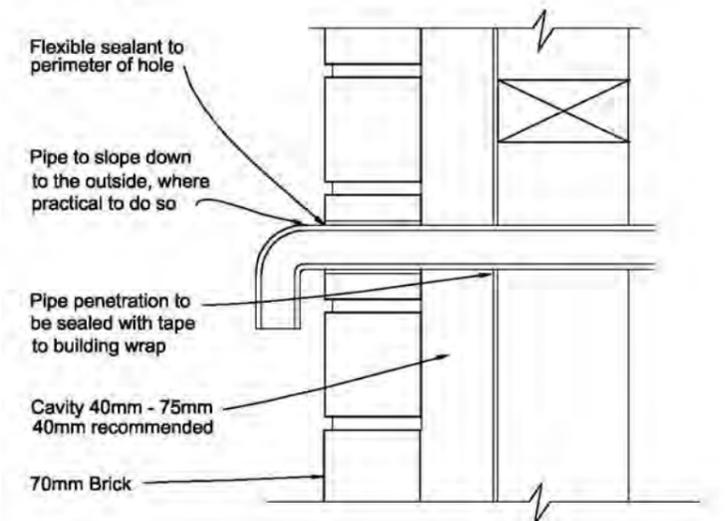
**GARAGE DOOR HEAD DETAIL** SCALE 1:5



**GARAGE DOOR JAMB DETAIL** SCALE 1:5



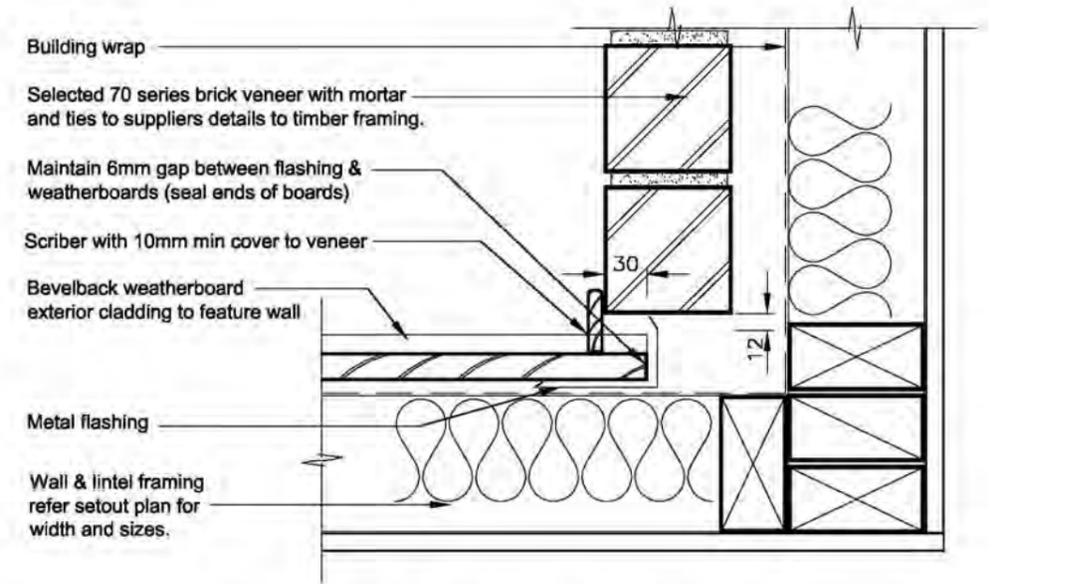
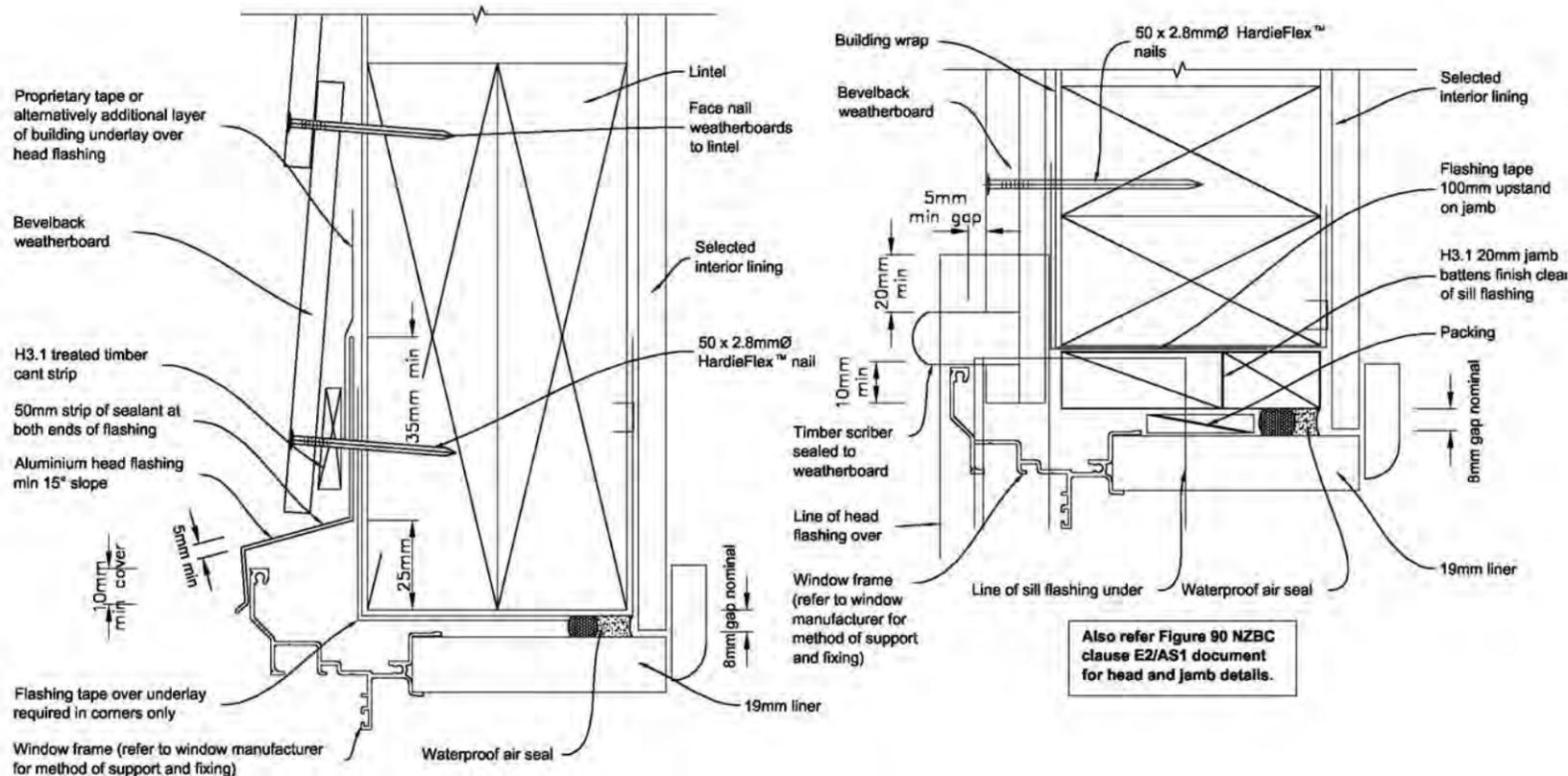
**Slider Sill Detail**



Revisions: NOVEMBER 2016 rev A FEBRUARY 2017 rev B	Project: <b>NEW DWELLING</b>	Drawing Title: KC HOMES LTD  LOT 16, 7 MAHIA LANE, WAIKANAE	Drawing Title: <b>DETAILS</b>	Designer: <b>COASTAL ARCHITECTURE LTD.</b>  11 Kodex Place Paraparumu New Zealand Tel: 04 296 1248 e-mail : billfrancis@paradise.net.nz	Design: Bill Francis	Drawn: bf Scale: as shown
					Job: 175	Page of: 10

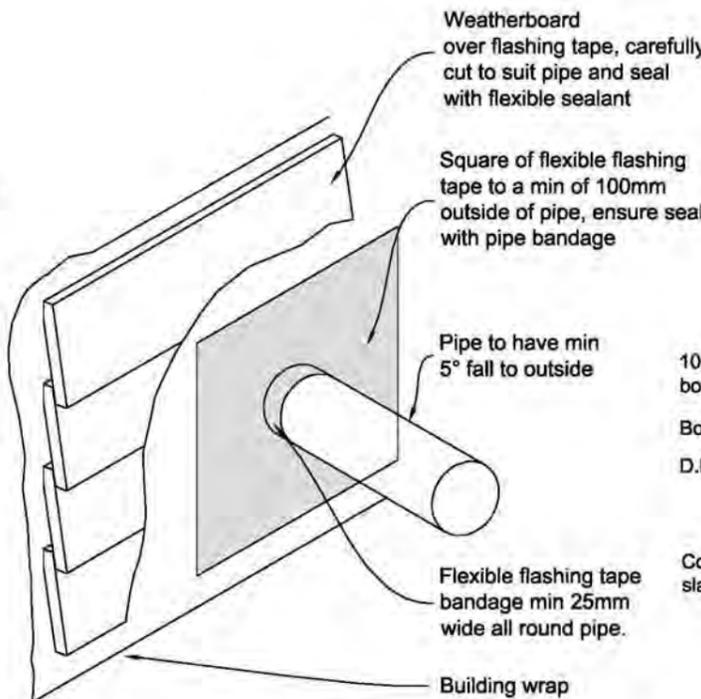
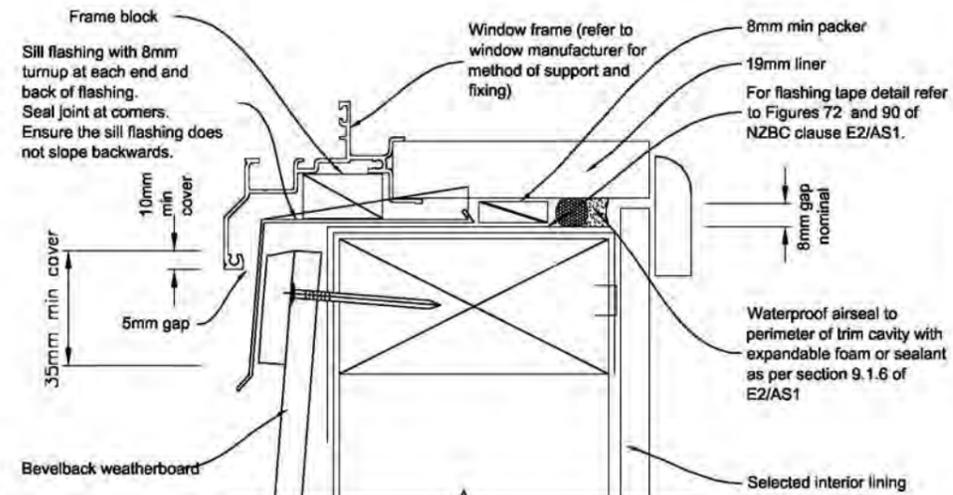


All work shall be in accordance with the NZBC. If in doubt ASK The Contractor must verify all dimensions on the job before commencing any work or shop drawings. Figured dimensions are to be used, scaled dimensions must be verified. This drawing and concept are copyright of Coastal Architecture Ltd. The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

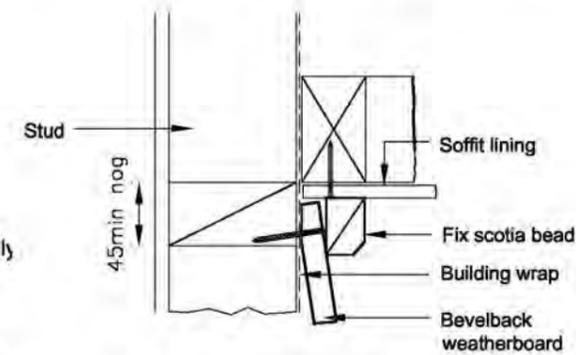


INTERNAL BRICK TO WEATHERBOARD DETAIL SCALE 1:5

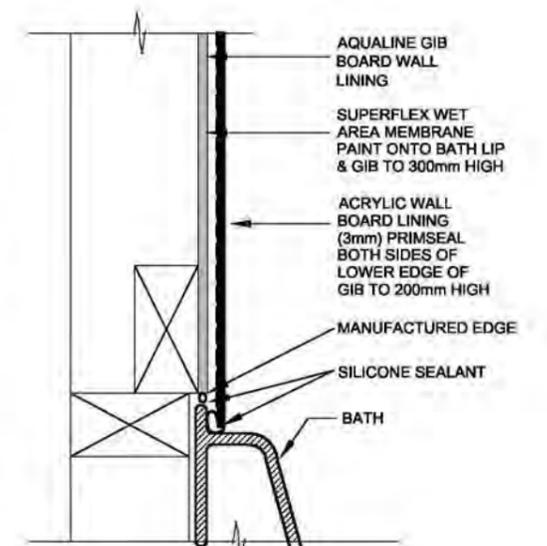
Note:  
Sealant between head flashing and window flange in VH and EH wind zones and SED projects. Refer Figure 71 of E2/AS1



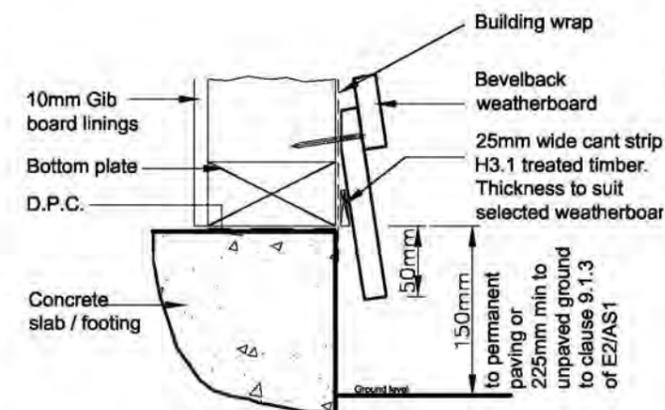
WEATHERBOARD PIPE PENETRATION



W/Board Soffit Detail



BATH DETAIL SCALE 1:5



W/Board Foundation Detail

- General notes for materials selection**
- Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of NZBC 'E2/AS1'.
  - Building underlay must comply with acceptable solution 'E2/AS1' and NZS 3604.
  - Flashing tape must have proven compatibility with the selected building underlay and other materials with which it comes into contact as per Table 21 of 'E2/AS1'.

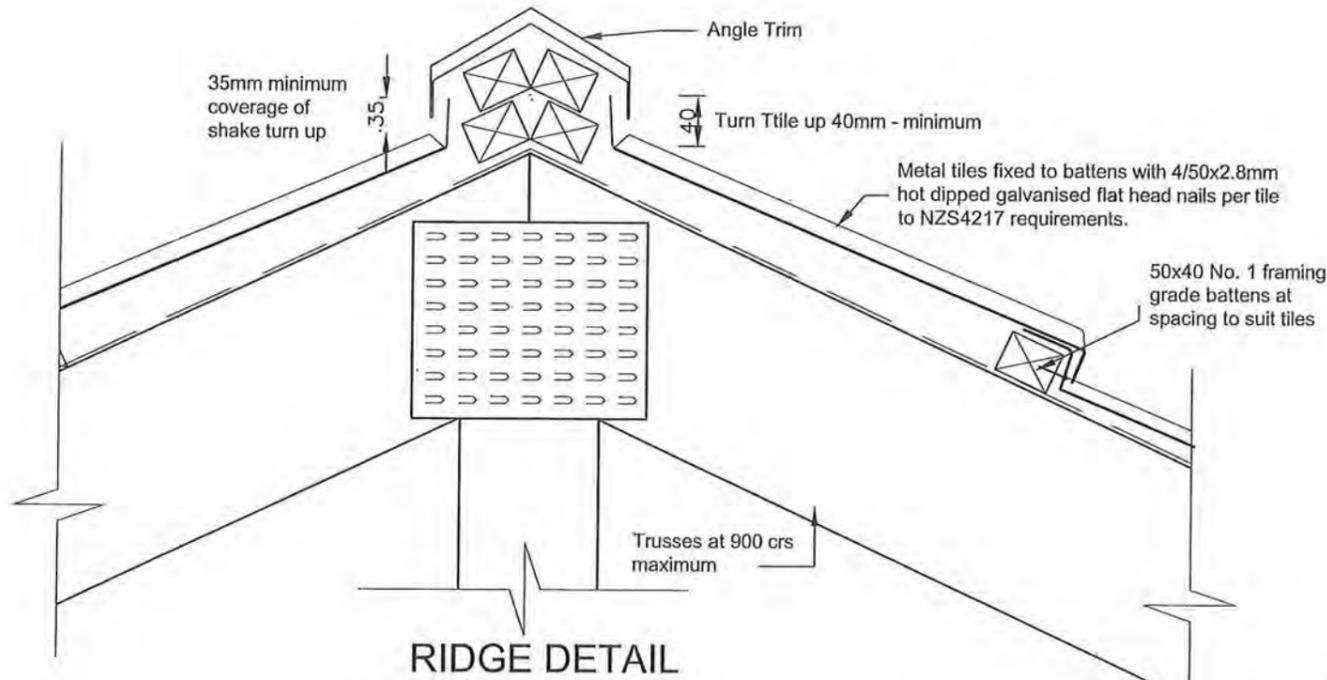
Refer to the manufacturer or supplier for technical information for these materials

BC161030  
Information Received  
14/02/2017

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 Coastal Architecture Ltd. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Coastal Architecture Ltd

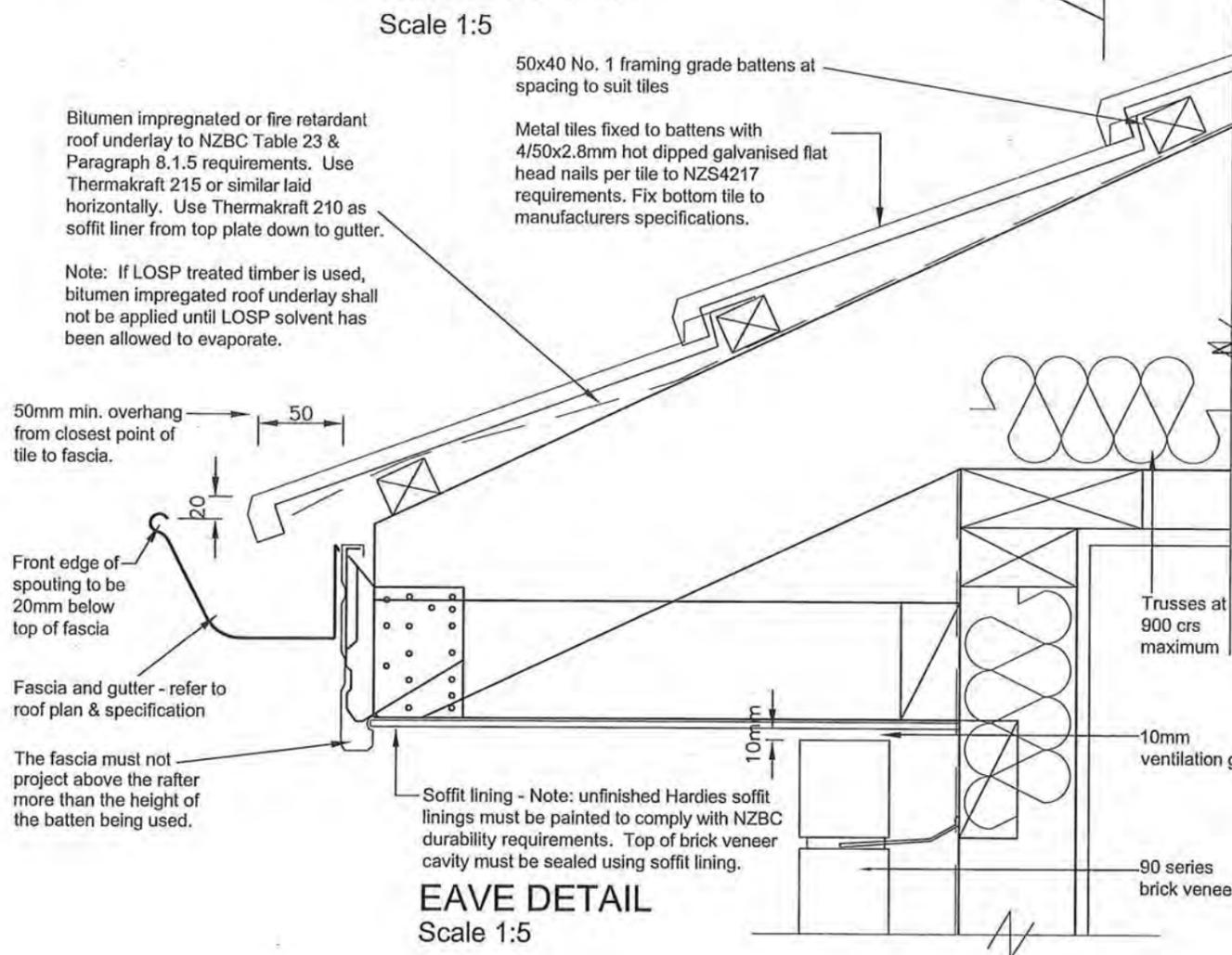
Revisions: NOVEMBER 2016 rev A FEBRUARY 2017 rev B	Project: <b>NEW DWELLING</b>	Drawing Title: KC HOMES LTD  LOT 16, 7 MAHIA LANE, WAIKANAE	Drawing Title: <b>DETAILS</b>	Designer: <b>COASTAL ARCHITECTURE LTD.</b> 11 Kodex Place Paraparaumu New Zealand Tel: 04 296 1248 e-mail: billfrancis@paradise.net.nz	Design: Bill Francis  Job: 175 Page of: 11	Drawn: bf Scale: as shown  Rev: B	
--	---------------------------------	--	----------------------------------	--	--	---	--

RECEIVED  
21 DEC 2016



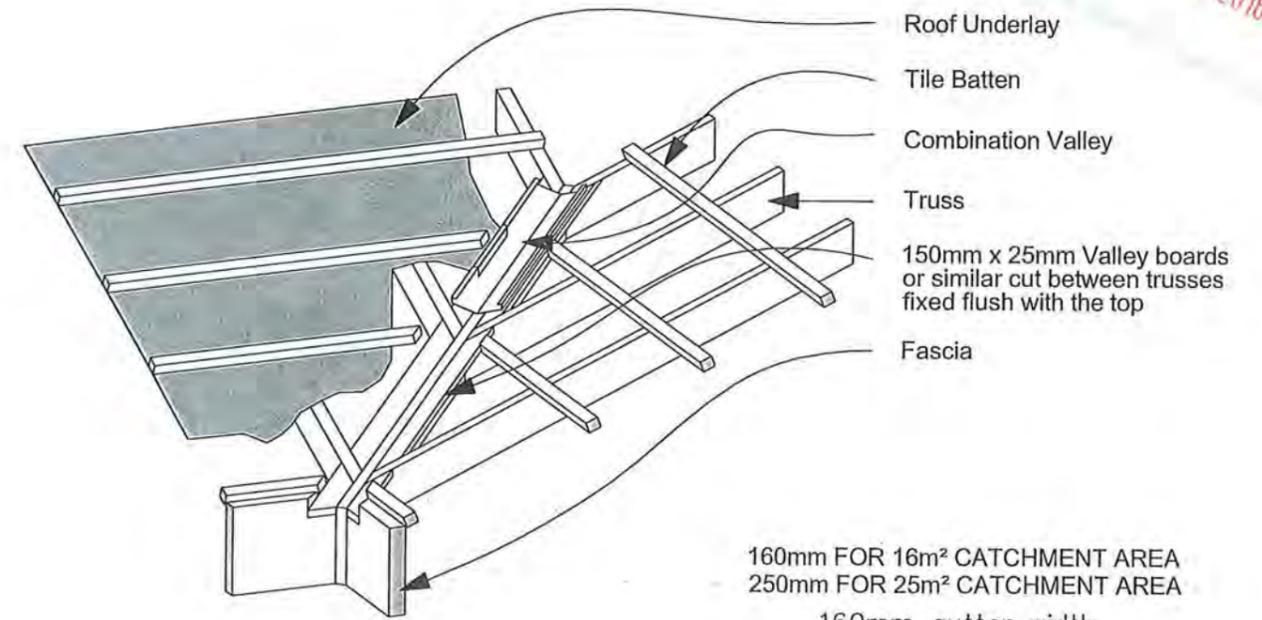
**RIDGE DETAIL**

Scale 1:5

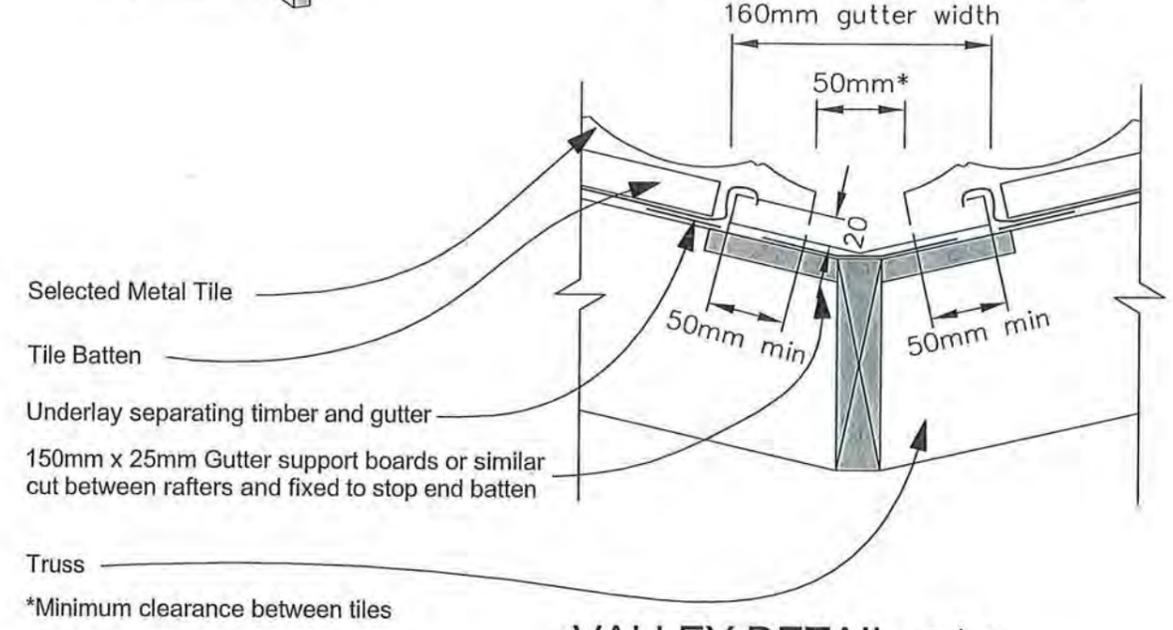


**EAVE DETAIL**

Scale 1:5



160mm FOR 16m<sup>2</sup> CATCHMENT AREA  
250mm FOR 25m<sup>2</sup> CATCHMENT AREA



**VALLEY DETAIL n.t.s**

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 Coastal Architecture Ltd. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Coastal Architecture Ltd

Revisions:	Project:	Drawing Title:	Drawing Title:	Designer:	Design:	Drawn:
NOVEMBER 2016 rev A	NEW DWELLING	KC HOMES LTD	DETAILS	COASTAL ARCHITECTURE LTD.	Bill Francis	bf
		LOT 16, 7 MAHIA LANE, WAIKANAE		11 Kodex Place Paraparaumu New Zealand		Scale: as shown
				Tel: 04 296 1248 e-mail: billfrancis@paradise.net.nz	Job: 175	Page of: 11
						Rev: A

Project:	Drawing Title:	Drawing Title:	Designer:	Design:	Drawn:
NEW DWELLING	KC HOMES LTD	DETAILS	COASTAL ARCHITECTURE LTD.	Bill Francis	bf
	LOT 16, 7 MAHIA LANE, WAIKANAE		11 Kodex Place Paraparaumu New Zealand		Scale: as shown
			Tel: 04 296 1248 e-mail: billfrancis@paradise.net.nz	Job: 175	Page of: 11
					Rev: A

Project:	Drawing Title:	Drawing Title:	Designer:	Design:	Drawn:
NEW DWELLING	KC HOMES LTD	DETAILS	COASTAL ARCHITECTURE LTD.	Bill Francis	bf
	LOT 16, 7 MAHIA LANE, WAIKANAE		11 Kodex Place Paraparaumu New Zealand		Scale: as shown
			Tel: 04 296 1248 e-mail: billfrancis@paradise.net.nz	Job: 175	Page of: 11
					Rev: A

Project:	Drawing Title:	Drawing Title:	Designer:	Design:	Drawn:
NEW DWELLING	KC HOMES LTD	DETAILS	COASTAL ARCHITECTURE LTD.	Bill Francis	bf
	LOT 16, 7 MAHIA LANE, WAIKANAE		11 Kodex Place Paraparaumu New Zealand		Scale: as shown
			Tel: 04 296 1248 e-mail: billfrancis@paradise.net.nz	Job: 175	Page of: 11
					Rev: A





# E2/AS1 : Building Envelope Risk Matrix.

## Project Details.

Name NAME KC HOMES LTD  
 Street/No. STREET 7 MAHIA LANE  
 Lot/DP/No. LOT LOT 16  
 City/Town/District. CITY WAIKANAE

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

Factor	Risk	Detail
A 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 No. of storeys	LOW	One storey
	MEDIUM	Two storey in part
	HIGH	Two storey's
	V.HIGH	More than two storey's
C Roof / Wall intersection Design.	LOW	Roof / wall intersection - Fully protected. [eg. hip / gable roof with eaves.]
	MEDIUM	Roof / wall intersection - Partly exposed. [eg. hip / gable roof with NO eaves.]
	HIGH	Roof / wall intersection - Fully exposed. [eg. Parapets or eaves greater than 90° vertical with soffit linings.]
	V.HIGH	Roof elements finished within the boundaries formed by exterior walls [eg. lower ends of aprons, chimney's etc.]
D Eaves width (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 or 450 - 600mm at third floor level
E Envelope Complexity	LOW	Simple rectangular,L,T, or boomerang shape with single cladding type
	MEDIUM	Complex angular or curved shape [eg. Y or arrow head] with single cladding type.
	HIGH	More complex angular or curved shape [eg. Y or arrow head ] with multiple cladding type.
	V.HIGH	As for high risk, but with junctions not covered in C or F on this Table [eg. box windows, pergola's, multi storey re - entrant shapes etc.]
F 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 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 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

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		1
Envelope Complexity	0		1		3	✓	6		3
Deck design.	0	✓	2		4		6		0
<b>Total Risk Score for this Elevation</b>									<b>5</b>

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		1
Envelope Complexity	0	✓	1		3		6		0
Deck design.	0	✓	2		4		6		0
<b>Total Risk Score for this Elevation</b>									<b>2</b>

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		1
Envelope Complexity	0		1		3	✓	6		3
Deck design.	0	✓	2		4		6		0
<b>Total Risk Score for this Elevation</b>									<b>5</b>

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		1
Envelope Complexity	0	✓	1		3		6		0
Deck design.	0	✓	2		4		6		0
<b>Total Risk Score for this Elevation</b>									<b>2</b>

### Selected Cladding Resulting from Risk Assessment

	Risk score from tables above.	TICK SELECTED OPTION	
		DIRECT FIXED	DRAINED CAVITY
North Elevation.	5	Cladding Selected from table 3 [ from tables on page 30 E2/AS1 ]	
		Brick Veneer	✓
South Elevation.	2	Bevelback Weatherboard	✓
		Brick Veneer	✓
East Elevation.	5	Brick Veneer	✓
		Bevelback Weatherboard	✓
West Elevation.	2	Brick Veneer	✓

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 Coastal Architecture Ltd. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Coastal Architecture Ltd

Revisions:	
NOVEMBER 2016	rev A

Project:	NEW DWELLING
Drawing Title:	KC HOMES LTD
	LOT 16, 7 MAHIA LANE, WAIKANAE

Drawing Title:	E2 MATRIX
----------------	-----------

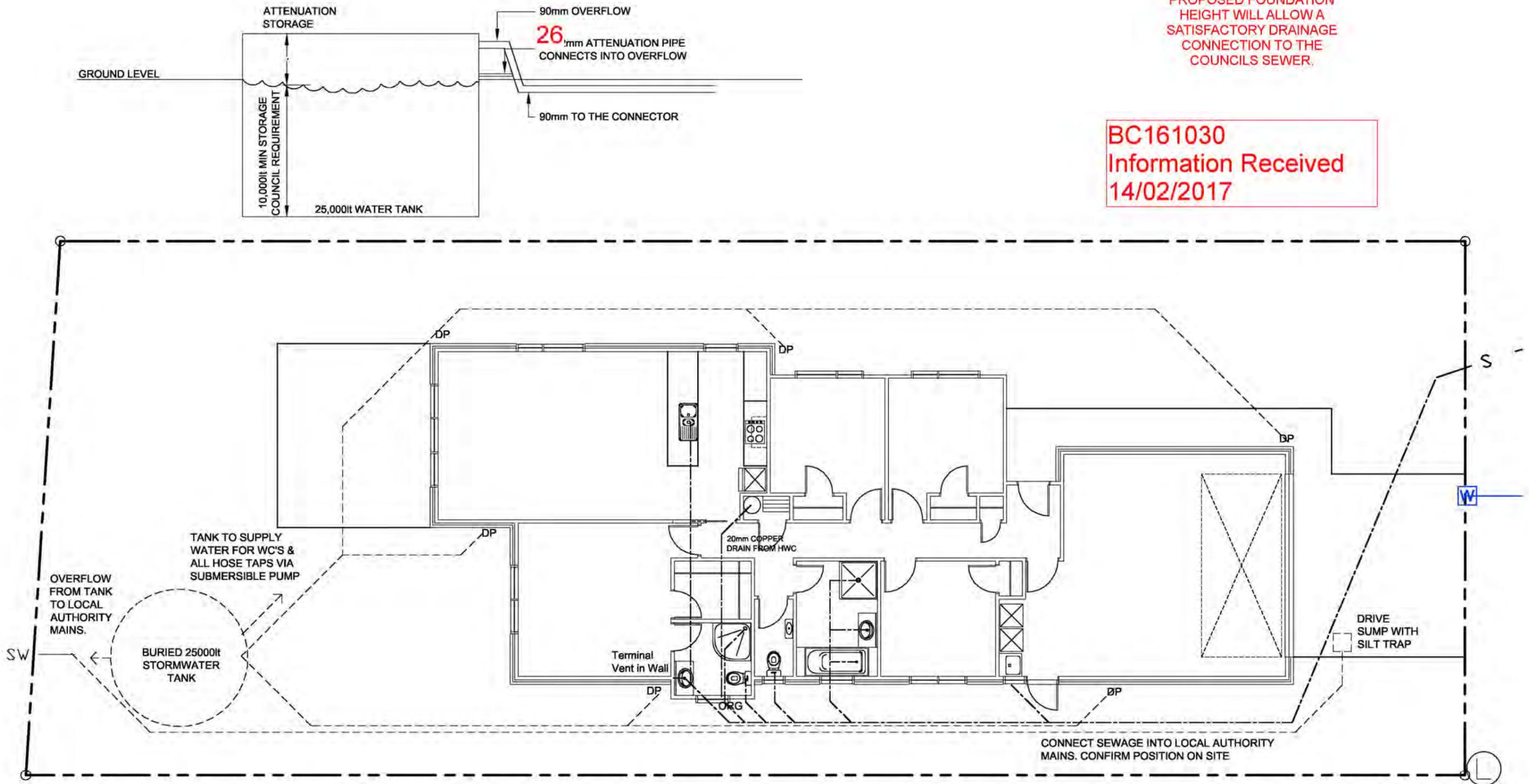
Designer:	COASTAL ARCHITECTURE LTD.
	11 Kodex Place Paraparaumu New Zealand
	Tel: 04 296 1248 e-mail : billfrancis@paradise.net.nz

Design:	Bill Francis	Drawn:	bf
		Scale:	as shown
Job:	175	Page of:	13
Rev:			A



BUILDER TO ENSURE THAT PROPOSED FOUNDATION HEIGHT WILL ALLOW A SATISFACTORY DRAINAGE CONNECTION TO THE COUNCILS SEWER.

BC161030  
Information Received  
14/02/2017



**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

**PIPE GRADIENTS**

- Minimum grades for drains and discharge pipes
  - 85Ø & less = 1 in 40
  - 80Ø & 100Ø = 1 in 60

**HOT & COLD WATER**

- All hot & cold water pipes in house to be run in Iplex K2 pex plumbing system
- 20mm for Main, to bath and to HWC
- 15mm to all other branches
- 15mm to exterior taps

**DRAINAGE PLAN SCALE 1:100**

Revisions: NOVEMBER 2016 rev A JANUARY 2017 rev B	Project: <b>NEW DWELLING</b>	Drawing Title: KC HOMES LTD  LOT 16, 7 MAHIA LANE, WAIKANAE	Drawing Title: <b>DRAINAGE PLAN</b>	Designer: <b>COASTAL ARCHITECTURE LTD.</b> 11 Kodex Place Paraparaumu New Zealand Tel: 04 296 1248 e-mail : billfrancis@paradise.net.nz	Design: Bill Francis	Drawn: bf Scale: as shown	Job: 175 Page of: 14 Rev: B	
	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 Coastal Architecture Ltd. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Coastal Architecture Ltd							



J0016

**MiTek New Zealand Limited**

Correspondence from : AUCKLAND  
40 Neales Road, East Tamaki 2013  
PO Box 58-014, Botany 2163  
Phone: 09 274 7109  
Fax: 09 274 7100

CHRISTCHURCH  
14 Pilkington Way, Wigram 8042  
PO Box 8387, Riccarton 8440  
Phone: 03 348 8691  
Fax: 03 348 0314

MiTek 20/20 Engineering 4.7.91.0

www.mitek.nz.co.nz

Printed: 08:00:03 17 Dec 2016

**PRODUCER STATEMENT for MiTek 20/20<sup>®</sup> TRUSS DESIGN - Version 4.7**ISSUED BY: **MiTek New Zealand Limited**TO: **Paraparaumu Prenail Ltd**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 **8186** 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 Clauses B1 and B2 of the New Zealand Building Code.

**On behalf of MiTek New Zealand Limited,** and subject to:

- i) All proprietary products meeting their performance specification requirements
- ii) The provision of adequate roof bracing and overall building stability
- iii) Correct selection and placement of GANG-NAIL connector plates
- iv) Correct input of Truss Design Data as shown in the Fabricator Design Statement for this job
- v) The design being undertaken by the accredited fabricator under the terms of the software licence
- vi) Timber is graded to the requirements of NZS 3603:1993
- vii) Minimum timber treatment for these MiTek<sup>®</sup> trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003

**I believe on reasonable grounds** that the trusses, if constructed in accordance with the MiTek 20/20<sup>®</sup> truss design and shop drawings, will comply with the relevant provisions of the New Zealand Building Code.

MiTek New Zealand Limited holds a current policy of Professional Indemnity Insurance no less than \$500,000.

**On behalf of MiTek New Zealand Limited,**

**Date: Saturday, 17 December 2016**

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



# Paraparaumu Prenail Ltd

Fixing Report : Page 1

Job: 8186

Client: PlaceMakers Paraparaumu  
Phone: 04-296 1086

Site: KC Homes Ltd  
7 Mahia Lane  
Waikanae

Description:  
Building Consent No.:  
MITek 20/20 Engineering 4.7.91.0

MITek New Zealand Limited.

Phone:  
Printed: 08:00:09 17 Dec 2016

## TRUSS FIXING SELECTION REPORT - Characteristic Loads

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

### MITek® Truss List

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

Truss	Qty	Span (mm)	Joint	Down (kN)	Uplift (kN)	Bearing	Fixing	
							Qty	Selected
CT01	3	5983	M	3.274	3.202	Butt	3	JH 47x90
			E	3.367	2.775	Cross	3	Pair of Wire Dog Staples
T02	2	8000	B	4.723	4.057	Cross	2	CT200 pair
			H	4.723	4.057	Cross	2	CT200 pair
T01	1	8000	B	9.954	9.302	Cross	1	CT200 pair
			I	18.012	17.748	Cross	1	No fixing selected. Specific engineering design required for uplift loads.
TG01	1	8000	B	9.295	9.238	Cross	1	CT200 pair
			G	8.931	8.817	Cross	1	CT200 pair
TG05	1	5483	B	5.832	5.468	Cross	1	CT200 pair
			K	7.169	7.520	Butt	1	JH 47x120
TG03	1	6700	A	6.070	6.664	Butt	1	Pair of MultiGrips
			F	6.582	7.385	Butt	1	Pair of MultiGrips
TG04	1	6700	A	13.469	13.209	Butt	1	JH 47x190
			F	8.947	8.791	Butt	1	JH 47x120
*HB07	1	6496						Refer NZS3604:2011 Tables 10.1 & 10.14
*HB01	1	6474						Refer NZS3604:2011 Tables 10.1 & 10.14
T03	1	8000	B	5.945	5.848	Cross	1	CT200 pair
			F	5.945	5.848	Cross	1	CT200 pair
T03A	1	8000	G	7.850	5.519	Cross	1	CT200 pair
			E	5.035	4.346	Cross	1	CT200 pair
T04	3	6000	B	3.630	3.056	Cross	3	Pair of Wire Dog Staples
			F	3.630	3.056	Cross	3	Pair of Wire Dog Staples
T04A	1	6000	H	4.195	2.567	Cross	1	Pair of Wire Dog Staples
			F	3.165	2.655	Cross	1	Pair of Wire Dog Staples
*HB05	1	5586						Refer NZS3604:2011 Tables 10.1 & 10.14
*HB04	2	5059						Refer NZS3604:2011 Tables 10.1 & 10.14
TG02	1	4590	B	9.810	9.961	Cross	1	CT200 pair
			G	13.769	13.751	Cross	1	16kN Truss to Top Plate
*HB03	2	4094						Refer NZS3604:2011 Tables 10.1 & 10.14
J01	1	3455	A	2.722	2.530	Cross	1	Pair of Wire Dog Staples
			G	2.854	3.124	Butt	1	JH 47x90
J01A	1	3455	A	1.911	1.286	Butt	1	JH 47x90
			G	1.734	1.631	Butt	1	JH 47x90
			D	0.330	0.539	Butt	1	Pair of 3.15d Nails
J01B	1	3455	A	3.626	3.548	Butt	1	JH 47x90
			G	3.301	3.735	Butt	1	JH 47x90
J01C	1	3455	A	1.898	1.243	Butt	1	JH 47x90
			D	2.719	2.262	Cross	1	Pair of Wire Dog Staples
J10	1	3327	B	3.155	2.469	Cross	1	Pair of Wire Dog Staples
			F	2.593	2.852	Butt	1	JH 47x90
J10A	1	3327	B	2.748	1.303	Cross	1	Pair of Wire Dog Staples
			F	1.807	1.397	Butt	1	JH 47x90
			D	0.441	0.684	Butt	1	Pair of 3.15d Nails
J10B	1	3327	A	1.818	1.239	Butt	1	JH 47x90
			E	1.833	1.411	Butt	1	JH 47x90
			C	0.419	0.679	Butt	1	Pair of 3.15d Nails
J10C	1	3327	B	2.728	1.246	Cross	1	Pair of Wire Dog Staples
			E	2.772	2.197	Cross	1	Pair of Wire Dog Staples
J04	3	3000	B	2.669	1.182	Cross	3	Pair of Wire Dog Staples
			F	1.764	1.874	Butt	3	JH 47x90
J06	1	2977	B	2.944	2.042	Cross	1	Pair of Wire Dog Staples
			F	1.980	2.118	Butt	1	JH 47x90
J06A	1	2977	B	2.944	2.042	Cross	1	Pair of Wire Dog Staples
			F	1.980	2.118	Butt	1	JH 47x90
J06B	1	2977	B	2.663	1.174	Cross	1	Pair of Wire Dog Staples
			F	1.727	1.254	Butt	1	JH 47x90
			D	0.396	0.606	Butt	1	Pair of 3.15d Nails
*HB06	1	2756						Refer NZS3604:2011 Tables 10.1 & 10.14
J02	1	2555	B	2.760	1.719	Cross	1	Pair of Wire Dog Staples
			F	1.594	1.493	Butt	1	JH 47x90
J02A	1	2555	B	2.568	1.018	Cross	1	Pair of Wire Dog Staples
			F	1.631	1.080	Butt	1	JH 47x90
			D	0.343	0.513	Butt	1	Pair of 3.15d Nails
J11	1	2427	B	2.699	1.608	Cross	1	Pair of Wire Dog Staples
			F	1.449	1.313	Butt	1	JH 47x90
J11A	1	2427	B	2.540	0.971	Cross	1	Pair of Wire Dog Staples
			F	1.602	1.027	Butt	1	JH 47x90
			D	0.328	0.485	Butt	1	Pair of 3.15d Nails

16 kN +  
CT200 pr

# Paraparaumu Prenail Ltd

Fixing Report : Page 2

Job: 8186

Client: PlaceMakers Paraparaumu  
Phone: 04-296 1086

Site: KC Homes Ltd  
7 Mahia Lane  
Waikanae

Description:

Building Consent No.:

MiTek 20/20 Engineering 4.7.91.0

MiTek New Zealand Limited.

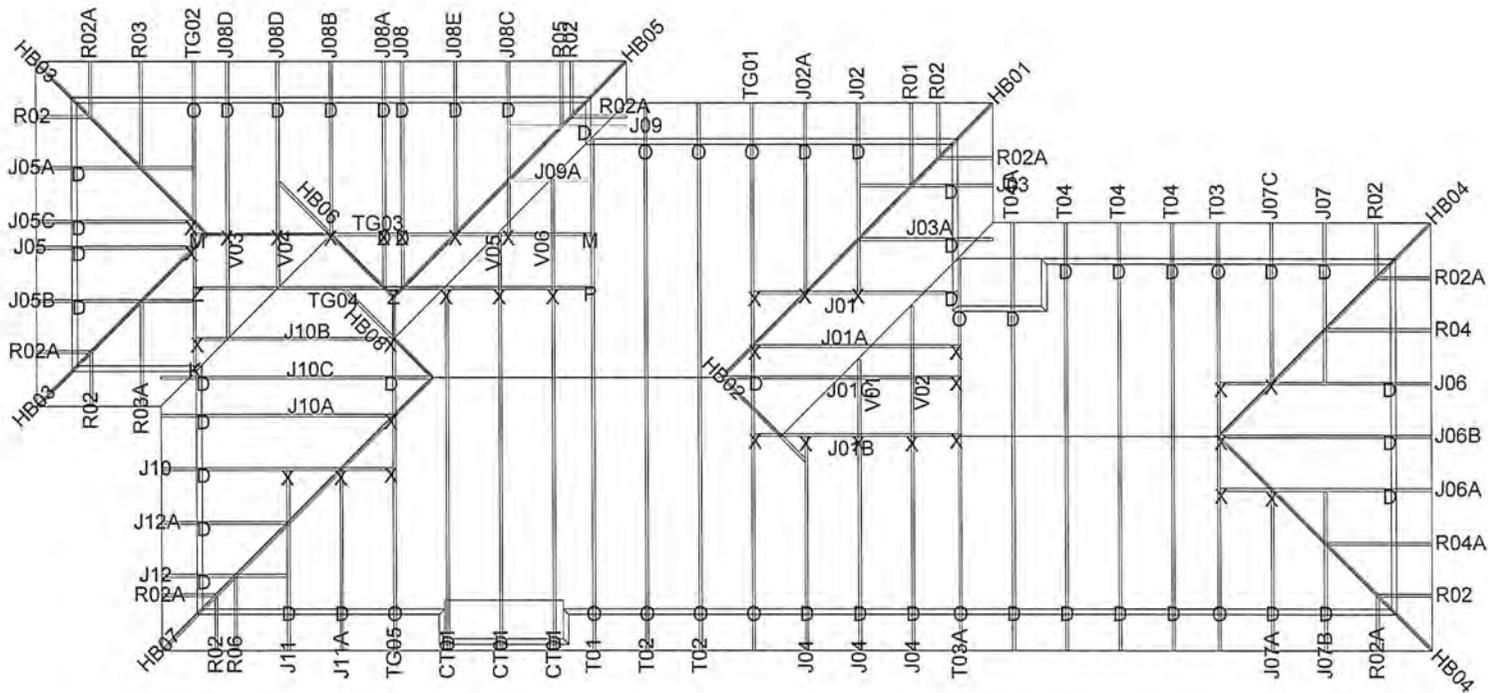
Phone:

Printed: 08:00:10 17 Dec 2016

Truss	Qty	Span (mm)	Joint	Down (kN)	Uplift (kN)	Bearing	----- Fixing -----	
							Qty	Selected
J08	1	2272	B	2.487	0.660	Cross	1	Pair of Wire Dog Staples
			G	1.430	0.930	Butt	1	JH 47x90
			E	0.214	0.374	Butt	1	Pair of 3.15d Nails
J08A	1	2272	D	0.787	1.182	Cross	1	Pair of Wire Dog Staples
			B	2.487	0.660	Cross	1	Pair of Wire Dog Staples
			G	1.430	0.930	Butt	1	JH 47x90
J08B	1	2272	E	0.214	0.374	Butt	1	Pair of 3.15d Nails
			D	0.787	1.182	Cross	1	Pair of Wire Dog Staples
			B	2.505	0.916	Cross	1	Pair of Wire Dog Staples
J08C	1	2272	F	1.594	0.973	Butt	1	JH 47x90
			D	0.308	0.409	Butt	1	Pair of 3.15d Nails
			B	2.633	1.466	Cross	1	Pair of Wire Dog Staples
J08D	2	2272	F	1.398	1.116	Butt	1	JH 47x90
			B	2.509	0.914	Cross	2	Pair of Wire Dog Staples
J08E	1	2272	F	1.436	1.414	Butt	2	JH 47x90
			B	2.505	0.916	Cross	1	Pair of Wire Dog Staples
V02	1	2200	F	1.594	0.973	Butt	1	JH 47x90
			D	0.308	0.409	Butt	1	Pair of 3.15d Nails
			A			Wide		No fixing selected
*HB08	1	2111						Refer NZS3604:2011 Tables 10.1 & 10.14
J07	1	2077	B	2.471	0.954	Cross	1	Pair of Wire Dog Staples
			F	1.176	0.755	Butt	1	Pair of 3.15d Nails
J07A	1	2077	B	2.469	0.844	Cross	1	Pair of Wire Dog Staples
			F	1.429	0.810	Butt	1	JH 47x90
			D	0.308	0.449	Butt	1	Pair of 3.15d Nails
J07B	1	2077	B	2.471	0.954	Cross	1	Pair of Wire Dog Staples
			F	1.176	0.755	Butt	1	Pair of 3.15d Nails
J07C	1	2077	B	2.469	0.844	Cross	1	Pair of Wire Dog Staples
			F	1.429	0.810	Butt	1	JH 47x90
			D	0.308	0.449	Butt	1	Pair of 3.15d Nails
J05	1	2055	B	2.465	0.835	Cross	1	Pair of Wire Dog Staples
			F	1.410	0.793	Butt	1	JH 47x90
			D	0.310	0.453	Butt	1	Pair of 3.15d Nails
J05A	1	2055	B	2.468	0.946	Cross	1	Pair of Wire Dog Staples
			F	1.162	0.741	Butt	1	Pair of 3.15d Nails
J05B	1	2055	B	2.468	0.946	Cross	1	Pair of Wire Dog Staples
			F	1.162	0.741	Butt	1	Pair of 3.15d Nails
J05C	1	2055	B	2.465	0.835	Cross	1	Pair of Wire Dog Staples
			F	1.410	0.793	Butt	1	JH 47x90
			D	0.310	0.453	Butt	1	Pair of 3.15d Nails
*HB02	1	1971						Refer NZS3604:2011 Tables 10.1 & 10.14
V06	1	1844	A			Wide		No fixing selected
*R04	1	1790						Refer NZS3604:2011 Tables 10.1 & 10.14
*R04A	1	1790						Refer NZS3604:2011 Tables 10.1 & 10.14
*R03	1	1768						Refer NZS3604:2011 Tables 10.1 & 10.14
*R03A	1	1768						Refer NZS3604:2011 Tables 10.1 & 10.14
V03	1	1756	A			Wide		No fixing selected
J03	1	1655	B	2.408	0.800	Cross	1	Pair of Wire Dog Staples
			E	0.820	0.487	Butt	1	Pair of 3.15d Nails
J03A	1	1655	B	2.407	0.678	Cross	1	Pair of Wire Dog Staples
			D	0.485	0.048	Butt	1	Pair of 3.15d Nails
			C	0.515	0.954	Butt	1	Pair of 3.15d Nails
J12	1	1527	B	2.396	0.754	Cross	1	Pair of Wire Dog Staples
			E	0.714	0.406	Butt	1	Pair of 3.15d Nails
J12A	1	1527	B	2.396	0.632	Cross	1	Pair of Wire Dog Staples
			D	0.447	0.044	Butt	1	Pair of 3.15d Nails
			C	0.462	0.875	Butt	1	Pair of 3.15d Nails
J09	1	1372	B	2.384	0.681	Cross	1	Pair of Wire Dog Staples
			D	0.628	0.301	Butt	1	Pair of 3.15d Nails
J09A	1	1372	A	0.735	0.499	Butt	1	Pair of 3.15d Nails
			C	0.401	0.040	Butt	1	Pair of 3.15d Nails
			B	0.492	0.802	Butt	1	Pair of 3.15d Nails
*R01	1	1368						Refer NZS3604:2011 Tables 10.1 & 10.14
V01	1	1300	A			Wide		No fixing selected
*R06	1	1240						Refer NZS3604:2011 Tables 10.1 & 10.14
*R05	1	1085						Refer NZS3604:2011 Tables 10.1 & 10.14
V05	1	944	A			Wide		No fixing selected
*R02	7	913						Refer NZS3604:2011 Tables 10.1 & 10.14
*R02A	7	913						Refer NZS3604:2011 Tables 10.1 & 10.14
V04	1	901	A			Wide		No fixing selected

**Note:**

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



PrimeCad v4.7.91

**PARAPARAUMU  
PRENAIL LTD**

37 Ihakara Street Paraparaumu  
Tel: 04-902-5618 Fax: 04-902-5619

Site Address :  
KC Homes Ltd  
7 Mahia Lane  
Waikanae

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

Date: 17 Dec,2016 Drawn : Dave Bright  
Scale: 1:120 System : MiTek 20/20

Job Details:  
Roof Pitch : 25.00deg  
Roof Material : Metal Tiles  
Ceiling Material : Metal battens on clips  
Wind Zone : High  
Roof Snow Load : 0.000kPa

Truss Centres : 900mm  
Roof Live Load : 0.250kPa  
Floor Live Load :  
Wind Speed : 44m/s  
Overhang : 600mm



Job Title :  
**8186**

Sheet :  
**1**  
Revision Number :

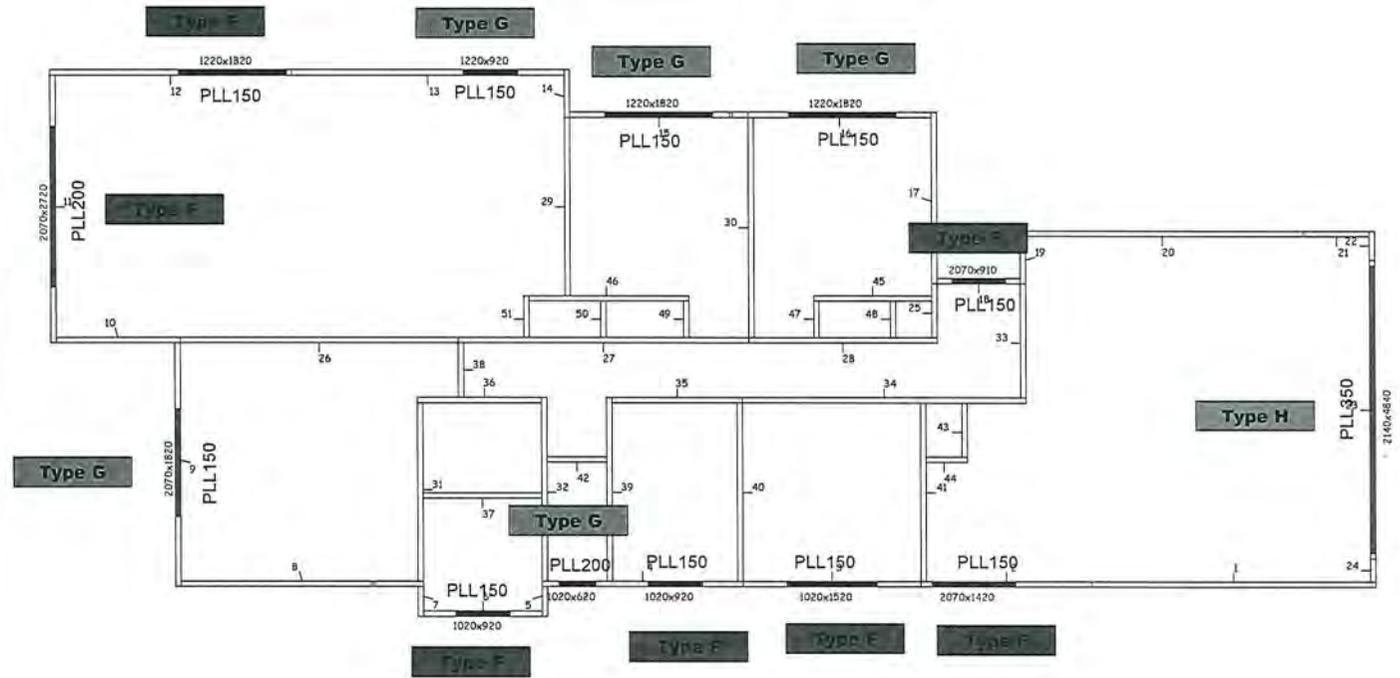
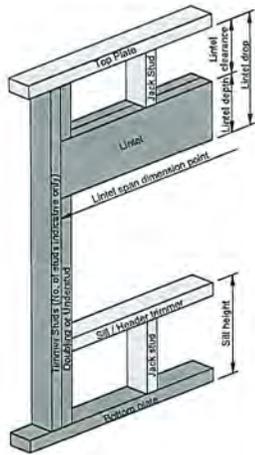
**LUMBERLOK**  
LINTEL FIXING OPTIONS

TYPE E  
1.4 kN

TYPE F  
4.0 kN

TYPE G  
7.5 kN

TYPE H  
13.5 kN



Refer to:  
LUMBERLOK Lintel Fixing Schedule 10/2011  
MiTek Structural Fixings On-Site Guide for Building Code Compliance  
(Alternative to Table 8.14 & Figure 8.12 NZS 3604:2011)



PrimeCad v4.7.91

**PARAPARAUMU  
PRENAIL LTD**  
37 Ihakara Street Paraparaumu  
Tel: 04-902-5618 Fax: 04-902-5619

Site Address :  
KC Homes Ltd  
7 Mahia Lane  
Waikanae

Sheet Title :  
**For Building Consent  
Lintel Fixing**

Date : 17 Dec 2016 Drawn : Dave Bright  
Scale : 1:120 System : MiTek 20/20

Job Details:  
Roof Pitch : 25.00deg  
Roof Material : Metal Tiles  
Ceiling Material : Metal battens on clips  
Wind Zone : High  
Roof Snow Load : 0.000kPa

Truss Centres : 900mm  
Roof Live Load : 0.250kPa  
Floor Live Load :  
Wind Speed : 44m/s  
Overhang : 600mm

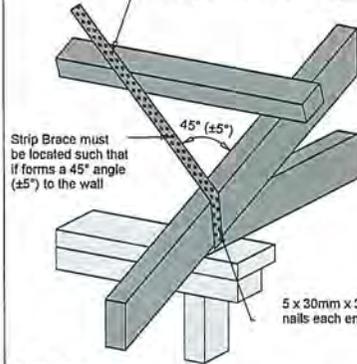


Job Title :  
8186  
Sheet :  
2  
Revision Number :



# LUMBERLOK ROOF BRACING

1 x 30mm x 3.15 Ø nail (after tensioning)  
Bracing above Purlins = 1 nail @ each purlin crossing  
Bracing below Purlins = 1 nail @ each truss crossing



Roof Bracing Specifications



Refer to:  
LUMBERLOK Roof Bracing Specifications 10/2011  
MiTek Structural Fixings On-Site Guide for Building Code Compliance  
(As per NZS 3804:2011)

# LUMBERLOK TRUSS FIXINGS

- D - Pair of Wire Dogs and 2 x 90mm 3.15mm skew nails
- X - LUMBERLOK JH47x90 Joist Hanger
- Z - LUMBERLOK JH47x120 Joist Hanger
- P - LUMBERLOK JH47x190 Joist Hanger
- E - LUMBERLOK JH95x165 Joist Hanger
- T - LUMBERLOK CT200 Ceiling Tie
- O - Pair of LUMBERLOK CT200 Ceiling Ties
- H - LUMBERLOK CT400 Cyclone Tie
- B - LUMBERLOK CT600 Cyclone Tie
- M - Pair of LUMBERLOK Multi Grips
- NP - LUMBERLOK Nailon Plate
- N - LUMBERLOK N21 Diagonal Cleat
- V - LUMBERLOK CPC40 Cleat
- W - Pair of LUMBERLOK CPC40 Cleats
- K - LUMBERLOK TTP 16kN Truss to Top Plate set
- G - LUMBERLOK TTP 9kN Truss to Top Plate set

Joist Hanger Installation



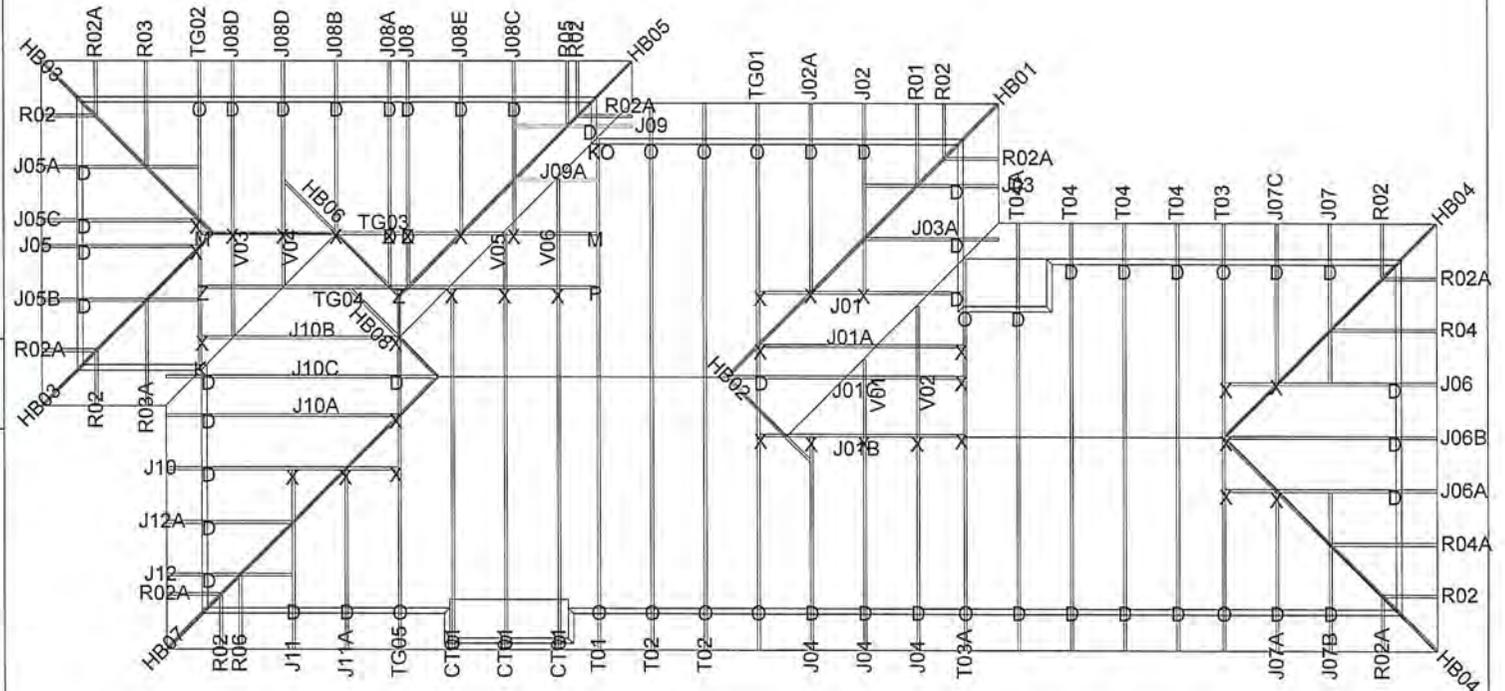
CT200 Truss to Top Plate Fixing Installation



16kN & 9kN Truss to Top Plate Fixing Installation



Notes:  
All other areas must have the minimum 2 x 90mm 3.15mm skew nails and 2 x wire dogs for truss to top plate connections  
Refer to:  
LUMBERLOK Timber Connectors Characteristic Loadings Data Brochure 08/2014



**PARAPARAUMU  
PRENAIL LTD**  
37 Ihakara Street Paraparaumu  
Tel: 04-902-5618 Fax: 04-902-5619

Site Address:  
KC Homes Ltd  
7 Mahia Lane  
Waikanae

Sheet Title:  
**For Building Consent  
Truss Fixings & Roof Bracing**  
Date: 17 Dec 2015 Drawn: Dave Bright  
Scale: 1:120 System: MiTek 20/20

Job Details:  
Roof Pitch : 25.00deg  
Roof Material : Metal Tiles  
Ceiling Material : Metal battens on clips  
Wind Zone : High  
Roof Snow Load : 0.000kPa

Truss Centres : 900mm  
Roof Live Load : 0.250kPa  
Floor Live Load :  
Wind Speed : 44m/s  
Overhang : 600mm



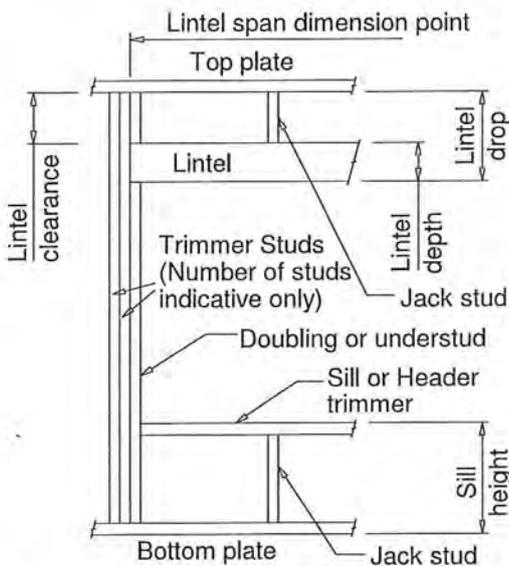
Job Title:  
8186  
Sheet:  
4  
Revision Number:

## LINTEL FIXING SCHEDULE ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12 NZS 3604:2011

**NOTE:**

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

**DEFINITIONS**



**Lintel Supporting Girder Trusses:**

Roof Tributary Area	Light Roof Wind Zone					Heavy Roof Wind Zone				
	L	M	H	VH	EH	L	M	H	VH	EH
8.6 m <sup>2</sup>	G	G	H	G	G	H	G	G	H	H
11.6 m <sup>2</sup>	G	H	H	G	G	H	G	H	H	H
12.1 m <sup>2</sup>	G	H	H	G	G	H	H	H	H	H
15.3 m <sup>2</sup>	H	H	-	G	G	H	H	H	H	H
19.1 m <sup>2</sup>	H	-	-	G	H	H	-	-	-	-
20.9 m <sup>2</sup>	H	-	-	H	H	-	-	-	-	-
21.8 m <sup>2</sup>	H	-	-	H	-	-	-	-	-	-
34.3 m <sup>2</sup>	-	-	-	H	-	-	-	-	-	-

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

**SELECTION CHART FOR LINTEL FIXING**

Lintel Span	Loaded Dimension (See Fig. 1.3 NZS 3604:2011)	Light Roof Wind Zone					Heavy Roof Wind Zone				
		L	M	H	VH	EH	L	M	H	VH	EH
0.7	2.0	E	E	E	E	E	E	E	E	E	E
	3.0	E	E	F	F	F	E	E	E	F	F
	4.0	E	E	F	F	F	E	E	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	G
	6.0	E	F	F	F	G	E	F	F	F	G
0.9	2.0	E	E	E	F	F	E	E	E	F	F
	3.0	E	E	F	F	F	E	E	F	F	F
	4.0	E	E	F	F	F	E	E	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	G
	6.0	E	F	F	F	G	E	F	F	F	G
1.0	2.0	E	E	E	F	F	E	E	E	F	F
	3.0	E	E	F	F	F	E	E	F	F	F
	4.0	E	E	F	F	F	E	E	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	G
	6.0	E	F	F	F	G	E	F	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	E	F	F	F	E	E	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	G
	6.0	E	F	F	F	G	E	F	F	F	G
1.5	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	E	F	F	F	E	E	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	G
	6.0	E	F	F	F	G	E	F	F	F	G
2.0	2.0	E	F	F	F	F	E	F	F	F	F
	3.0	E	F	F	F	F	E	F	F	F	F
	4.0	E	F	F	F	F	E	F	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	G
	6.0	E	F	F	F	G	E	F	F	F	G
2.4	2.0	E	F	F	F	F	E	F	F	F	F
	3.0	E	F	F	F	F	E	F	F	F	F
	4.0	E	F	F	F	F	E	F	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	G
	6.0	E	F	F	F	G	E	F	F	F	G
3.0	2.0	E	F	F	F	F	E	F	F	F	F
	3.0	E	F	F	F	F	E	F	F	F	F
	4.0	E	F	F	F	F	E	F	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	G
	6.0	E	F	F	F	G	E	F	F	F	G
3.6	2.0	E	F	F	F	F	E	F	F	F	F
	3.0	E	F	F	F	F	E	F	F	F	F
	4.0	E	F	F	F	F	E	F	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	G
	6.0	E	F	F	F	G	E	F	F	F	G
4.2	2.0	E	F	F	F	F	E	F	F	F	F
	3.0	E	F	F	F	F	E	F	F	F	F
	4.0	E	F	F	F	F	E	F	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	G
	6.0	E	F	F	F	G	E	F	F	F	G
4.5	2.0	E	F	F	F	F	E	F	F	F	F
	3.0	E	F	F	F	F	E	F	F	F	F
	3.4	E	F	F	F	F	E	F	F	F	F
	4.0	E	F	F	F	F	E	F	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	G
4.8	2.0	E	F	F	F	F	E	F	F	F	F
	3.0	E	F	F	F	F	E	F	F	F	F
	3.2	E	F	F	F	F	E	F	F	F	F
	4.0	E	F	F	F	F	E	F	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	G
6.0	E	F	F	F	G	E	F	F	F	G	



**MiTek New Zealand Limited**

AUCKLAND  
PO Box 58-014, Botany 2163  
Phone: 09-274 7109  
Fax: 09-274 7100

CHRISTCHURCH  
PO Box 8387, Riccarton 8440  
Phone: 03-348 8691  
Fax: 03-348 0314

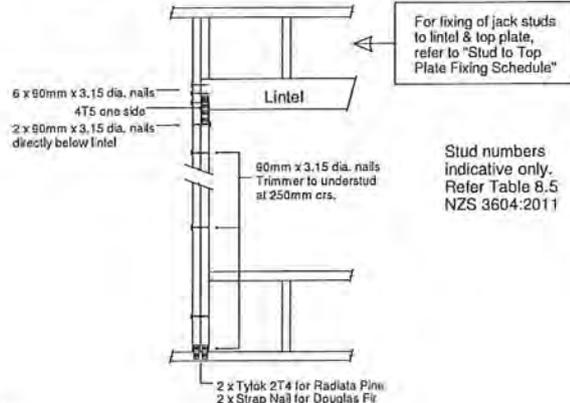
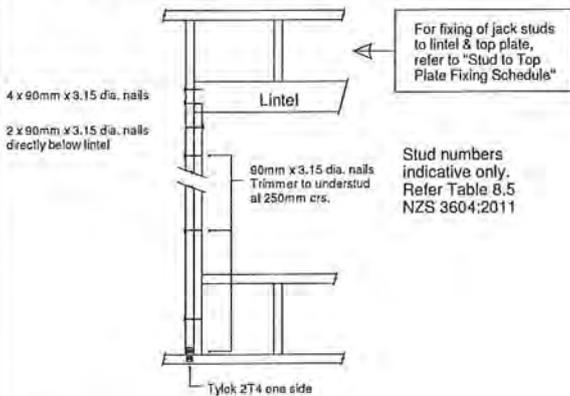
www.mitek.nz.co.nz

GANG-NAIL® LUMBERLOK® BOWMAC®

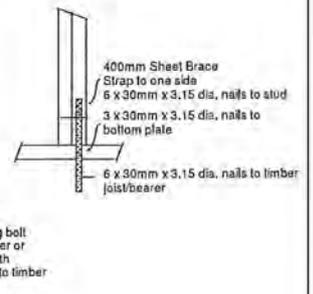
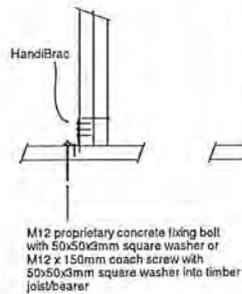
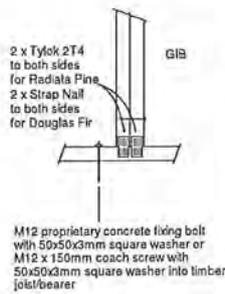
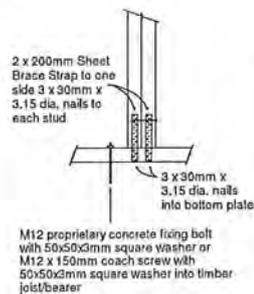
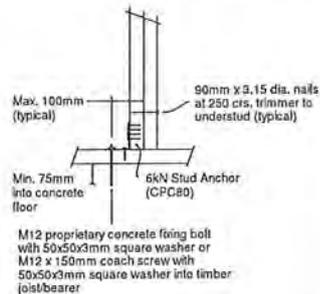
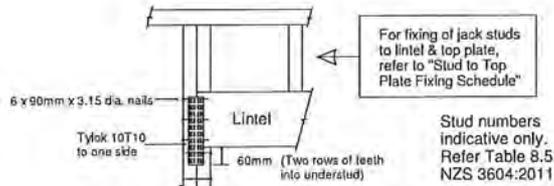
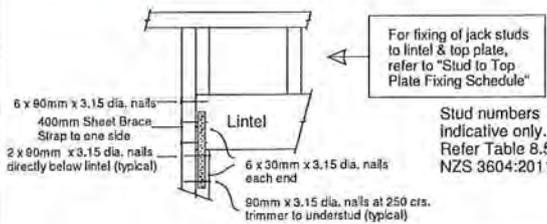
© Copyright 2010 MiTek Holdings, Inc. All rights reserved.

# LINTEL FIXING OPTIONS

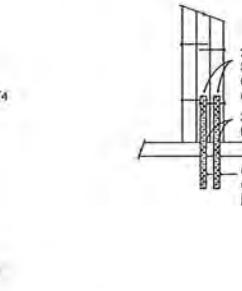
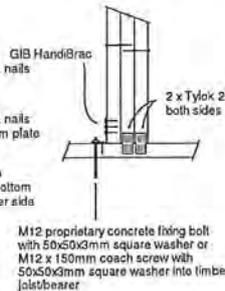
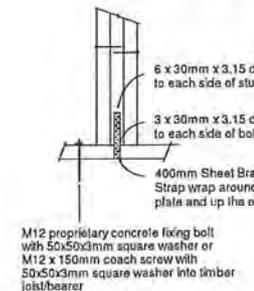
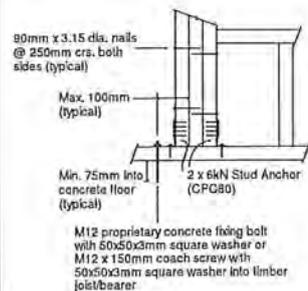
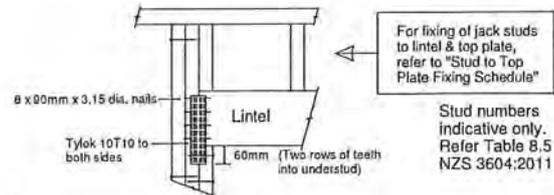
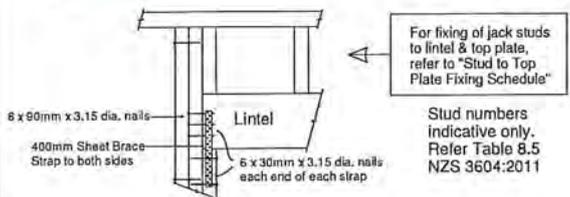
## TYPE E 1.4kN



## TYPE G 7.5kN



## TYPE H 13.5kN



# PARAPARAUMU PRENAIL LTD

37 Ihakara Street, Paraparaumu 5032  
Tel: 04 902 5618 Fax: 04 902 5619

## Producer Statement for Manufactured Frames

Paraparaumu Prenail Ltd will at the time of supply, produce Wall Frames including all Timber Lintels and Beams, manufactured to the following criteria:

Job Name Proposed Dwelling  
Site Address 7 Mahia Lane  
Waikanae  
Client KC Homes Ltd  
Architect/Draughtsman Coastal Architecture Ltd  
Engineer

Wind Zone **High**  
Snow Load Region  
Earthquake Region

Roof Material **Light**

Wall Framing as Specified	Timber Size	Stud Spacing	Treatment	Bottom Plate Treatment	Grade
External Walls	90x45	400	H1.2	H1.2	MSG8
Internal Walls	90x45	600	H1.2	H1.2	MSG8
Beam 1	-	-	-	-	-
Beam 2	-	-	-	-	-
Beam 3	-	-	-	-	-
Beam 4	-	-	-	-	-

All timber members and components in this design have been determined to comply with The New Zealand Building Code (Section B1). They have been designed in accordance with sound and widely accepted engineering principles to comply with the following New Zealand Standards:

NZS 1170: 2002 General Structural Design and Design Loadings for Buildings.

NZS 3603: 1993 Timber Design

NZS 3604: 2011 Timber Framed Buildings

Any design that falls outside of these New Zealand Standards that requires specific design will have all Loading and Design Tables and Charts attached.

Designed by **Brett Giles**

Signed : Bwgiles

Date 17 December 2016



## Demand Calculation Sheet

00017

RECEIVED  
21 DEC 2016  
LH

### Job Details

Name: KC Homes  
 Street and Number: 7 Mahia Lane  
 Lot and DP Number: Lot 16  
 City/Town/District: Waikanae  
 Designer: BF  
 Company: Coastal Architecture Ltd  
 Date: Wednesday, December 7, 2016

### Building Specification

Number of Storeys: 1  
 Floor Loading: 2 kPa  
 Foundation Type: Slab

**Single**

Cladding Weight: Heavy  
 Roof Weight: Light  
 Room in Roof Space: No  
 Roof Pitch (degrees): 25  
 Roof Height above Eaves (m): 2.3  
 Building Height to Apex (m): 4.9  
 Ground to Lower Floor (m): 0.3

Average Stud Height (m): 2.4  
 Building Length (m): 22.4  
 Building Width (m): 9.2  
 Building Plan Area (m<sup>2</sup>): 162

### 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	472	1104

### Bracing Units required for Earthquake

	Along & Across
Single Level	1374



## Single Level Along Resistance Sheet

Job Name: **KC Homes**

Wind	EQ
Demand	
472	1374
Achieved	

Line	Element	Length (m)	Angle (degrees)	Stud Ht. (m)	Type	Supplier	Wind BUs	EQ BUs	1406 298%	1530 111%
A	1	2.10		2.4	EP1 1.2	Ecoply	252	284		
	2	0.90		2.4	EP1 0.6	Ecoply	86	95		
	3	0.60		2.4	GS1-N	GIB®	34	35		
	4	0.60		2.4	GS1-N	GIB®	34	35		
									406 OK	448 OK
B	1	2.10		2.4	EP1 1.2	Ecoply	252	284		
	2	1.30		2.4	GS1-N	GIB®	90	78		
	3	1.20		2.4	GS1-N	GIB®	83	72		
	4	1.20		2.4	EP1 1.2	Ecoply	144	162		
	5	1.20		2.4	EP1 1.2	Ecoply	144	162		
									713 OK	758 OK
C	1	1.20		2.4	EP1 1.2	Ecoply	144	162		
	2	1.20		2.4	EP1 1.2	Ecoply	144	162		
									288 OK	324 OK



## Single Level Across Resistance Sheet

Job Name: **KC Homes**

Wind	EQ
Demand	
1104	1374
Achieved	

Line	Element	Length (m)	Angle (degrees)	Stud Ht. (m)	Type	Supplier	Wind BUs	EQ BUs	1438 130%	1415 103%
M	1	0.95		2.4	EP1 0.6	Ecoply	90	100		
	2	0.95		2.4	EP1 0.6	Ecoply	90	100		
									181 OK	200 OK
N	1	1.10		2.4	EP1 0.6	Ecoply	105	116		
	2	1.20		2.4	EP1 1.2	Ecoply	144	162		
									249 OK	278 OK
O	1	0.70		2.4	EP1 0.6	Ecoply	67	74		
	2	2.00		2.4	GS1-N	GIB®	138	120		
									205 OK	194 OK
P	1	3.70		2.4	GS1-N	GIB®	255	222		
	2	3.00		2.4	GS1-N	GIB®	207	180		
									462 OK	402 OK
Q	1	0.80		2.4	EP1 0.6	Ecoply	76	84		
	2	2.20		2.4	GS1-N	GIB®	152	132		
									228 OK	216 OK
R	1	0.60		2.4	EP1 0.6	Ecoply	57	63		
	2	0.60		2.4	EP1 0.6	Ecoply	57	63		
									114 OK	126 OK







**Battens**

Ceiling diaphragms may be constructed using steel or timber ceiling battens.

Battens shall be spaced at a maximum of

- 500mm for 10mm GIB® Plasterboard
- 600mm for 13mm GIB® Plasterboard

Timber battens shall be fixed in accordance with the requirements of NZS 3604 2011.

Steel battens shall be GIB® Rondo® battens or similar with a minimum base metal thickness (BMT) of 0.55mm with two external flanges of 8mm to allow direct screw fixing to roof framing.

Steel battens shall be fixed with 2/32mm x 8g GIB® Grabber® wafer head self tapping screws to supporting framing.

Steel battens must be fixed directly to the roof framing. If a clip system has been used, a timber block (min 300mm) or a continuous timber member can be fixed alongside the bottom chord to permit a direct connection to the batten.

For steel battens a steel channel or metal angle is required at the perimeter of the diaphragm. The perimeter channel shall be fastened to the top plate with 32mm x 8g GIB® Grabber® wafer head self tapping screws at 300mm centres maximum.

The linings are fastened to the perimeter channel in case (a) with 25mm x 6g self tapping screws at 150mm centres and in case (b) to the 140mm x 35mm top plate with 32mm x 6g GIB® Grabber® high thread screws at 150mm centres. Within the diaphragm area sheets may be fastened as described in 'General Fixing Requirements for GIB® Ceiling Diaphragms'.

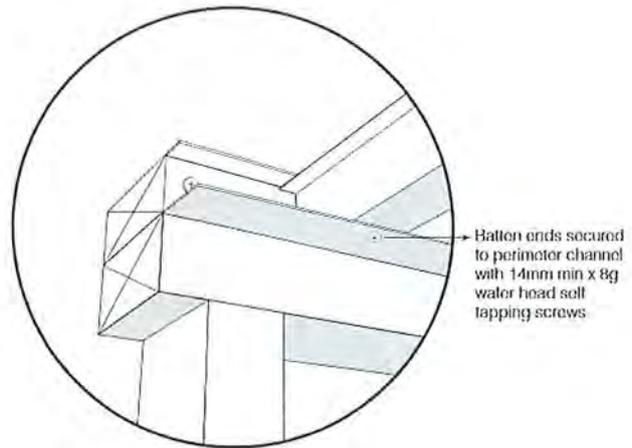
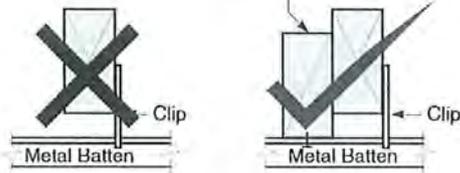
Perimeter fastenings shall be spaced at:

- 150mm for ceiling diaphragms up to 7.5m and not steeper than 15 degrees
- 100mm for ceiling diaphragms 7.5m–12m or steeper than 15 degrees

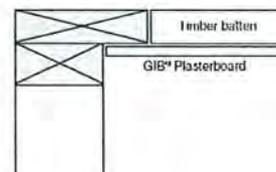
Coved ceiling diaphragms can be achieved by attaching a folded metal angle to the junction. The metal angle shall be:

- min 0.55mm BMT
- fastened at 300mm centres on each edge using 30mm GIB® Nails or 32mm x 8g GIB® Grabber® wafer head self tapping screws or similar to the roof framing.
- linings are fastened to the folded angle as specified for the perimeter at 150mm centres with 25mm x 6g self tapping screws.

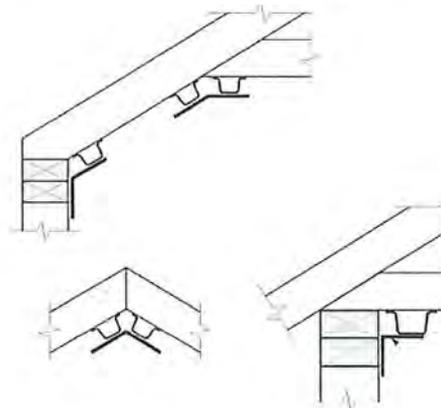
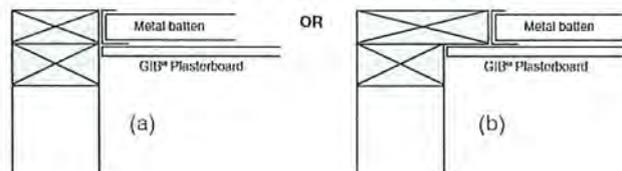
Block or continuous  
Timber member  
min 300mm fixed  
with min 4 x 100mm  
x 3.75mm Nails



Timber battens example



Steel battens with perimeter channel example



## 9.0 Wall Claddings

### 9.1 General

*Wall claddings* shall meet the requirements of NZBC E2.3.2 to E2.3.7, and comply with the provisions of Paragraph 9.1.1 to Paragraph 9.9.

*Claddings* in Extra High wind zones require:

- a) Rigid *underlays* to Paragraph 9.7.2
- b) *Drained cavities* to Paragraph 9.1.8
- c) *Hooks and hems on flashing upstands*, and additional 25 mm height to Paragraph 4.6.

Amend 5  
Aug 2011

#### 9.1.1 Limitations

This Acceptable Solution is limited to the *wall cladding systems* listed in Paragraph 3.3.

Table 3 lists *wall cladding systems* that shall be used for *buildings* with varying *risk scores*.

The method of establishing the level of risk associated with the use of a specific *wall cladding* is given in Paragraph 3.1. Based on this *risk score*, a *wall cladding* may require the inclusion of a *drained cavity* as described in Paragraph 9.1.8.

Amend 5  
Aug 2011

*Claddings* in Extra High wind zones require rigid *underlays* and *drained cavities* – refer to Table 3.

#### 9.1.2 Maintenance

Amend 5  
Aug 2011

Maintenance of *wall claddings* shall be carried out as necessary to achieve the expected *durability* of the material – refer to Paragraph 2.5.

#### 9.1.3 Bottom of cladding

Separations, clearances to ground level, and overlaps shall be as shown in Figure 65 and Table 18.

Clearances to *roof claddings* and *decks* shall be minimum 35 mm – refer to Table 7 and Figure 18.

Clearances shall be measured to:

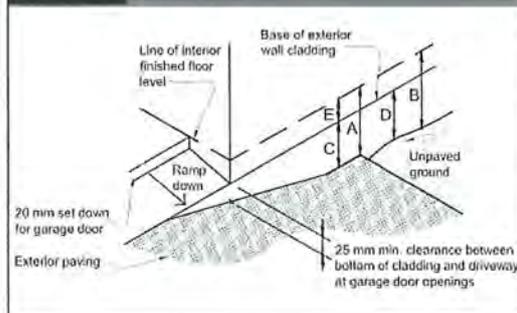
- a) The finished plane of any adjacent horizontal surface, or
- b) The top surface of any adjacent sloped or horizontal *apron flashing*.

Amend 5  
Aug 2011

#### COMMENT:

This keeps the bottom edge of the *cladding dry*, and allows cleaning and painting of the bottom surfaces.

**Figure 65: Levels and garage openings**  
Paragraphs 9.1.3, 9.1.3.4, 9.2.5, Table 18



Amend 5  
Aug 2011

**Table 18: Minimum clearances**  
Paragraphs 9.1.3, 9.1.3.1, 9.1.3.2, 9.1.3.3, 9.1.3.4, 9.1.3.5 and 9.2.7

Minimum clearances (mm)	Masonry veneer		Other claddings			
	A	B	A	B	C	D E
Concrete slab	100	150	150	225	100	175 50
Timber floor	Refer Note 1)				100	175 50 <sup>2)</sup>

**NOTE:** 1) Refer to NZS 3604 for requirements.

2) Cladding to extend minimum 50 mm below bearer or lowest part of timber floor framing.

Amend 5  
Aug 2011

Amend 5  
Aug 2011

#### 9.1.3.1 Concrete slabs

Slab levels shall be set to allow reinstatement of final landscaped ground levels as outlined in Figure 65 and Table 18.

#### COMMENT:

NZS 3604 may require greater ground clearances depending on floor type and materials.

The likely final landscaped ground levels are to be taken into account when planning foundations and earthworks to avoid reductions to the minimum ground clearances in the finished *building*.

Amend 5  
Aug 2011

#### 9.1.3.2 Masonry veneer clearances

The height of the floor slab above *finished ground level* shall be in accordance with Figure 73D and as shown in Table 18.

Amend 5  
Aug 2011

J0018



## KC Homes - 7 Mahia Lane, Waikanae

### Insulation Calculations

Calculation Method  
Zone 2

#### Reference Building Heat Loss

Building Thermal Envelope	Area (m <sup>2</sup> )	R-value	Heat Loss (Area/R-value)
Roof	122	2.9	42.1
Walls (excluding garage)	113	1.9	59.5
Floor (excluding garage)	122	1.3	93.8
Glazing ≤ 30%	22	0.26	84.6
Glazing > 30%	0	0.31	0.0
Skylights	0	0.31	0.0
<u>Total Heat Loss of Reference Building</u>			<u>280.0</u>

#### Proposed Building Heat Loss

Building Thermal Envelope	Area (m <sup>2</sup> )	R-value	Heat Loss (Area/R-value)
Roof - flat ceiling	122	5.03	24.3
Walls - brick (excluding garage)	85	2.23	38.1
Walls - weatherboard	28	2.37	11.8
Floor - 100mm Concrete slab	122	2	61.0
Glazing ≤ 30%	22	0.26	84.6
<u>Total Heat Loss of Proposed Building</u>			<u>219.8</u>

#### Summary

Roof	R4.6 Batts	17.8
Walls	R2.6 Batts	9.6
Floor	100mm Conceret slab with 50mm Expol	32.8
Glazing - Double glazing		0

Total Heat Gain 60.2



## 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

2.00

m<sup>2</sup>K/W

Type: Floor: Slab floor

Slab floor ┌

internal surface 0.09

Flooring : none (Example: polished surface of a concrete floor)

R-value: 0.00

Slab Insulation

Slab floor area [m<sup>2</sup>]:

Perimeter length [m]:

External wall thickness [mm]:

[i]

Soil conductivity [W/m °C]:

[i]

Underslab insulation:

Total slab
[v]

Expol Thermaslab (H) R-1.3

Piles Footings:

Number:

Penetration Diameter:

Slab edge insulation:

none
[v]

Insulation :

[i]

Print Page

Current NZS4218/H1 Schedule 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
----------------------	-----



### Construction R-value Calculator

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

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

If your construction is not listed, please send an e-mail to [designnavigator@gmail.com](mailto:designnavigator@gmail.com) with a description and a detail drawing (pdf) of it or use the new [Design Navigator message board](#).

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

- Floors
- Walls
- Roofs

Element Name (optional)	2.23	m <sup>2</sup> K/W
Type: <span style="border: 1px solid black; padding: 2px;">Wall: Timber frame with vented cavity</span> <span style="float: right;">▼</span>		
timber frame with vented cavity		
external surface 0.03		
Cladding :	<span style="border: 1px solid black; padding: 2px;">70mm brick</span> <span style="float: right;">▼</span>	R-value: 0.06
Air Barrier :	<span style="border: 1px solid black; padding: 2px;">Building paper</span> <span style="float: right;">▼</span>	R-value: 0.01
Timber Frame & Cavity :	<span style="border: 1px solid black; padding: 2px;">90mm, studs @ 600mm, dwangs @ 800mm</span> <span style="float: right;">▼</span>	
Wall Frame Area: 14.4%		Cavity Area: 85.6%
15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08	15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08	
Framing : R-value: 0.75	Insulation : <span style="border: 1px solid black; padding: 2px;">2.6</span>	
	still Airgap: <span style="border: 1px solid black; padding: 2px;">none</span> <span style="float: right;">▼</span>	R-value: 0.00
Wall Lining :	<span style="border: 1px solid black; padding: 2px;">Gypsum plasterboard 10mm</span> <span style="float: right;">▼</span>	
R-value: 0.04		
internal surface 0.09		

Print Page

Current NZS4218/H1 Schedule 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)	2.37	m <sup>2</sup> K/W
Type: Wall: Timber frame (direct fixed cladding) <span style="float: right;">▼</span>		
timber frame (direct fixed cladding) <input type="checkbox"/>		
external surface 0.03		
Cladding :	Bevelled weatherboard with building paper <span style="float: right;">▼</span>	<i>R-value: 0.28</i>
Air Barrier :	Building paper <span style="float: right;">▼</span>	<i>R-value: 0.01</i>
Timber Frame & Cavity : 90mm, studs @ 600mm, dwangs @ 800mm <span style="float: right;">▼</span>		
<i>Wall Frame Area: 14.4%</i>		<i>Cavity Area: 85.6%</i>
Framing :	Insulation : 2.6	
<i>R-value: 0.75</i>	still Airgap: none <span style="float: right;">▼</span>	<i>R-value: 0.00</i>
Wall Lining :	Gypsum plasterboard 10mm <span style="float: right;">▼</span>	
		<i>R-value: 0.04</i>
internal surface 0.09		

Print Page

Current NZS4218/H1 Schedule 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)	5.03	m <sup>2</sup> K/W						
Type: <span style="border: 1px solid black; padding: 2px;">Roof: Timber framed roof, direct fixed or battened flat ceiling</span> <span style="float: right;">v</span>								
Pitched timber framed roof, flat ceiling <span style="float: right;"> </span>								
external surface 0.03								
Roofing : <span style="border: 1px solid black; padding: 2px;">Metal tiles with building paper</span> <span style="float: right;">v</span>								
<i>R-value: 0.01</i>								
Insulation : <span style="border: 1px solid black; padding: 2px;">4.6</span>								
Timber Frame & Cavity : <span style="border: 1px solid black; padding: 2px;">90mm rafters or joists @ 900mm, blocking @ 900mm</span> <span style="float: right;">v</span>								
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border: 1px solid black; padding: 2px;"><i>Roof Frame Area: 9.8%</i></td> <td style="width: 50%; border: 1px solid black; padding: 2px;"><i>Cavity Area: 90.2%</i></td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">Roof space (still air) 0.11</td> <td style="border: 1px solid black; padding: 2px;">Roof space (still air) 0.11</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">Framing : <i>R-value: 0.75</i></td> <td style="border: 1px solid black; padding: 2px;">Insulation : <span style="border: 1px solid black; padding: 2px;">0.11</span></td> </tr> </table>			<i>Roof Frame Area: 9.8%</i>	<i>Cavity Area: 90.2%</i>	Roof space (still air) 0.11	Roof space (still air) 0.11	Framing : <i>R-value: 0.75</i>	Insulation : <span style="border: 1px solid black; padding: 2px;">0.11</span>
<i>Roof Frame Area: 9.8%</i>	<i>Cavity Area: 90.2%</i>							
Roof space (still air) 0.11	Roof space (still air) 0.11							
Framing : <i>R-value: 0.75</i>	Insulation : <span style="border: 1px solid black; padding: 2px;">0.11</span>							
Roof Lining : <span style="border: 1px solid black; padding: 2px;">Gypsum plasterboard 13mm</span> <span style="float: right;">v</span>								
<i>R-value: 0.06</i>								
internal surface 0.09								
Recessed downlights								
Ceiling Area [m <sup>2</sup> ]: <span style="border: 1px solid black; padding: 2px;"> </span> Number of downlights: <span style="border: 1px solid black; padding: 2px;"> </span> Clearance from lamp holder side [m]: <span style="border: 1px solid black; padding: 2px;"> </span> <span style="float: right;"> </span>								

Print Page

Current NZS4218/H1 Schedule 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

# 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	7 MAHIA LANE, WAIKARAE
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 20,000 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 rain water tank volume complies with selected water demand management option and have provided a certificate from the manufacturer 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. <i>A dual feed manifold has one supply for the house 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". <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:

BILL FRANCIS

Signed:



Date:

14 / 2 / 2017



Building Code Clause(s) B1(Structure)

**PRODUCER STATEMENT – PS1 – DESIGN**

(Guidance on use of Producer Statements (formerly page 2) is available at [www.ipenz.nz](http://www.ipenz.nz))

ISSUED BY: IAN B PEARSON CONSULTING ENGINEERS,  
(Design Firm)  
TO: LARSENS CONCRETE and DRAINAGE, WANGANUI  
(Owner/Developer)  
TO BE SUPPLIED TO: KAPITI COAST DISTRICT COUNCIL  
(Building Consent Authority)  
IN RESPECT OF: 10,000 LITRE UNDERGROUND WATER TANK  
(Description of Building Work)  
AT: KAPITI COAST  
(Address)  
Town/City: KAPITI COAST LOT \_\_\_\_\_ DP \_\_\_\_\_ SO \_\_\_\_\_  
(Address)

We have been engaged by the owner/developer referred to above to provide:  
ENGINEERING DESIGN TO COMPLY WITH NZS 3106:2009 and NZS 1546.1:2008

(Extent of Engagement)  
services in respect of the requirements of Clause(s) B1(Structure) 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/MM1 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:  
10,000 Litre Underground Water Tank and numbered S-01, 02 and 03  
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 300 mm Topsoil on top of tank  
(ii) All proprietary products meeting their performance specification requirements;

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

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

I, DAVID JOHN MULHOLLAND am:  CPEng 41430 #  Reg Arch #  
(Name of Design Professional)

I am a Member of:  IPENZ  NZIA and hold the following qualifications: BE(Hons), MIPENZ, CPEng, PEInt(NZ)  
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000\*.  
The Design Firm is a member of ACENZ:

SIGNED BY: DAVID JOHN MULHOLLAND (Signature)   
(Name of Design Professional)

ON BEHALF OF IAN B PEARSON CONSULTING ENGINEERS, Date 16/12/2016  
(Design Firm)

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

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.  
THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

# Owner's Guide and Installation Instructions

BC161030  
Information Received  
14/02/2017



## Gas Continuous Flow Water Heater

27L Gas Water Heater — 874 & 872 Series, 627 Models

This water heater must be installed and serviced by an authorised person.  
Please leave this guide with the householder.



## HOT WATER DELIVERY

This water heater can deliver water at temperatures which can cause scalding.

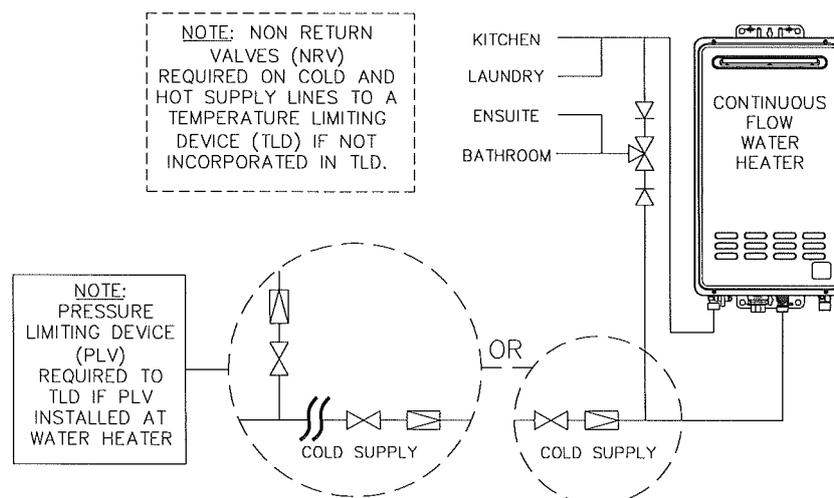
It is necessary and we recommend that a temperature limiting device be fitted between an 874 or 872 series water heater and the hot water outlets in any ablution and public areas such as a bathroom, ensuite or public amenities, to reduce the risk of scalding. The installing plumber may have a legal obligation to ensure the installation of this water heater meets the delivery water temperature requirements of AS/NZS 3500.4 so that scalding water temperatures are not delivered to a bathroom, ensuite or other ablution or public area.

The temperature limiting device used with an electronic continuous flow gas water heater should have:

- a specified minimum temperature differential between the hot water inlet and the tempered water outlet of no greater than 10°C, and
- a specified maximum permitted pressure variation in the supply between the hot water inlet and the cold water inlet of no less than 15%.

Where a temperature limiting device is installed adjacent to the water heater, the cold water line to the temperature limiting device can be branched off the cold water line either before or after the isolation valve and pressure limiting valve to the water heater.

If a pressure limiting valve is installed on the cold water line to the water heater and the cold water line to a temperature limiting device branches off before this valve or from another cold water line in the premises, then a pressure limiting valve of an equal pressure setting may be required prior to the temperature limiting device.



Two Temperature Zones Using a Temperature Limiting Device

An 874 series water heater will not deliver temperatures exceeding 55°C in accordance with AS 3498. There is no statutory requirement in AS/NZS 3500.4 to fit a temperature limiting device if this water heater is installed in other than an early childhood centre, school, nursing home or a facility for young, aged, sick or disabled people. Refer to "Water Temperature Diagrams" on page 48.

### Gas Booster for a Solar Water Heater

The temperature limiting device used with an 874 series gas booster water heater as part of a solar water heater installation must have the additional capability of receiving a hot water supply temperature of up to 99°C if the solar preheat water heater does not have an over temperature protection system to limit the water to no greater than 90°C.

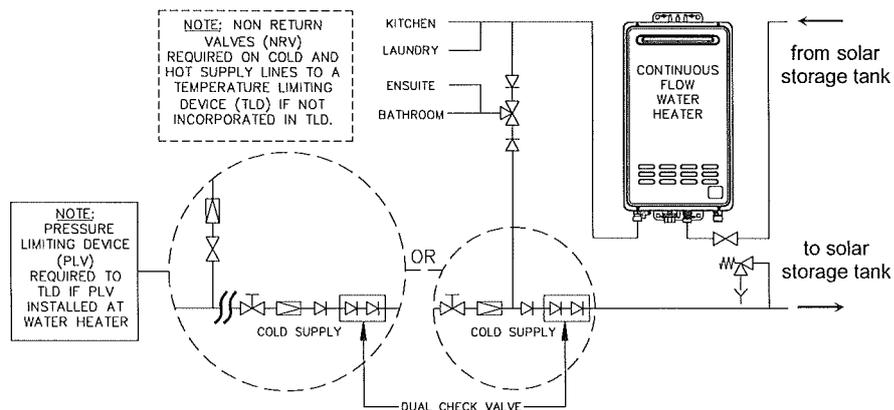
**⚠ Warning:** Temperature controllers **must not** be fitted to this water heater as part of a solar water heater system (874 series) because water at a temperature much higher than the controller setting can be delivered. If a solar preheater has been installed to an existing water heater installation, then all controllers **must be** disconnected and removed.

Where a temperature limiting device is installed adjacent to the gas booster water heater, the cold water line to the temperature limiting device can be branched off the cold water line either before or after the isolation valve and pressure limiting valve to the solar storage tank, but it **MUST BE** before the non return valve prior to an open circuit direct system. The cold water line to the temperature limiting device can be branched off the cold water line either before or after the non return valve prior to a closed circuit indirect system. If an expansion control valve is required, it must always be installed after the non return valve and be the last valve prior to the solar storage tank.

**Warning:** A non return valve **MUST BE** installed on the cold water line to the solar storage tank **AFTER** the cold water branch to a temperature limiting device prior to an open circuit direct system. Due to the higher water temperatures generated under certain conditions in the solar collectors of an open circuit direct solar water heater, an additional effective back-flow prevention device also should be used as an extra safeguard. Valve manufacturer RMC recommends Dual Check Valve model N7150, as being suitable for this application.

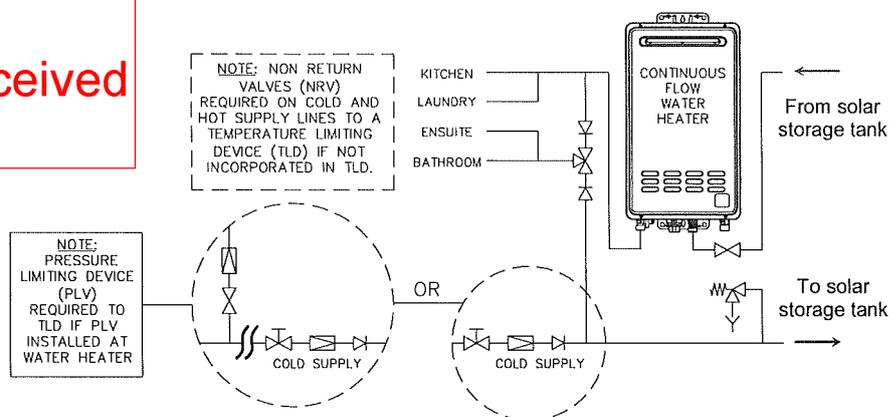
If a combination isolation valve and non return valve (duo or trio valve) is installed on the cold water line to an open circuit direct solar water heater and the cold water line to the temperature limiting device branches off after this valve, then a second non return valve must be installed between the cold water branch and the solar storage tank. Due to the higher water temperatures generated under certain conditions in the solar collectors of an open circuit direct pumped solar water heater, an effective back-flow prevention device should be used as the second non return valve as an extra safeguard. Valve manufacturer RMC recommends Dual Check Valve model N7150, as being suitable for this application.

If a pressure limiting valve is installed on the cold water line to the solar water heater and the cold water line to a temperature limiting device branches off before this valve or from another cold water line in the premises, then a pressure limiting valve of an equal pressure setting may be required prior to the temperature limiting device.



**Gas Booster for Open Circuit Direct Solar Preheater Installation  
Two Temperature Zones Using a Temperature Limiting Device**

**BC161030  
Information Received  
14/02/2017**



**Gas Booster for Closed Circuit Solar Preheater Installation  
Two Temperature Zones Using a Temperature Limiting Device**

## CIRCULATED HOT WATER FLOW AND RETURN SYSTEM

The Rheem 874 and 872 series continuous flow water heaters can be installed as part of a circulated hot water flow and return system in a building.

### Notes:

- the preset outlet temperature setting of the water heater must be set to at least 60°C.
- temperature controllers can not be installed with a water heater as part of a circulated hot water flow and return system.

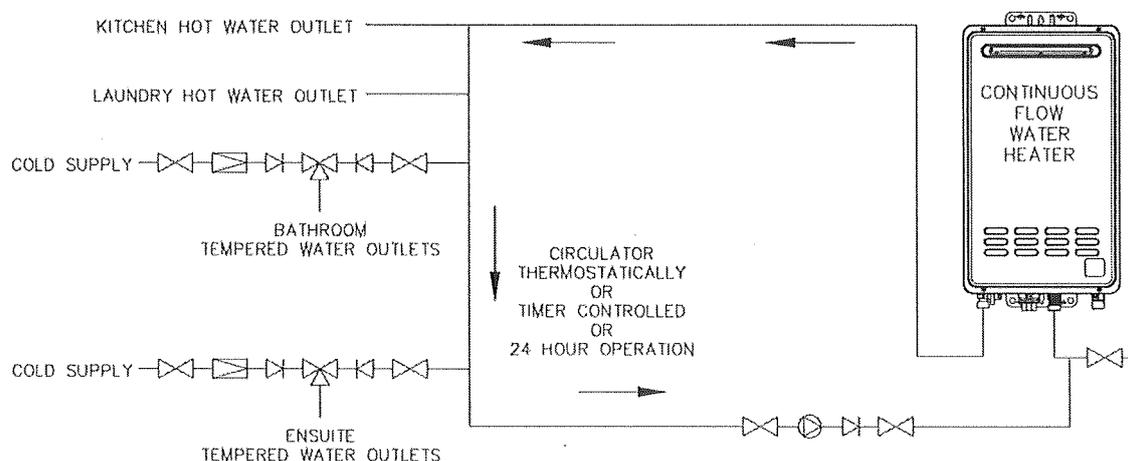
### Temperature Limiting Device

A temperature limiting device cannot be installed in circulated hot water flow and return pipe work. The tempered water from a temperature limiting device cannot be circulated. Where a circulated hot water flow and return system is required in a building, a temperature limiting device can only be installed on a dead leg, branching off the circulated hot water flow and return pipe.

If circulated tempered water were to be returned back to the water heater, depending on the location of the return line connection on the water supply line to the water heater, then either:

- water will be supplied to the cold water inlet of the temperature limiting device at a temperature exceeding the maximum recommended water supply temperature, or
- when the hot taps are closed no water will be supplied to the cold water inlet of the temperature limiting device whilst hot water will continue to be supplied to the hot water inlet of the temperature limiting device.

These conditions may result in either water at a temperature exceeding the requirements of AS/NZS 3500.4 being delivered to the hot water outlets in the ablution areas, or the device closing completely and not delivering water at all, or the device failing. Under either condition, the operation and performance of the device cannot be guaranteed.

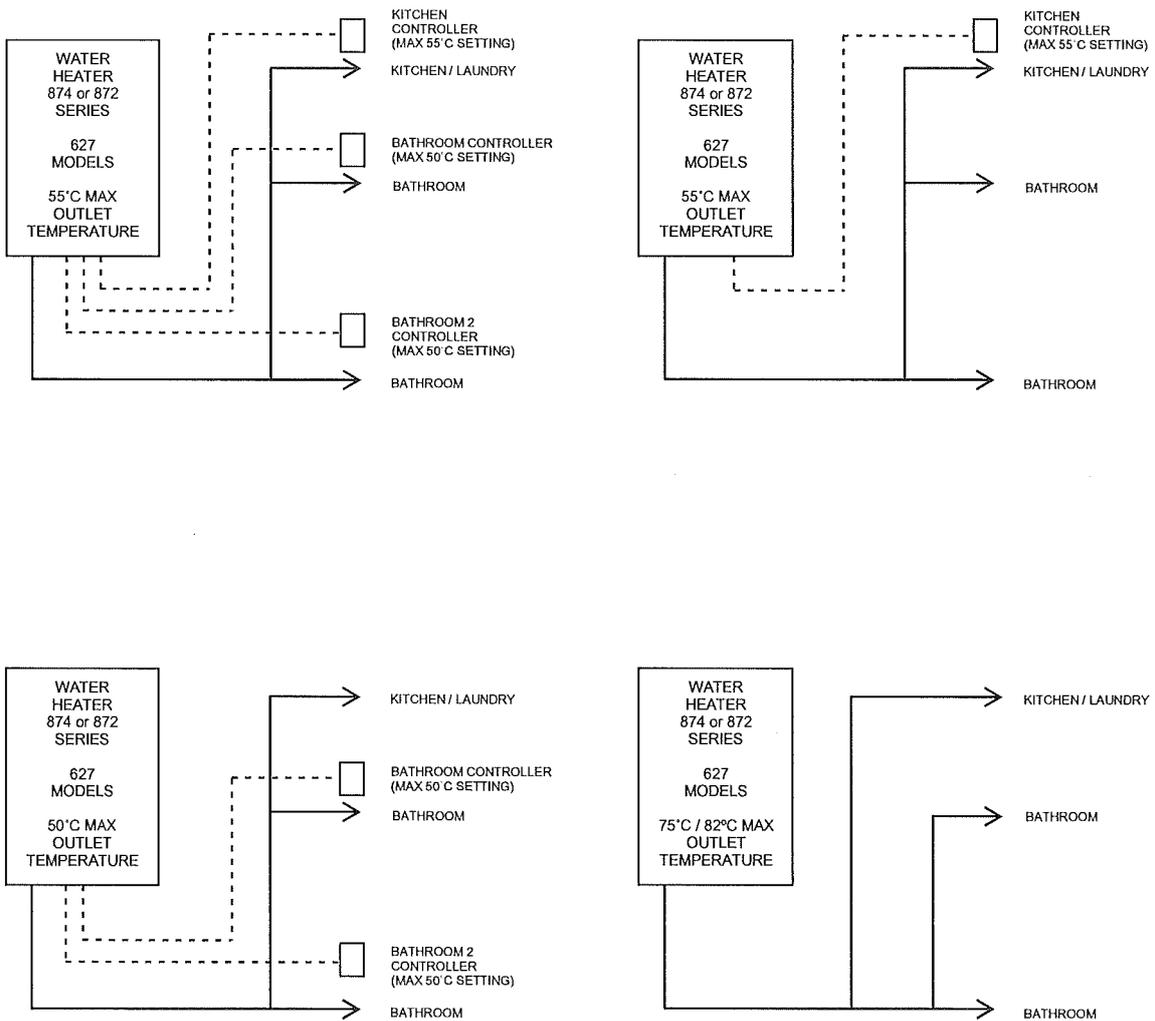


Recirculated Hot Water Flow and Return - Continuous flow Gas Water Heater

## REDUCING HEAT LOSSES

The hot water line from the water heater and the pipe work between the solar storage tank, if one is installed, and the gas booster water heater must be insulated in accordance with the requirements of AS/NZS 3500.4. The insulation must be weatherproof and UV resistant if exposed. The insulation must be fitted up to the connections on the both the underside of the water heater and the solar storage tank.

WATER TEMPERATURE DIAGRAMS

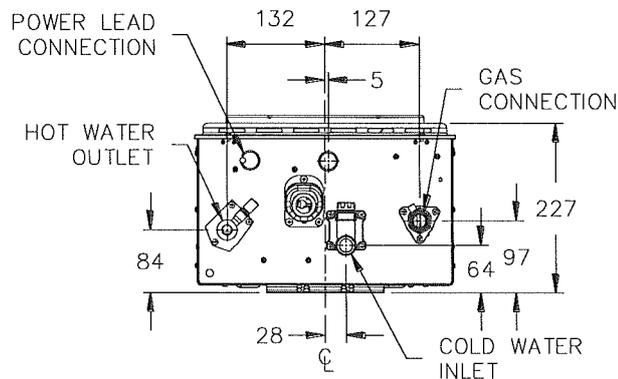
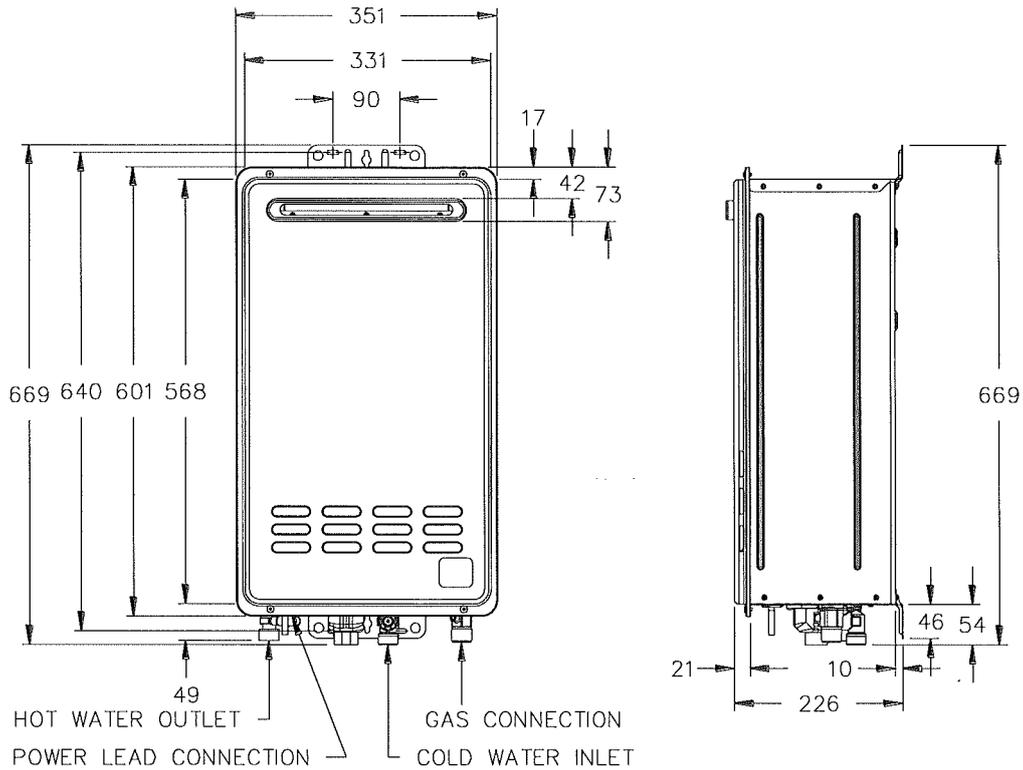


874 and 872 Series - No Controllers

Notes:

- Temperature Limiting Devices – refer to “Hot Water Delivery” on page 45.
- Factory preset outlet temperature setting is:
  - 874 series      55°C
  - 872 series      55°C

Dimensions And Technical Data



<b>Model</b>		874627	872627
<b>Rated delivery</b> (@ 40°C rise)	litres / min	16.9	16.9
<b>Recovery</b> (@ 25°C rise)	litres / min	27	27
<b>Weight (Empty)</b>	kg	24	24

Gas Details	Hourly Gas Consumption (MJ)	Min Gas Pressure (kPa)	Test Point Gas Pressure (kPa)		Max Gas Pressure (kPa)
			minimum	maximum	
Model	627	627	627	627	627
Natural	205	1.13	0.193	0.905	3.50
LPG	205	2.75	0.277	1.340	3.50

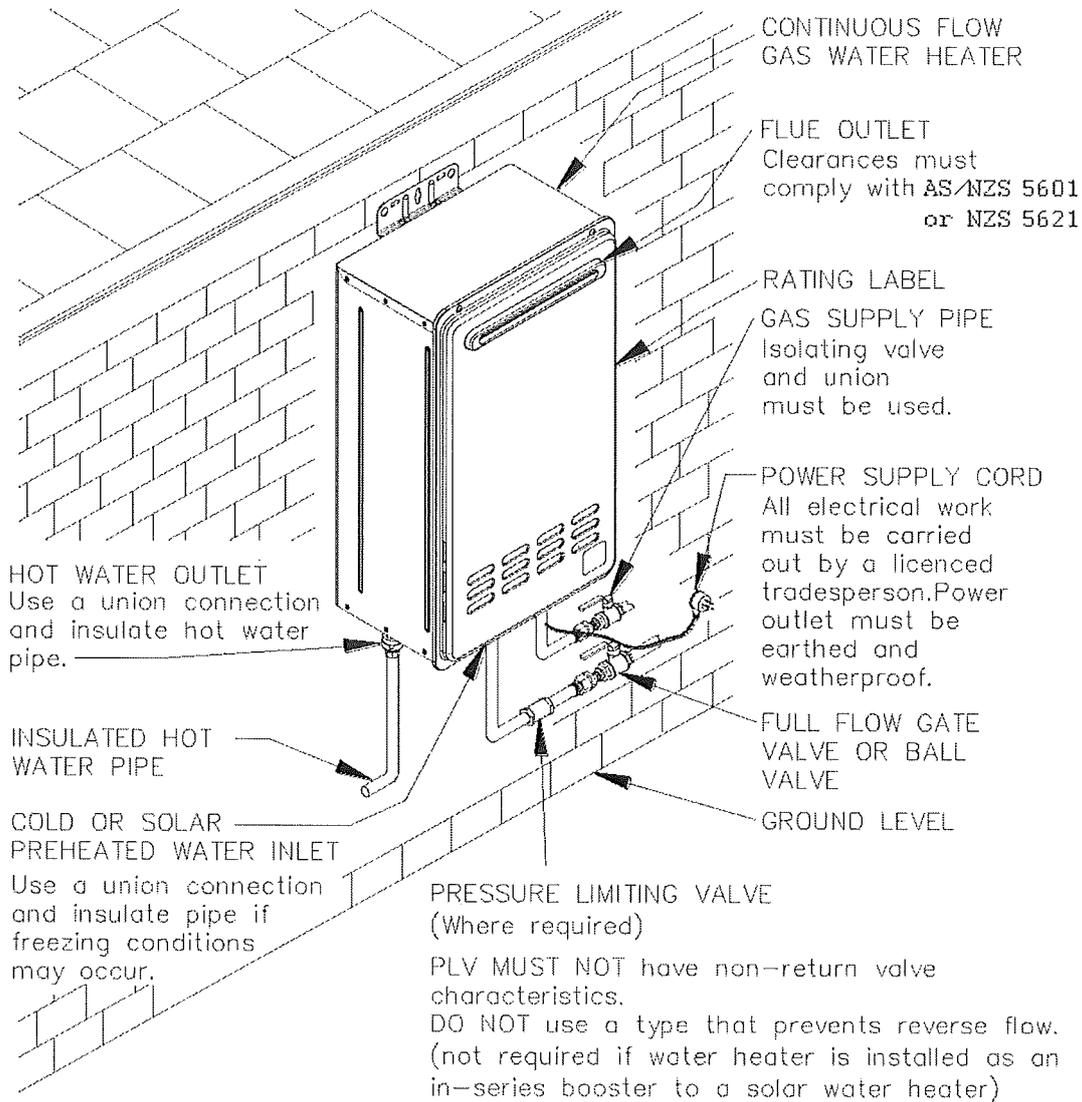
Model numbers: N = Natural, L = LPG

Letter N or L is included in the model number, eg 874627NFZ, to denote gas type.

F = Frost protection.

Specifications are subject to change with ongoing product improvements.

TYPICAL INSTALLATION – OUTDOOR LOCATION





### 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:

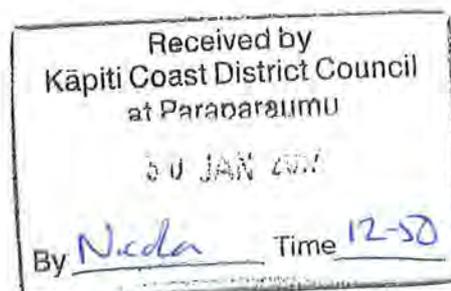
- (i) Site verification of design assumptions re base bearing of 80kpa
- (ii) All propriety products meeting their performance specification requirements;

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



BC161030

J0021



# SPECIFICATION

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

## New Dwelling

(project name)

## 7 Mahia Lane Waikanae

(project address)

## KC Homes Ltd

(owners name)

Job Number: 177

Date: December 2016

**1012 TABLE OF CONTENTS**

1012	TABLE OF CONTENTS .....	3
1220	PROJECT.....	4
1232	INTERPRETATION & DEFINITIONS.....	6
1233	REFERENCED DOCUMENTS .....	8
1234	DOCUMENTATION.....	9
1237	WARRANTIES .....	13
1237WA	WARRANTY AGREEMENT .....	15
1270	CONSTRUCTION .....	18
3101	CONCRETE WORK - BASIC.....	23
3820	CARPENTRY .....	27
4161	UNDERLAYS, FOIL AND DPC .....	30
4230	WALL CLADDING.....	34
4261	BRICK VENEER CLADDING.....	37
4320	TILE ROOFING .....	42
4521	ALUMINIUM WINDOWS AND DOORS .....	45
4610	GLAZING RESIDENTIAL .....	52
4710P	PINK® BATTES® & PINK® BATTES® SILENCER® INSULATION .....	56
5113G	GIB® PLASTERBOARD LININGS.....	59
6211	WALL TILING .....	63
6221	FLOOR TILING .....	68
6221B	BOSTIK ASA TILING & WATERPROOFING SOLUTIONS.....	74
7123B	BUTELINE HOT & COLD WATER SYSTEM.....	80
7151	SANITARY FIXTURES, TAPWARE & ACCESSORIES .....	85
7411C	CONTINUOUS SPOUTING RAINWATER SYSTEMS .....	89
7420	SANITARY SYSTEMS .....	92
7430	DRAINAGE.....	94
7701	ELECTRICAL BASIC .....	97

# 1220 PROJECT

## 1. GENERAL

This general section describes the project including:

- A description of the work
- Site description, features and restrictions
- Design parameters for design by contractor
- Archaeological discovery

### 1.1 READ ALL SECTIONS TOGETHER

Read all general sections together with all other sections.

#### **Description of the work**

### 1.2 SCOPE OF THE WORK

~

### 1.3 RESTRICTED BUILDING WORK

This project includes Restricted Building Work.

#### **Site**

### 1.4 SITE

The site consists of: ~  
as shown on drawing no. ~

### 1.5 LEGAL DESCRIPTION

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

### 1.6 SITE FEATURES

~

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

### 1.7 WIND DESIGN PARAMETERS - NON SPECIFIC DESIGN

The design wind pressures are to NZS 3604, Table 5.4 Determination of wind zone, up to and including Extra High Wind Zone.  
Building wind zone ~ (refer to NZS 3604, table 5.4)

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

### 1.8 EXPOSURE ZONE

The exposure zone is to NZS 3604, Section 4 Durability, 4.2 Exposure zones and NZBC E2/AS1.  
The site zone is: ~

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

### 1.9 EARTHQUAKE ZONE - NON SPECIFIC DESIGN

The zone is to NZS 3604, Section 5 Bracing design, 5.3 Earthquake bracing demand.  
The earthquake zone is: ~

#### **Archaeological discovery**

### 1.10 ANTIQUITIES AND ITEMS OF VALUE

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

Pre-1900, items or evidence of human activity on the site, come under the Heritage New Zealand Pouhere Taonga Act 2014. If such items or evidence is discovered work must

stop immediately and the Contract Administrator must be notified immediately. The site may be classified as an Archaeological Site under the Act, and the Contract Administrator or Owner must contact the Heritage New Zealand for authority to proceed.

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

Known archaeological information relating to this site includes the following: -

~

## 1232 INTERPRETATION & DEFINITIONS

### 1. GENERAL

This general section relates to definitions and interpretation that are used in this specification.

#### Definitions

### 1.1 DEFINITIONS

Required:	Required by the documents, the New Zealand Building Code or by a statutory authority.
Proprietary:	Identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.
Provide and fix:	"Provide" or "fix" or "supply" or "fix" if used separately mean provide and fix unless explicitly stated otherwise.
Review:	Review by the contract administrator is for general compliance only. Review does not remove the need for the contractor to comply with the stated requirements, details and specifications of the manufacturers and suppliers of individual components, materials and finishes. Neither can the review be construed as authorising departures from the contract documents.
Working day:	Working day means a calendar day other than any Saturday, Sunday, public holiday or any day falling within the period from 24 December to 5 January, both days inclusive, irrespective of the days on which work is actually carried out.
Workplace:	Workplace means the place where work is being carried out, or is customarily carried out, for a business or undertaking including any place where a worker goes, or is likely to be, while at work (under Health and Safety at Work Act 2015).

### 1.2 PERSONNEL

Owner:	The person defined as "owner" in the New Zealand Building Code.
Principal:	The person defined as "principal" in the conditions of contract.
Contractor:	The person contracted by the principal to carry out the contract.
Contract administrator:	The person appointed by the principal to administer the contract on the principal's behalf. Where no person has been appointed by the Principal, it means the Principal or the Principal's representative.

### 1.3 ABBREVIATIONS

The following abbreviations are used throughout the specification:

AAMA	American Architectural Manufacturers Association
AS	Australian Standard
AS/NZS	Joint Australian/New Zealand Standard
ASTM	American Society for Testing and Materials
AWCINZ	Association of Wall and Ceiling Industries of New Zealand Inc.
BCA	Building Consent Authority
BRANZ	Building Research Association of New Zealand
BS	British Standard
COP	Code of practice
CSIRO	Commonwealth Scientific and Industrial Research Organisation
HERA	Heavy Engineering Research Association
LBP	Licensed Building Practitioner
MBIE	Ministry of Business, Innovation and Employment
MPNZA	Master Painters New Zealand Association Inc
NZBC	New Zealand Building Code
NZS	New Zealand Standard
NZS/AS	Joint New Zealand/Australian Standard
NZTA	New Zealand Transport Agency
NUO	Network Utility Operator
PCBU	Person Conducting a Business or Undertaking (under Health and Safety at Work Act 2015)

OSH	Occupational Safety and Health
TA	Territorial Authority
TNZ	Transit New Zealand(Transit New Zealand is now New Zealand Transport Agency NZTA - some specifications are still prefixed TNZ)
RBW	Restricted Building Work
SARNZ	Scaffolding and Rigging New Zealand Inc
SED	Specific Engineering Design

1.4 DEFINED WORDS

Words defined in the conditions of contract, New Zealand Standards, or other reference documents, to have the same interpretation and meaning when used in their lower case, title case or upper case form in the specification text.

1.5 WORDS IMPORTING PLURAL AND SINGULAR

Where the context requires, words importing singular only, also include plural and vice versa.

## 1233 REFERENCED DOCUMENTS

### 1. GENERAL

#### 1.1 REFERENCED DOCUMENTS

Throughout this specification, reference is made to various New Zealand Building Code Compliance Documents (NZBC \_\_), acceptable solutions (\_\_ AS\_) and verification methods (\_\_ VM\_) for criteria and/or methods used to establish compliance with the New Zealand Building Code.

Reference is also made to various standards produced by Standards New Zealand (NZS, AS/NZS, NZS/AS), overseas standards and to listed Acts, Regulations and various industry codes of practice and practice guides. The latest edition (including amendments and provisional editions) at the date of this specification applies unless stated otherwise.

It is the responsibility of the contractor to be familiar with the materials and expert in the techniques quoted in these publications.

Documents cited both directly and within other cited publications are deemed to form part of this specification. However, this specification takes precedence in the event of it being at variance with the cited documents.

#### 1.2 DOCUMENTS

Documents referred to in the GENERAL sections are:

NZBC F4/AS1	Safety from falling
NZBC F5/AS1	Construction and demolition hazards
AS/NZS 1170.2	Structural design actions - Wind loads
AS/NZS 3012	Electrical installations - Construction and demolition sites
NZS 3109	Concrete construction
NZS 3114	Specification for concrete surface finishes
NZS 3404:1997	Steel structures standard
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 4210	Masonry construction: Materials and workmanship
NZS 6803	Acoustics - Construction Noise
Building Act 2004	
Building Regulations 1992	
Health and Safety at Work Act 2015	
Health and Safety at Work (General Risk and Workplace Management) Regulations 2016	
Health and Safety in Employment Regulations 1995 (reprint 4 April 2016)	
New Zealand Building Code	
Heritage New Zealand Pouhere Taonga Act 2014	
Resource Management Act 1991	
Smoke-free Environments Act 1990	
WorkSafe NZ	Guidelines for the provision of facilities and general safety in the construction industry
WorkSafe NZ	Good Practice Guidelines - Excavation Safety
SARNZ	Best practice guideline for scaffolding in New Zealand

## 1234 DOCUMENTATION

### 1. GENERAL

This general section relates to documentation required by the Territorial Authority/Building Consent Authority for compliance with the New Zealand Building Code. It also includes documentation relating to:

- Substitutions
- Manufacturers documents

#### **Building Consent Authority documentation**

#### 1.1 BUILDING CONSENT

Obtain the building consent forms and documents from the owner and keep them on site. Liaise with the BCA for all notices to be given and all inspections required during construction to ensure compliance. Return the consent form and documents to the owner on completion.

#### 1.2 BUILDING CONSENT COMPLIANCE

It is an offence under the Building Act 2004

- to carry out any work not in accordance with the building consent.
- to carry out Restricted Building Work by anyone other than a Licensed Building Practitioner licensed for that type of work.

The resolution of matters concerning building code compliance to be referred to the contract administrator for a direction and then if required to the BCA for consent.

Where any alteration is requested by the territorial authority or any other authority, do not undertake such alteration until the matter has been referred to the contract administrator for direction.

#### 1.3 PROJECT PERSONNEL

Provide names and contact details of the contractor's key personnel and tradespersons who are involved with the project. Review the list once a month and reissue it if changes have been made.

#### **Licensed Building Practitioner documentation**

#### 1.4 LICENSED BUILDING PRACTITIONERS

Provide LBP details. Provide names, LBP numbers, areas of practice and contact information. Provide this information to the BCA before commencing work on the Restricted Building Work in the form required by the BCA. Advise the BCA of any change to an LPB previously advised.

Include the following as applicable

- Site LBP
- Carpenter
- Foundations 1 Concrete foundation walls and concrete slab-on-ground constructor
- Foundations 2 Concrete or timber pile foundations constructor
- Bricklaying and block laying 1 Brick / masonry veneer
- Bricklaying and block laying 2 Structural masonry - Bricklayer / Blocklayer
- Roofing 1 Concrete / clay tile roofer
- Roofing 2 Profiled metal roofer and/or wall cladding installer
- Roofing 3 Metal tile roofer
- Roofing 4 Membrane roofer
- Roofing 5 Torch on membrane roofer
- Roofing 6 Liquid membrane roofer
- Roofing 7 Shingle / slate roofer
- External plastering 1 Solid plasterer
- External plastering 2 Proprietary Plaster Cladding Systems (PPCS) plasterer

Also provide names and contact details of the following

- Registered drainlayer

- Registered plumber
- Registered gasfitter
- Registered electrician

1.5 **PRODUCER STATEMENTS**

When producer statements verifying construction are required, provide copies to both the Building Consent Authority and the Contract Administrator. Provide producer statements in the form required by the BCA.

1.6 **RECORD OF WORK**

Where Restricted Building Work is carried out by a LBP, on completion provide a Record of Work. Provide copies to both the BCA and the Contract Administrator.

**Compliance information**

1.7 **DOCUMENTATION REQUIRED FOR CODE COMPLIANCE**

Information may be required either as a condition of the contract documents or as a condition of the building consent. It may include the following:

- Applicators approval certificate from the manufacturer / supplier
- Manufacturer's / supplier's warranty
- Installer / applicator's warranty
- Producer Statement - Construction from the applicator / installer
- Producer Statement - Construction review from an acceptable suitably qualified person

Refer to the general sections for the requirements for compliance information to be provided by the contractor.

Refer to the building consent for the requirements for compliance information to be provided by the contractor.

Obtain required documents from the relevant parties for delivery to the contract administrator after the final inspection has been carried out by the BCA.

1.8 **DOCUMENTATION REQUIRED ON COMPLETION**

As soon as practicable after completion of the building work, provide in writing the following information and documentation to the client and the relevant territorial authority.

Information and documentation relating to:

- The identity of the building contractor and the subcontractors who carried out the work.
- Maintenance requirements for any products incorporated in the building.

If applicable also provide any guarantee or insurance obtained by the building contractor in relation to the building work.

**Substitutions**

1.9 **ACCEPTABLE PRODUCT/MATERIAL SUPPLIERS**

Where a product or material supplier is named in SELECTIONS, the product/material must be provided by the named supplier. Where more than one named supplier, any one of the named suppliers will be acceptable.

1.10 **NO SUBSTITUTIONS**

Where specifically stated in a section, substitutions are not permitted to any of the specified systems, components and associated products listed in that section.

1.11 **PROPOSED SUBSTITUTIONS**

A substitution may be proposed where specified products are not reasonably available. A substitution may also be proposed by the contractor where the contractor considers a proposed substitution to be an alternative to the specified product. Except where a specified product is not available, the contract administrator is not bound to accept any substitutions. Where branded work sections are included in this specification, substitution of those products or systems will not be allowed.

1.12

**NOTIFICATION OF SUBSTITUTIONS**

Notify proposed substitution of specified products. Notification to include but not be limited to:

- Product identification
- Manufacturer's name, address, telephone number, website and email address
- Detailed comparison between the properties and characteristics of the specified product and the proposed substitution
- Statement of NZBC compliance including durability
- Details of manufacturer warranties

Plus an assessment of:

- Any changes required to the programme including any extension of time required
- Any consequential effects of the proposed substitution
- Any effect the substitution may have on Health & Safety requirements
- Allowance for time and cost for re-design and documentation (if applicable)
- Allowance for time and cost for obtaining an amendment to the Building Consent (if applicable)
- Any change in cost associated with the proposed substitution

and if requested:

- All current manufacturer's literature on the product
- Accreditations and appraisals available
- Reference standards
- Product limitations
- Samples
- List of existing installations in the vicinity of the project

1.13

**ACCEPTANCE OF SUBSTITUTIONS**

The Contract administrator must advise of acceptance of substitutions in writing.

**Variations to issued Building Consent**

1.14

**CONTRACTOR VARIATION TO BUILDING CONSENT**

Where the contractor has sought acceptance of a substitution or a variation which is for the contractor's own convenience and the substitution or variation requires an amendment to the Building Consent, the contractor must apply for and obtain the required amendment.

The contractor must:

- Obtain approval for substitutions from the contract administrator.
- Prepare and provide to the BCA all documentation required for the variation.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans.

1.15

**PRINCIPALS VARIATION TO BUILDING CONSENT**

Where the principal is proposing a substitution or a variation which requires an amendment to the Building Consent, the contractor must provide to the principal information that the contractor has that is required for the amendment.

The principal will:

- Prepare and provide to the BCA all documentation required for the amendment.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans.

**Manufacturer's documents**

1.16

**MANUFACTURER'S AND SUPPLIER'S INSTALLATION REQUIREMENTS**

Manufacturers and supplier's requirements, instructions, specifications or details means those issued by them for their particular material, product or component and are the latest edition.

1.17 **CONTRACTOR TO OBTAIN CURRENT DOCUMENTATION**  
Where manufacturer's installation, application and execution requirements are referred to in this specification, the Contractor must ensure that are fully aware of this documentation. Whenever necessary obtain and keep on site the relevant latest version of such documentation and make it available to workers carrying out that part of the work

1.18 **DOCUMENTATION PROVIDED FOR BUILDING CONSENT**  
Documentation including manufacturer's installation instructions, specification data sheets, producer statements, BRANZ and similar appraisals may be included in the issued Building Consent. These documents have been provided only to demonstrate compliance with the NZBC.

**Branded work sections**

1.19 **BRANDED WORK SECTIONS**  
Branded sections may be included in this specification relating to specific products and systems to be installed as part of the contract works. Where branded sections are included, substitutions to the branded products and systems will not be allowed.

1.20 **CROSS REFERENCED WORK SECTIONS**  
If any related work is cross referenced to a generic work section, but only the equivalent branded section is included in the specification, use that branded section. Confirm with the contract administrator if there is any doubt.

## 1237 WARRANTIES

### 1. GENERAL

This general section refers to the requirements for warranties/guarantees as listed in this section, as referred to within the body of this specification, and as referred to within separate specifications/documents relating to this project. It includes:

- Warranties for parts of the work required by the principal in a required form
- Installer/applicator warranties for parts of the work in the installer's/applicator's standard form
- Manufacturer/supplier warranties provided with products, appliances and the like in the manufacturer's/supplier's standard form
- Guarantees provided by contractor in the contractor's standard form

These guarantees/warranties are in addition to any warranties, implied warranties, or guarantees that are required by the Building Act, the Building Regulations, or the building consent.

#### Warranties

#### 1.1 PROVIDE WARRANTIES

Provide executed warranties in favour of the principal in respect of, but not limited to, materials, components, service, application, installation and finishing called for in that specified section of work. The terms and conditions of the warranty in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability under the terms of the warranty called for in that specified section of work.

- Conform to the WARRANTY AGREEMENT form included in the specification/conditions of contract.
- Commence warranties from the date of practical completion of the contract works (unless otherwise stated).
- Maintain their effectiveness for the times stated.
- Provide executed warranties prior to practical completion.

#### 1.2 WARRANTIES - INSTALLER/APPLICATOR

Where installer/applicator warranties are offered covering execution and materials of proprietary products or complete installations, provide such warranties to the contract administrator. These warranties may be provided in lieu of the warranties that are otherwise required provided that these warranties are subject to similar conditions and periods.

Provide warranties in favour of the principal. The terms and conditions of such warranties in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

#### 1.3 WARRANTIES - MANUFACTURER/SUPPLIER

Where warranties are offered covering materials, equipment, appliances or proprietary products, provide all such warranties to the contract administrator.

Provide warranties in favour of the principal. The terms and conditions of such warranties in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

#### Submission

#### 1.4 REVIEW BY CONTRACTOR

Obtain the warranties from the installers, applicators, manufacturers and suppliers at the earliest possible date and review to ensure that they are correctly filled out and executed.

Where warranties are executed as a deed, ensure that a duplicate copy is provided for execution by the owner/principal. Keep safe and secure until required for submission.

1.5 **WARRANTIES - REQUIRED BY BUILDING CONSENT AUTHORITY**  
Obtain copies of warranties required as a condition of the building consent in the form required for submission to the BCA. Keep safe and secure until required at the time of the BCA final inspection and Code Compliance Certificate.

1.6 **WARRANTIES - REQUIRED BY CONTRACT**  
Obtain copies of warranties listed in the contract documents. Provide all warranties at the same time. If the project has an operations and maintenance documentation provision, present the warranties with the operations and maintenance information. If no operations and maintenance documentation provision exists, present the warranties to the contract administrator in a loose-leaf binder with a contents index suitably labelled and including the project name and details. Provide a title on the binder edge "Warranties for (project name)"

## 2. **SELECTIONS**

### **Weathertightness and watertightness warranty**

2.1 **WEATHERTIGHTNESS AND WATERTIGHTNESS WARRANTY**  
A warranty is required from the contractor for a minimum period of 2 years, covering the weathertightness of the complete building envelope and the watertightness of all liquid supply and disposal systems and fittings. This general warranty is in addition to any specific warranties required.

Provide this warranty in favour of the principal. The terms and conditions of this warranty in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

- Conform to the standard form WARRANTY AGREEMENT included in the contract documents.
- Commence the warranty from the date of Practical Completion.
- Maintain its effectiveness for the time stated.

## 3. **SCHEDULES**

### **Schedule of work section warranties**

3.1 **SCHEDULE OF WORK SECTION WARRANTIES**  
Refer to the following sections :

### **Schedule of additional items**

3.2 **SCHEDULE OF ADDITIONAL ITEMS**  
The following documents have warranty and guarantee requirements, refer to these documents for details:

~

# 1237WA WARRANTY AGREEMENT

## 1. WARRANTY AGREEMENT

**Contract for:** ~  
(the contract works)

**Contractor:** ~  
(the contractor)

**Principal:** ~  
(the principal)

**Warrantor:** ~  
(name of contractor, subcontractor or materials supplier)

**Warranted works:** ~  
(the warranted works)

**Warranted materials:** ~  
(the warranted materials)

**Warranty period:** ~ years from the date of practical completion of the contract works.

The principal has entered into a contract (the contract) with the contractor for carrying out the contract works. The warranted works / materials are part of the contract works.

The contractor has agreed to arrange for the provision of a warranty in respect of the warranted works / materials for the warranty period on the terms set out in this warranty.

The warrantor has agreed to provide a warranty in respect of the warranted works / materials for the warranty period on the terms set out in this warranty.

## 2. IT IS HEREBY AGREED

The warrantor warrants to the principal that the warranted work performed / materials supplied shall be as required in the contract. If not specified the work shall be of good trade practice with materials and fittings of merchantable quality.

This warranty shall be in addition to and shall not derogate from any manufacturer's warranty or any warranty implied by law, attaching to any part of the warranted works.

### 2.1 WARRANTOR'S OBLIGATIONS

The warrantor agrees that if the warrantor is advised by the principal in writing of any defect in the warranted works / materials within the warranty period for which the warrantor is liable under the terms of this warranty, the warrantor will promptly take steps to remedy the defect / replace defective materials.

### 2.2 REMEDIAL WORK / REPLACEMENT OF DEFECTIVE MATERIALS

Any remedial work / replacement of defective materials which the warrantor is liable to undertake / provide under this warranty shall be carried out:

- to the standard required by the contract; and
- in a prompt and timely manner; and
- without unnecessary inconvenience to any occupants; and
- at the warrantor's cost; and
- subject to reasonable access being provided to the warrantor for the purpose of carrying out the remedial work.

### 2.3 REPAIR, REPLACEMENT AND/OR COMPENSATION

Where the cost of replacement of work and/or materials is out of all proportion to the consequences of the defect, or where the defect may not be reasonably capable of

rectification without substantial expense which is out of all proportion to the cost of the contract works, the warrantor may:

- where the defect or defective material is reasonably rectified by repair rather than by replacement, the warrantor's obligation under this warranty shall be only to repair or otherwise make good the defect or
- propose reasonable monetary compensation in lieu of remedying the defect or
- propose a combination of both repair and compensation.

The principal must consider the warrantor's reasonable proposals and the parties must endeavour in good faith to reach agreement. Where agreement cannot be reached the dispute shall be resolved in accordance with the disputes clause in this warranty.

#### 2.4 FAILURE BY WARRANTOR TO PERFORM REMEDIAL WORK

If the warrantor fails to promptly, adequately and satisfactorily carry out the remedial work or to propose acceptable repair/compensation, the principal may then arrange for the remedial work to be carried out by others.

If the warrantor fails to promptly, adequately and satisfactorily provide replacement materials or to propose acceptable repair/compensation, the principal may then arrange for the replacement materials to be supplied by others.

The principal must first give the warrantor 10 working days notice to carry out and complete the remedial work / supply replacement materials. If the warrantor does not complete this work / supply replacement materials within the time, the principal must then advise the warrantor in writing that the work will be carried out / materials will be supplied by others.

In such event the warrantor is not released from obligations under this warranty, which continues in full force and effect, except in respect of the defect remedied / materials supplied by the principal or by another person contracted by the principal. The reasonable cost of the remedial work carried out / materials supplied by such other persons including all reasonable costs of the principal is to be paid to the principal by the warrantor on demand.

#### 2.5 EXCLUSIONS

The principal agrees that the warrantor is not liable for any defect or damage caused by:

- wilful act or negligence of the principal or any person other than the warrantor; or
- fire, explosion, earthquake, war, subsidence, slips, faulty materials or workmanship other than caused by the defect in the warranted work; or
- any force of nature which the warrantor could not reasonably foresee; or
- any neglect or unnecessary delay by the principal in giving notice to the warrantor of a defect in the warranted works becoming apparent; or
- design faults, errors or discrepancies, unless the warrantor undertook the design of the part of the warranted works the subject of the defect; or
- unintended use of the warranted works by the principal or any occupant thereof; or
- failure by the principal or any occupant thereof to maintain the warranted works in accordance with good practice and any manufacturer's stated or recommended instructions or requirements.

#### 2.6 ASSIGNMENT

The principal may assign the benefit of this warranty to any person.

#### 2.7 DISPUTES

Any dispute or difference between the principal and the warrantor arising out of or in connection with this warranty, or the subject matter of this warranty, including any question about its existence or validity, will be referred to arbitration by a sole arbitrator to be agreed upon by the parties. If the parties are unable to agree upon the identity of an arbitrator within 10 working days from the date upon which notice of the dispute is given, then the arbitrator will be appointed by the Registrar of the Building Disputes Tribunal (NZ) Ltd upon the application of either party.

2.8

**NOTICES**

Notices given to the warrantor are deemed to have been effectively served on the warrantor if given in accordance with the contract.

3.

**EXECUTED BY**

**Signed by the warrantor:** .....

on this: .....day of .....20.....  
(day) (month) (year)

(And where required to be executed as a deed) signed in the presence of:

Witness signature .....

Name: .....

(print)

Address: .....

(print)

Occupation: .....

(print)

**Signed by the principal:** .....

on this: .....day of .....20.....  
(day) (month) (year)

(And where required to be executed as a deed) signed in the presence of:

Witness signature .....

Name: .....

(print)

Address: .....

(print)

Occupation: .....

(print)

NOTE - Where the warrantor is not the contractor the warranty agreement must be executed by the warrantor and the principal in the manner required for execution of a deed.

Any of these parties which are a company must execute the warranty by having it signed, under the name of the company, by two or more directors. If there is only one director, it is sufficient if the warranty agreement is signed under the name of the company by that director, but the signature must be witnessed by another person. The witness must not only sign but must also add his or her occupation and address. Alternatively, companies may execute under power of attorney. Any party which is a body corporate (other than a company) must execute by affixing its seal, which must be attested in the manner provided for in the rules of, or applicable to, the body corporate.

In the case of a party who is an individual, the party must sign and the signature must be witnessed by another person. The witness must not only sign but must also add his or her occupation and address.

## 1270 CONSTRUCTION

### 1. GENERAL

This GENERAL section relates to common requirements for construction issues including: -

- Quality assurance
- Noise and nuisance
- Set out
- Common execution requirements
- Common materials requirements
- Supply of spare materials
- Common requirements for samples and tests
- Final presentation and cleaning
- Commissioning

#### Quality control and assurance

### 1.1 QUALITY ASSURANCE

Carry out and record regular checks of material quality and accuracy, including:

- Concrete quality and finish.
- Dimensional accuracy of structural column locations (following completion of foundations).
- All perimeter columns and frames for plumb.
- Levels of all floors relative to the site datum.
- Framing timber moisture content.

Where any material, quality or dimension falls outside specified or required tolerances, obtain written direction from the contract administrator. Where building consent approval is affected, confirm remedial action with the Building Consent Authority.

Provide all materials, plant, attendances, supervision, inspections and programming to ensure the required quality standards are met by all project personnel.

#### Noise and nuisance

### 1.2 LIMIT CONSTRUCTION NOISE

Minimise the effects of noise generation by including in the planning of the work such factors as placing of plant, programming the sequence of operations and other management functions. Limit construction noise to comply with the requirements of NZS 6803, the requirements of the Resource Management Act sections 326, 327 and 328 and the Health and Safety in Employment Regulations clause 11.

### 1.3 ACCEPTABLE NOISE LEVELS

Refer to NZS 6803 Tables 2 and NZS 6803, tables 3 for the upper limits of construction work noise in residential and industrial areas over the various time periods, particularly 0730 to 1800 hours. Note also the allowed adjustments and exemptions in NZS 6803, 6. Do not exceed these limits.

### 1.4 PROVIDE INFORMATION TO NEIGHBOURS

Provide information to neighbours of any noise generation from the site liable to constitute a problem. Explain to them the means being used to minimise excessive noise and establish with them the timings most suitable for the noise generating work to be carried on.

Discuss with any complainant the measures being used to minimise noise. Where possible modify these measures to accommodate particular circumstances. Finally, determine the sound level at the location under discussion using methods and observation reporting as laid down in NZS 6803. If the noise level is above the upper limits of NZS 6803, tables 2 and NZS 6803, tables 3, cease the noise generating operation and remedy the problem.

1.5 **ADDITIONAL NOISE CONSTRAINTS**  
 As well as complying with the preceding clauses comply with the following on this contract:  
 ~

1.6 **DIRT AND DROPPINGS**  
 Remove dirt and droppings deposited on public or private thoroughfares from vehicles servicing the site to the satisfaction of the appropriate authorities and the contract administrator.

1.7 **DAMAGE AND NUISANCE**  
 Take all precautions to prevent damage and nuisance from water, fire, smoke, dust, rubbish and all other causes resulting from the construction works.

**Set-out and tolerances**

1.8 **SURVEY INFORMATION**  
 Locate and verify survey marks and datum points required to set out the works. Record and maintain their position. Re-establish and replace disturbed or obliterated marks.

1.9 **SET-OUT AND DATUM**  
 Set out the work to conform with the drawings. Establish a permanent site datum to confirm the proposed building ground floor level and its relationship to all other existing and new building levels.

1.10 **SET-OUT BY LICENSED CADASTRAL SURVEYOR**  
 Before commencing construction provide the contract administrator with a certificate prepared by a licensed cadastral surveyor that the set-out is complete and that the building is accurately placed on the site.

During construction provide the contract administrator with a certificate, prepared by the same licensed cadastral surveyor confirming the set-out of the foundations and grid lines. Necessary adjustments are to be determined and agreed to by the contract administrator before proceeding further.

1.11 **CONFIRM HEIGHT IN RELATION TO BOUNDARY**  
 Provide a certificate prepared by a licensed cadastral surveyor that the building has been constructed within the allowed height in relation to boundary. Provide the certificate to the local authority. Provide a copy of the certificate to the contract administrator

1.12 **USE OF SET-OUT INSTRUMENTS**  
 Permit without charge, the use of instruments already on site for checking, setting out and levels.

1.13 **CHECK DIMENSIONS**  
 Check all dimensions both on drawings and site, particularly the correlation between components and work in place. Take all dimensions on drawings to be between structural elements before linings or finishes, unless clearly stated otherwise.

1.14 **TOLERANCES**  
 All work to be level, plumb, and true to line and face. Unless otherwise specified in specific work sections of this specification, tolerances for structural work shall comply with the following:

Concrete construction:	To NZS 3109 Concrete construction Clause 3.9 Tolerances for reinforcement Table 5.1 Tolerance for precast components Table 5.2 Tolerance for in situ construction To NZS 3114 Concrete surface finishes
Masonry construction:	To NZS 4210 Masonry construction: Materials and workmanship Clause 2.6.5 Tolerances Table 2.2 Maximum tolerances

Structural steelwork:	To NZS 3404:1997 Steel structures standard Section 14.4 Tolerances (after fabrication) Section 15.3 Tolerances (erection)
Timber framing:	To NZS 3604 Timber-framed buildings Clause 2.2 Tolerances Table 2.1 Timber framing tolerances

Refer to work sections for tolerance requirements for finishes.

### **Execution**

1.15 **EXAMINE PREVIOUS WORK**  
Before commencing any part of the work carefully examine the previous work on which it may depend. Report in writing to the contract administrator defects that may affect the quality of the proposed work and obtain instructions. Commencing work on any part means that previous work is accepted as being satisfactory for work of the required standard.

1.16 **WORKER QUALIFICATIONS**  
All work to be level, plumb, and true to line and face. Employ only experienced workers familiar with the materials and techniques specified.

1.17 **MINIMISE DELAYS DUE TO WEATHER**  
Use appropriate techniques and methods to prevent damage and minimise delays due to weather.

### **Materials**

1.18 **NEW PRODUCTS AND MATERIALS**  
Materials and products to be new unless stated otherwise, of the specified standard, and complying with all cited documents.

1.19 **COMPATIBILITY OF MATERIALS AND FINISHES**  
Ensure all parts of a construction or finish are compatible and their individual use approved by the manufacturers and suppliers of other parts of the system. Source all parts of a system from a single manufacturer or supplier.

1.20 **STORING PRODUCTS AND MATERIALS**  
Take delivery of and store products, materials and components in accordance with codes of practice and the product manufacturer's or supplier's stated requirements. Maintain the proper condition of any protective packaging, wrappings or supports during delivery, unloading and storage.

1.21 **HANDLING PRODUCTS AND MATERIALS**  
Handle products, materials and components in accordance with codes of practice and the manufacturer's or supplier's stated guidelines. Avoid distortion and any contact with potentially damaging surfaces or conditions.

1.22 **SUBSTRATE CONDITIONS**  
Ensure substrate conditions are within the manufacturer's or supplier's stated guidelines both before and during the installation of any material, product or system. Obtain written instructions on the necessary action to rectify unsatisfactory conditions.

1.23 **INSTALLING PRODUCTS AND MATERIALS**  
Install in accordance with the manufacturer's or supplier's technical literature. Ensure that all installers are familiar with the required substrate conditions and the manufacturer's or supplier's specified preparation, fixing and finishing techniques.

1.24 **COMPLY WITH STANDARDS**  
Comply with the relevant and/or cited Standard for any material or component. Obtain certificates of compliance when requested by the contract administrator.

- 1.25 **CONDITION OF MATERIALS AND COMPONENTS**  
To be in perfect condition when incorporated into the work.
- 1.26 **INCOMPATIBLE MATERIALS AND METALS**  
Separate incompatible materials and metals with separation layers, sleeves or gaskets of plastic film, bituminous felt or mastic or paint coatings, installed so that none are visible on exposed surfaces.

#### **Samples and tests**

- 1.27 **SAMPLES AND PROTOTYPES**  
Where specified in the work sections, submit samples, prepare sample panels, and construct prototypes for review as to appearance, form and conformance with the drawings and specifications. Submit all information required to assist the review process, including technical data, manufacturer's literature, independent appraisals and producer statements.

Timing for the provision and review of samples, sample panels and prototypes to be included in the contract programme. Allow a minimum of 10 working days for each review. Proceed only after instructions to proceed have been issued in writing by the contract administrator.

In situ work may be incorporated in the finished work if so confirmed, otherwise allow to remove completely and replace.

- 1.28 **CONTROL STANDARD**  
Obtain the contract administrator's confirmation of material, component and work samples which then become the quality control standard. Remove from the site any rejected samples. Retain confirmed samples with care on site for comparison throughout the contract. Remove from the site when no longer required.

#### **Spares**

- 1.29 **SPARES**  
Collect, protect and store safely all spare materials required under the contract. Give the contract administrator an inventory of all spares.

#### **Final presentation and cleaning**

- 1.30 **REMOVE TEMPORARY PROTECTION**  
Remove all temporary markings, coverings, labels and protective wrappings unless instructed otherwise.
- 1.31 **REPLACE DAMAGED MATERIALS**  
Replace all materials or component damaged during the works to the standard of and integral with the original.
- 1.32 **COMPLETE ALL SERVICES**  
Ensure all services are complete and operational, with all temporary labelling removed, required labelling fixed and service instructions provided.
- 1.33 **CLEANING BY CONTRACTOR**  
Clear the contract works of all construction materials, waste, dirt and debris. Clean the contract works including:
- Wipe all surfaces to remove construction dust
  - Clean out service ducts and accessible concealed spaces
  - Clean out all gutters and rainwater heads
  - Wipe dust from both sides of glass. Take particular care when removing paint or cementitious materials to not damage the glass.
  - Remove adhesive residue left by labels and other temporary protection/markings
  - Clean out the interior of all cabinetry

- Wash down external concrete including driveways and concrete masonry. Take care when waterblasting to not cause damage to the surface or allow water to enter the building.
- Remove rubbish and building material from the area immediately adjacent to the contract works

### **Commissioning**

#### 1.34 MOVING PARTS

Adjust, ease and lubricate all doors, windows, drawers, hardware, appliances, controls and all moving parts to give easy and efficient operation.

#### 1.35 TESTS AND CERTIFICATION

~

#### 1.36 SECURITY AT COMPLETION

Remove any temporary lock cylinders and complete final keying prior to handing over keys to the principal on completion of the works. Leave the works secure with all accesses locked. Account for all keys/cards/codes and hand to the principal along with an itemised schedule, retaining a duplicate schedule signed by the principal as a receipt.

## 3101 CONCRETE WORK - BASIC

### 1. GENERAL

This section relates to formwork, reinforcement, concrete mixes and the placing of concrete.

#### 1.1 RELATED WORK

Refer to ~ for ~

#### 1.2 ABBREVIATIONS AND DEFINITIONS

The following definitions apply specifically to this section:

ACRS Australian Certification Authority for Reinforcing Steels - An independent certification scheme for reinforcing steel and structural steel, by product and manufacturer/processor. Certifies compliance with Australia/New Zealand Standards.

ACRS web site - [www.steelcertification.com](http://www.steelcertification.com)

#### Documents

#### 1.3 DOCUMENTS

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

NZBC B1/AS1	Structure
NZBC E2/AS3	External moisture
AS 1366.3	Rigid cellular plastics for thermal insulation - Rigid cellular polystyrene - Moulded (RC/PS - M)
NZS 3101.1	Concrete structures standard
NZS 3104	Specification for concrete production
NZS 3109	Concrete construction
NZS 3114	Specification for concrete surface finishes
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
AS/NZS 4671	Steel reinforcing materials
AS/NZS 4858	Wet area membranes
CCANZ CP 01	Code of practice for weathertight concrete and concrete masonry construction

#### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

~

Manufacturer/supplier contact details

Company: ~  
Web: ~  
Email: ~  
Telephone: ~

#### Requirements

#### 1.5 QUALIFICATIONS

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

#### 1.6 STEEL REINFORCING COMPLIANCE

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

## **2. PRODUCTS**

### **2.1 NORMAL CONCRETE**

Normal concrete 17.5 to 50 MPa grade, (refer to SELECTIONS), maximum aggregate size 19mm ready-mixed to NZS 3104. Provide delivery dockets listing mix and despatch details.

### **2.2 REINFORCEMENT**

Bars to AS/NZS 4671. Grade 300E deformed, other than for ties, stirrups and spirals, unless shown otherwise on the drawings. Welded reinforcing mesh Class E to AS/NZS 4671.

### **2.3 MESH FOR SLABS TO NZS 3604 OR NZS 4229**

For slabs on ground mesh to be welded reinforcing mesh to AS/NZS 4671, Class E, minimum to B1/AS1 - Grade 500E, 2.27kg/m<sup>2</sup> (1.14kg/m<sup>2</sup> in each direction).

### **2.4 TYING WIRE**

Mild drawn steel wire not less than 1.2mm diameter.

### **2.5 SPACERS AND CHAIRS**

Precast concrete or purpose made moulded PVC to approval. Where concrete spacer blocks are used in exposed concrete work use blocks matching surrounding concrete.

### **2.6 DAMP-PROOF MEMBRANE**

0.25mm minimum polyethylene to NZS 3604, 7.5.4, Damp-proof membrane.

## **3. EXECUTION**

### **3.1 HANDLE AND STORE**

Handle and store reinforcing steel and accessories without damage or contamination. Store on timber fillets on hard ground in a secure area clear of any building operation. Lay steel fabric flat.

Ensure reinforcement is clean and remains clean so that at the time of placing concrete it is free of all loose mill scale, loose rust and any other contamination that may reduce bonding capacity.

### **3.2 INSTALL DAMP-PROOF MEMBRANE**

Apply polythene membrane to prepared basecourse with 150mm laps between sheets. Tape seal laps and penetrations with 50mm wide pressure sensitive plastic tape. Refer to drawings for perimeter details.

### **3.3 CUT AND BEND REINFORCEMENT**

Cut and bend bars using proper bending tools to avoid notching and to the requirements of NZS 3109: 3.3 Hooks and bends. Minimum radii of reinforcement bends to NZS 3109, table 3.1, Minimum radii of reinforcement bends. Do not rebend bars. Where rebending is approved, use a purpose built tool, proper preparation and preheating.

### **3.4 ADJUSTMENTS**

Use a purpose built tool for on site bending and to deal with minor adjustments to steel reinforcement.

### **3.5 TOLERANCES, BENDING**

To NZS 3109, 3.9, Tolerances for reinforcement.

### **3.6 SECURE REINFORCEMENT**

Secure reinforcement adequately with tying wire and place, support and secure against displacement when concreting. Bend tying wire back well clear of the formwork. Spacing as dimensioned, or if not shown, to the clear distance minimums in NZS 3109, 3.6, Spacing of reinforcement.

### 3.7 LAPPED SPLICES

Length of laps where not dimensioned on the drawings in accordance with the SELECTIONS. Increase laps of plain round steel by 100%. Provide laps only where indicated on the drawings. Tie all lapping bars to each other. Welded wire mesh laps to NZS 3101, lap one mesh square plus 50mm minimum (do not count bar extension beyond the outermost wire).

### 3.8 MESH LAPS FOR SLABS TO NZS 3604 OR NZS 4229

For slabs on ground the welded reinforcing mesh to be lapped such that the outermost wires overlap by the greater of:

- the spacing of the cross wires plus 50mm
- 150mm or
- manufacturer's requirements

Do not count bar extensions beyond the outermost cross wire.

### 3.9 REINFORCEMENT COVER TO NZS 3604 OR NZS 4229

For in-situ concrete, foundations and interior slabs on ground, to NZS 3604 or NZS 4229, the reinforcement and welded mesh cover to be:

Location, cover to	NZS 3604	NZS 4229
Footing, to earth	75mm	75mm
Footing, to DPM	75mm	50mm
Foundation, to edge	75mm	75mm
Slab, to slab top	30mm	30mm
Slab, to slab edge	50mm to 75mm	50mm to 75mm

### 3.10 CASTING IN

Build in all grounds, bolts and fixings for wall plates and bracing elements, holding down bolts, pipes, sleeves and fixings as required by all trades and as shown on the drawings, prior to pouring the concrete.

Do not use grounds exceeding 100mm in length. Location and form of conduits to be approved in writing by the Contract Administrator. Minimum cover 40mm. Do not encase aluminium items in concrete. Do not paint steel embedded items more than 25mm into the concrete encasement. Cut back form ties to specified cover and fill the cavities with mortar.

Form all pockets, chases and flashing grooves as required by all trades and as shown on the drawings.

Wrap all pipes embedded in concrete with tape to break the bond and to accommodate expansion. Do not embed pipes for conveying liquids exceeding a temperature of 50°C in concrete.

### 3.11 CONSTRUCTION JOINTS

Locate and construct as shown on the drawings or in accordance with NZS 3109, 5.6, Type B.

### 3.12 PRE-PLACEMENT INSPECTION

Do not place concrete until all excavations, boxing and reinforcing have been inspected and passed by the Building Consent Authority.

### 3.13 SURFACE FINISHES

To NZS 3114, 105, Specification of finishes, as scheduled or as denoted on the drawings.

### 3.14 CONCRETE SURFACE TOLERANCES

To NZS 3114, 104, Surface tolerances and NZS 3114, 105, Specification of finishes, with the suggested tolerances becoming the required tolerances.

### 3.15 PUMPING CONCRETE

Set up and supervise pump operation, placing and compaction of the mix to NZS 3109, 7.4, Handling and placing and NZS 3109, 7.6, Compaction Advise the ready-mix supplier

of the type of pump and the slump required, in addition to the concrete grade, strength and quantity.

3.16 COMPACTION

Use power operated vibrators on foundations, vertical constructions and beams.

3.17 FLOOR SLABS TO NZS 3604

Generally for slabs on ground to NZS 3604 as modified by NZBC B1/AS1 and NZBC E2/AS3.

Construct to NZS 3604, 4.5 **Concrete and concrete masonry** and NZS 3604, 7.5, **Concrete slab-on-ground floors in timber buildings** as modified by NZBC B1/AS1, 3.0 **Timber**. Lay to true and straight surfaces, screeded, floated and steel (manual or power) trowelled finish. Tolerance on flatness: maximum 3mm gradual deviation over a 3 metre straight-edge, to NZS 3114, 304, **Surface tolerances**.

Allow for free joints maximum 24m centres to NZBC B1/AS1, 3.1.13 **NZS 3604 New clause**.

3.18 SAW CUTS TO NZS 3604 OR NZS 4229

Cut slabs where indicated on the drawings as required to control shrinkage cracking. Form by saw cutting the slab (blade width approximately 5 mm) to a quarter of the depth of the slab after it has hardened (saw cutting shall take place no later than 24 hours after initial set for average ambient temperatures above 20 °C, and 48 hours for average ambient temperatures below 20°C).

3.19 SPACING OF SAW CUTS

Spacing of sawcuts

Floor situation	Maximum spacing of sawcuts both ways
Industrial floor	5m
Architectural, exposed floor, thin finishes, rigid finishes	4m
Carpet on underlay flooring	6m

3.20 SURFACE DEFECTS

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

3.21 CURING OF CONCRETE

Keep damp for not less than seven days. Ensure curing of slabs commences as soon as possible after final finishing, by the use of continuous water sprays, or ponding. Alternately, apply a curing membrane. Ensure any membrane used will not affect subsequent applied finishes.

3.22 CLEAN OUT

Clean out saw cuts. Fill with cement grout where the floor will be covered with carpet or vinyl.

3.23 REMOVE

Remove all unused materials and all concrete and reinforcing debris from the site.

## 3820 CARPENTRY

### 1. GENERAL

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

#### 1.1 RELATED WORK

Refer to ~ for ~.

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

#### 1.2 DOCUMENTS

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

NZBC B2/AS1	Durability
AS/NZS 1328.1	Glued laminated structural timber - Performance requirements and minimum production requirements
AS/NZS 1604.5	Specification for preservative treatment - Glue laminated timber products
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3604	Timber-framed buildings
NZS 3622	Verification of timber properties
NZS 3640	Chemical preservation of round and sawn timber
AS/NZS 4357.0	Structural laminated veneer lumber - Specification
FTMA CoP	Frame and Truss Manufacturers Association Code of Practice

**\*A copy of NZS 3604 Timber-framed buildings, must be held on site.**

#### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

~

Manufacturer/supplier contact details

Company: ~  
Web: ~  
Email: ~  
Telephone: ~

#### 1.4 QUALIFICATIONS

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

#### 1.5 DIMENSIONS

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

### 2. PRODUCTS

#### 2.1 TIMBER FRAMING, TREATED

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

#### 2.2 TIMBER TRUSSES

To FTMA CoP. Moisture content 16% at supply.

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

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

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

### Components

- 2.5 NAILS  
Type to NZS 3604, section 4, **Durability**, and of the size and number for each particular types of joint as laid down in the nailing schedules of NZS 3604, sections 6-10.
- 2.6 BOLTS AND SCREWS  
Bolts and screws of engineering and/or coach type complete with washers, to the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10.
- 2.7 NAIL PLATES  
Comply with the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10. Plates to the plate manufacturer's design for the particular locations as shown on the drawings.
- 2.8 CONNECTORS  
Comply with the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10. Connectors and structural brackets to the connector manufacturer's design for particular locations shown on drawings.
- 2.9 CORROSION RISKS  
For interior timber, treated with copper-based timber preservatives (H3.2 or higher), use a minimum of hot-dipped galvanized steel fixings and fasteners.  
  
For exterior timber, timber in damp areas and timber subject to occasional wetting, use only stainless steel (or equivalent) fixings and connectors, when the timber is treated with; Copper Azole (CuAz, Preservative code 58), Alkaline Copper Quaternary (ACQ, Preservative code 90), Micronise Copper Azole (code 88) or Micronised Copper Quaternary (code 89).
- 2.10 DPC  
Refer to 4161 UNDERLAYS, FOIL AND DPC section

## 3. EXECUTION

- 3.1 EXECUTION GENERALLY  
To NZS 3604 except as varied in this specification. Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).
- 3.2 SEPARATION  
Separate all timber framing timbers from concrete, masonry and brick by: -  
- a full length bituminous damp-proof membrane overlapping timber by at least 6mm; or  
- a 12mm minimum free draining air space
- 3.3 ATTENDANCE  
Provide and fix blocks, nogs, openings and other items as required by other trades.
- 3.4 MOISTURE CONTENT  
Maximum allowable equilibrium moisture content (EMC) for non air-conditioned or centrally heated buildings for framing to which linings are attached.  
Framing at erection: 24% maximum  
Framing at enclosure: 20% maximum  
Framing at lining: 16% maximum

- 3.5 SET-OUT  
Set out framing in accordance with the requirements of NZS 3604 and as required to support sheet linings and claddings.
- 3.6 FRAMING FLOORS  
Framed and fastened to NZS 3604, section 7, **Floors**.
- 3.7 FRAMING WALLS  
Frame to required loading and bracing complete with lintels, sills and noggs, all fabricated and fastened to NZS 3604, section 8, **Walls**.
- 3.8 FRAMING ROOFS  
Frame to required loading and bracing complete with valley boards, ridge boards and purlins. Design and fit roof trusses complete with anchorage. All fabricated and fastened to NZS 3604, section 9, **Posts** and 10, **Roof framing**.
- 3.9 FRAMING CEILINGS  
Frame to required loading and bracing complete with runners and battens set out to support ceiling lining. All fabricated and fastened to NZS 3604, section 13, **Ceilings**. Trim for openings in ceilings and hatches to NZS 3604 section 13.3, **Openings in ceilings**. Provide blocking for water tanks located in the ceiling space to NZS 3604, section 13.4, **Water tanks in roof space**.
- 3.10 INSTALLING WALL UNDERLAYS  
Refer to 4161 UNDERLAYS, FOIL AND DPC section
- 3.11 FIT CAVITY BATTENS  
Fit and fix 20mm cavity battens over wall underlay or rigid air barrier, fully nail to timber studs to the requirements of the manufacturer or to NZS 3604. Fit and fix related flashings. Fit and fix cavity closers to base of walls, open horizontal (or raking) junctions and over openings (windows, meters etc.).
- 3.12 DPC TO LOSP TREATED TIMBER  
Refer to 4161 UNDERLAYS, FOIL AND DPC section.
- 3.13 DPC TO TIMBER  
Refer to 4161 UNDERLAYS, FOIL AND DPC section.

# 4161 UNDERLAYS, FOIL AND DPC

## 1. GENERAL

This section relates to the application of:

- DPC/DPM
- underfloor foil insulation
- wall underlays includes Kraft based and synthetic wall underlays
- roofing underlays includes kraft based and synthetic roof underlays
- foils
- vapour barriers
- accessories

### 1.1 RELATED WORK

Refer to ~ for ~

### 1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

NZMRM                      New Zealand Metal Roofing Manufacturers Inc.

The following definitions apply specifically to this section:

Wall underlay            the same meaning as defined in NZBC E2/AS1, covering kraft based and synthetic wall underlays, sometimes called, wall wraps, building wraps or building papers.

### Documents

### 1.3 DOCUMENTS

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

NZBC E2/AS1	External moisture
NZS/AS 1530.2	Methods for fire tests on building materials, components and structures - Test for flammability of materials
NZS 2295	Pliable, permeable building underlays
AS/NZS 2904	Damp-proof courses and flashings
NZS 3604	Timber-framed buildings
AS/NZS 4200.1	Pliable building membranes and underlays
AS/NZS 4347.0	Damp-proof courses and flashings - Methods of test - General introduction, list of methods and test specimen requirements
AS/NZS 4389	Roof safety mesh
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
NZMRM CoP	NZ metal roof and wall cladding Code of Practice

### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this part of the work:

~

Manufacturer/supplier contact details

Company:                ~  
Web:                      ~  
E-mail:                   ~  
Telephone:              ~

### Requirements

### 1.5 INSTALLATION SKILL LEVELS

Installers to be familiar with the manufacturer's technical literature and the NZMRM CoP NZ metal roof and wall cladding Code of Practice.

## 2. PRODUCTS

### Materials

#### DPC

- 2.1 POLYETHYLENE DPC  
Polyethylene film to AS/NZS 2904 and to the appropriate test methods set out in AS/NZS 4347.0. Thickness 500 microns minimum, manufactured for use as a damp-proof course and concealed flashings to doors and windows.

#### DPM

- 2.2 DAMP PROOF MEMBRANE - CONCRETE FLOOR  
Polyethylene sheet with minimum thickness of 0.25mm to NZS 3604, 7.5.6, **Polyethelene (polythene) sheet damp-proof membranes.**

#### Wall Underlays

- 2.3 NON-ABSORBENT SYNTHETIC WALL UNDERLAY - POLYOLEFIN  
Non-absorbent, breathable very fine high density white polyolefin fibres bonded with heat and pressure to form a wide sheet.

#### Roofing Underlay

- 2.4 BITUMINOUS SELF-SUPPORTING ROOFING UNDERLAY  
Self supporting roofing underlay tested to NZS 2295.

#### Accessories

- 2.5 WINDOW DOOR SEALING SYSTEM  
Proprietary window and door flashing tape and accessories to E2/AS1, paragraph 4.3.11, **Flexible flashing tape**, paragraph 9.1.5, **Wall underlays to wall openings.**
- 2.6 STUD STRAPS  
19mm wide polyethylene straps, for cavity construction with framing centres greater than 450mm.
- 2.7 WIRE NETTING  
75mm galvanized hexagonal wire netting to AS/NZS 4534.
- 2.8 GUTTER AND UNDER FLASHINGS  
Bituminous breather type underlay cut to width by manufacturer for use under valley, apron flashing and internal gutters. Soffit liner cut to width from bituminous breather type underlay.
- 2.9 ADHESIVE TAPE  
Adhesive tapes to compliment the underlay. Pressure sensitive tapes for joining foil insulation and vapour barriers.

## 3. EXECUTION

### Conditions

- 3.1 GENERAL REQUIREMENTS  
To NZBC E2/AS1 Table 23 Properties of Roof Underlays and Wall Underlays; and manufacturers technical literature.  
Note: Care should be taken not to expose the underlay to continuous wet and windy conditions.

3.2 **STORAGE**  
Store wall and roofing underlays and accessory materials, under conditions that ensure no deterioration or damage. Store rolls in an upright position on a smooth floor and protected from sunlight, UV radiation and moisture.

3.3 **INSPECTION**  
Before starting work, check that the framing will allow work of the required standard. Carry out remedial work identified before laying underlay.

**Application - DPC**

3.4 **POLYETHYLENE DPC TO TIMBER**  
Lay polyethylene DPC under treated and untreated timber, including LOSP treated timber, of all timber framed walls on concrete and concrete masonry, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

3.5 **DPC TO MASONRY AND BRICK VENEER**  
Lay DPC along base of cavity and fix top edge to studs with galvanized clouts. Turn DPC out over concrete rebate under bottom course of veneer.

3.6 **DPC BETWEEN DISSIMILAR MATERIALS**  
Lay DPC between dissimilar materials where required.

**Application - DPM**

3.7 **DPM TO CONCRETE FLOOR**  
Lay DPM under concrete floor substrate over sand binding, in a single layer with 150mm overlaps at joints to provide a waterproof barrier.

**Application - Wall Underlay**

3.8 **WALL UNDERLAY**  
Fix horizontally to outside face of substrate in true alignment, with succeeding sheets overlapping 150mm to NZBC E2/AS1, clause 9.1.7, **Wall underlay** and refer to manufacturer for requirement for fastenings. Fix to manufacturers requirements. Scribe neatly around penetrations and openings to leave no gaps. Tape all penetrations. Keep clean, undamaged and without visible weather deterioration until closed in.

3.9 **INSTALL STUD STRAPS**  
Over underlay, install 19mm wide polyethylene straps horizontally at 300mm centres, draw taut and fix to studs with stainless steel staples.

3.10 **METAL CLADDING ON TIMBER CAVITY BATTENS**  
Fix strip of underlay to face of batten before fixing the metal cladding.

**Application - Roofing Underlay**

3.11 **INSTALL WIRE NETTING**  
Lay 75mm galvanized wire netting at right angles across the purlins and drawn taut before fixing. Tie edges of netting together with galvanized wire clips.

3.12 **ROOF UNDERLAY**  
Lay vertically over purlins on wire netting with a 150mm side lap. Fix securely to purlins with galvanized fixing clips. Lay underlay to avoid excessive dishing between purlins. When used vertically limit individual runs to 10 metres for bituminous based roofing underlays, 7 metres for fire retardant underlays and 20 metres for synthetic roofing underlays. Do not lay vertically on roof pitches under 10°.

Lay horizontally across the rafter/trusses starting at the gutter line with succeeding sheets in true alignment and lapping 150mm. Scribe around and fit neatly to all penetrations. Avoid prolong exposure by installing the roof immediately. UV exposure maximum 7 days.

- 3.13 **GUTTER AND UNDER FLASHINGS**  
Lay bituminous breather type underlay cut to width by manufacturer for use as an underlay to valley, apron flashings, internal gutters and soffit liner. Lap under flashings with adjoining underlays. Fix soffit liner from top plate down 150mm past ribbon plate.

**Completion**

- 3.14 **CLEAN UP**  
Clean up as the work proceeds.
- 3.15 **LEAVE**  
Leave work to the standard required by following procedures.
- 3.16 **REMOVE**  
Remove debris, unused materials and elements from the site.

## 4230 WALL CLADDING

### 1. GENERAL

This section relates to the supply and installation of exterior cladding, including:

- associated flashings
- timber fascias
- timber barges
- timber trims
- timber beads
- timber facings

#### 1.1 RELATED WORK

~

#### Documents

#### 1.2 DOCUMENTS

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

NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture
AS/NZS 1491	Finger jointed structural timber
AS/NZS 2269.0	Plywood - Structural - Specification
AS/NZS 2908.2	Cellulose-cement products - Flat sheets
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 3617	Profiles of weatherboards fascia boards and flooring
NZS 3631	New Zealand timber grading rules
BRANZ BU 441	Sealed joints in external claddings - 2. Sealants

#### 1.3 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

~

Copies of the above literature are available from ~

Web:	~
Email:	~
Telephone:	~
Facsimile:	~

#### Performance

#### 1.4 PERFORMANCE

Accept responsibility for the weathertight performance of the completed cladding system, including all penetrations.

### 2. PRODUCTS

#### 2.1 WALL UNDERLAYS

For flexible wall underlays, rigid wall underlays and rigid air barriers, refer to the appropriate separate section(s).

#### 2.2 EXTERIOR CAVITY WALL BATTENS

Radiata pine battens, minimum 20mm thickness, width and height to match timber framing studs. Treatment to NZBC B2/AS1 and NZS 3602, table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.

#### 2.3 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

Perforated uPVC, aluminium or stainless steel trays with upstands. Upstand one side 10mm and the other 75mm. Length and width to suit cavity.

- 2.4 **TIMBER WEATHERBOARD**  
Dressing grade to NZS 3631, to NZS 3617 for profile and treated to NZS 3602, table 2, reference 2.A1, Requirements for wood-based building components to achieve a 15-year durability performance.
- 2.5 **FIBRE-CEMENT SOFFIT LINING**  
Cellulose cement autoclaved sheets to AS/NZS 2908.2.
- 2.6 **TIMBER FASCIAS AND BARGE BOARDS**  
Dressing grade to NZS 3631 and treated to NZS 3602, table 2, reference 2A.3, Requirements for wood-based building components to achieve a 15-year durability performance. Finger jointed timber to AS/NZS 1491.
- 2.7 **PVC JOINTERS**  
To suit sheet thickness.
- 2.8 **NAILS, SCREWS AND FASTENINGS**  
Metal, size and pattern, to cladding manufacturer's requirements and complying with the relevant aspects of NZS 3604, section 4, Durability.
- 2.9 **FLASHINGS**  
To NZBC E2/AS1, 4.0 **Flashings**. Material, grade and colour as detailed and scheduled. Ensure that materials used for flashings are compatible with the window frame materials and fixings and cladding materials and fixings.
- 3. EXECUTION**
- 3.1 **MOISTURE CONTENT**  
Maximum allowable moisture content to NZS 3602 for:  
Equilibrium moisture content (EMC)  
- Framing: 20% at closing in  
- Weatherboards: 14% at time of fixing  
- Exterior joinery and trim: 14%
- 3.2 **EXECUTION METHODS AND PRACTICES**  
To NZS 3604 except as varied in this specification. Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).
- 3.3 **PENETRATIONS**  
Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:  
- wall underlay/rigid air barrier to openings finished and dressed off with flashing tape ready for the installation of window and door frames and other penetrations  
- claddings neatly finished off to all sides of openings  
- installation of flashings (those required to be installed prior to installation of penetrating elements).
- 3.4 **INSTALL DRAINED CAVITY**  
20mm Minimum thickness drained cavity to NZBC E2/AS1: 9.0 Wall claddings, where required. Fix vertical cavity battens to wall framing studs. The battens are fixed by the cladding fixings which will penetrate the wall framing studs over the wall underlay. Seal the top of the cavity. Install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc). Do not use horizontal cavity battens. Use cavity spacers where fixing is required between cavity battens.
- 3.5 **PRIME OR SEAL TIMBER WEATHERBOARDS AND TRIM**  
Prime or seal all front and back faces, edges and end grain before fixing weatherboards and exterior trim, to the finish and quality specified in painting sections.

- 3.6      **FIXINGS TO TIMBER CLADDINGS**  
~
- 3.7      **INSTALL TIMBER WEATHERBOARDS**  
Install level, true to line and face, to NZBC E2/AS1: 9.4 Timber weatherboards. Refer to NZS 3604 for fixings durability requirements for specific provisions.
- 3.8      **INSTALL FIBRE CEMENT SOFFITS WITH JOINTERS AND CAPPING MOULDS**  
Cut sheets dry and scribe fit to fully support all edges and joints. Nail and drill for and insert fasteners to the sheet manufacturer's requirements. Fit complete with jointers and capping moulds. Refer to the cladding manufacturer's literature for fixing details and NZS 3604 for fixings durability requirements for specific provisions.
- 3.9      **INSTALL FLUSH JOINTED FIBRE CEMENT SOFFIT SHEETS**  
Cut sheets dry, and scribe fit to fully support all edges and joints. Fit expansion joints to limit finished areas to 9 metre x 6 metres maximum, confirm with the sheet manufacturer's requirements. Flush joints with bedding compound reinforcing tape and finishing compound to flush width of 150mm. Refer to the sheet manufacturer's requirements and details.
- 3.10     **INSTALL EXTERIOR TIMBER FINISHINGS**  
Install timber fascias, barge boards, facings, beads, trim and enclosures level, true to line and face, with all end grain sealed and joints mitred.
- 3.11     **INSTALL FLASHINGS**  
Install flashings, covers and soakers as detailed on the drawings and to NZBC E2/AS1.
- 3.12     **USE OF SEALANTS**  
Selection and use of sealants to follow BRANZ BU 441 Sealed joints in external claddings - 2. Sealants.
- 3.13     **COMPLETE**  
Ensure the work is complete with all flashings, finishings and trim properly installed so the cladding system is completely weathertight.
- 3.14     **REPLACE**  
Replace damaged or marked elements. Remove unused materials from the site.

## 4261 BRICK VENEER CLADDING

### 1. GENERAL

This section relates to clay brickwork as a veneer cladding.

It includes:

- Standard brick veneer cladding
- Proprietary two storey brick veneer system

### 1.1 RELATED WORK

Refer to ~ for ~.

### 1.2 ABBREVIATIONS AND DEFINITIONS

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

The following definitions apply specifically to this section:

Proprietary Two Storey Brick Veneer System	Proprietary system for two storey clay brick veneer construction as contained in BRANZ Appraisal 690 – Two Storey Brick Veneer System.
--	--

### Documents

### 1.3 DOCUMENTS

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

NZBC E2/AS1	External moisture
NZBC B1/AS3	Structure
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 2699.1	Built-in components for masonry construction - Wall ties
AS/NZS 2699.3	Built-in components for masonry construction - Lintels and shelf angles (durability requirements)
AS/NZS 2918	Domestic solid fuel burning appliances - Installation
NZS 3103	Sands for mortars and plasters
NZS 3604	Timber-framed buildings
NZS 4210	Masonry construction: materials and workmanship
SNZ HB 4236	Masonry veneer wall cladding
AS/NZS 4455	Masonry units and segmental pavers
BRANZ Appraisal 690	Two Storey Brick Veneer System
BRANZ	Good practice guide: Masonry veneer

### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

~

Manufacturer/supplier contact details

Company	~
Web:	~
Email:	~
Telephone:	~

### Requirements

### 1.5 QUALIFICATIONS

Bricklayers to be experienced, competent and familiar with the materials and the techniques specified.

All work to be installed or supervised by a Registered Mason or licensed building practitioner (LBP): Licensed for Bricklaying and Blocklaying 1: Brick/masonry Veneer. RBW must be supervised by an LBP.

- 1.6 **NO SUBSTITUTIONS**  
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

**Compliance information**

- 1.7 **INFORMATION REQUIRED FOR CODE COMPLIANCE**  
Provide the following compliance documentation:  
- Producer Statement - Construction from the installer of Two Storey Brick Veneer System.  
- Other information required by the BCA in the Building Consent Approval documents.

**Performance**

- 1.8 **DESIGN PARAMETERS - NON SPECIFIC DESIGN**  
Design the installation to the seismic parameters of NZS 4210 Masonry construction: materials and workmanship.  
Refer to SELECTIONS for details.

- 1.9 **COMPLIANCE**  
Brickwork to comply with SNZ HB 4236 Masonry veneer wall cladding.

**2. PRODUCTS**

**Materials**

- 2.1 **CLAY BRICKS**  
To AS/NZS 4455.
- 2.2 **STEEL LINTELS**  
To AS/NZS 2699.3.
- 2.3 **VERMIN STOP**  
Galvanized hexagon 10mm mesh of 1mm diameter steel wire 100mm wide, complete with galvanized steel staples.
- 2.4 **DAMP-PROOF MEMBRANE**  
Heavy kraft, strip laminates saturated and coated with bitumen, butyl rubber sheet with adhesive, or equivalent.
- 2.5 **DAMP-PROOF COURSE**  
Polyethylene based strip used as a damp-proof course and flashing, also for slip joints between brick courses.

**Components - standard brick veneer**

- 2.6 **WALL TIES**  
To AS/NZS 2699.1. Veneer ties screw fixed to framing.
- 2.7 **REINFORCEMENT**  
Galvanised wire joint reinforcement

**Accessories**

- 2.8 **SAND FOR MORTAR**  
To NZS 3103. Chloride levels to not exceed 0.04% by dry weight of sand.
- 2.9 **MORTAR**  
Composed of Portland cement, sand and water with an admixture to the provisions of NZS 4210: 2.2 Mortar. Obtain written approval of admixture being used. Obtain written approval if intending to use hydrated lime in the mortar.

2.10 ADMIXTURES  
To NZS 4210.

2.11 WATER  
Clean, fresh and free from excess alkali, salt, silt and organic materials.

### 3. EXECUTION

#### Conditions

3.1 TOLERANCES  
To NZS 4210, table 2.2 Maximum tolerances.

3.2 HANDLING AND STORAGE OF MATERIALS  
To NZS 4210 for aggregates, cement, bricks and reinforcement.

3.3 CONCRETE BASE  
Check vertical and horizontal alignment. Any discrepancies exceeding the permitted tolerances shall be corrected before units are laid.

3.4 TIMBER FRAMING  
Check timber framing stud spacing is in accordance with NZS 3604.

3.5 PENETRATIONS  
Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the brick veneer. Required preparatory work includes the following:

- brick veneer wall underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- brick veneer neatly finished off to all sides of openings
- installation of flashings (those required to be installed prior to installation of penetrating elements).

3.6 MEASURE MATERIALS  
Measure materials for mortar accurately by weight or volume using suitably calibrated equipment.

3.7 WET WEATHER  
Keep bricks dry at all times prior to laying. Protect the top row of uncompleted brick walls. Protect freshly laid brickwork during interruption through rain and at completion of each day's work. Protect brickwork for a minimum of 6 hours.

3.8 COLD WEATHER CONSTRUCTION  
When air temperature is below 5°C take the precautions required by NZS 4210: 2.18 Cold weather construction.

3.9 HOT WEATHER CONSTRUCTION  
When air temperature is above 25°C or there is a drying wind, or lower temperatures, take the precautions required by NZS 4210: 2.19 Hot weather construction.

3.10 KEEP FACE WORK CLEAN  
Keep clean during erection and until completion of the contract works. Turn back scaffold boards at night and during heavy rain. Do not rub face work to remove stains.

#### Installation - general

3.11 COLOUR MIXING  
Check all bricks delivered to site for colour variation, prior to commencing work. Ensure bricks are thoroughly blended from several pallets to ensure an even colour spread throughout the work.

- 3.12 **UNIFORMITY**  
Carry up work with no portion more than 1500mm above another at any time, raking back between levels.
- 3.13 **BONDING**  
Lay bricks to the required bonding in the various locations. Refer to SELECTIONS/drawings.
- 3.14 **PROVIDE WEEPHOLES**  
Provide weepholes at the bottom of cavities and cells to SNZ HB 4236 and NZBC E2/AS1, 9.2.6, **Cavities**, and as necessary to drain moisture to the outside air. Provide vent gap at the top of the veneer.
- 3.15 **INSTALL VERMIN STOP**  
Fold and staple one edge of the mesh to the substrate and with the mesh sloping outwards, set the other edge half the thickness of the veneer or 50mm, whichever is less, into the mortar joint.
- 3.16 **CAVITY VENTILATION**  
Ventilate to outside air with top and bottom openings to the requirements of SNZ HB 4236 and NZBC E2/AS1, 9.2.6, **Cavities**. Seal cavity off from roof space.
- 3.17 **CAVITY BRICKWORK BELOW GROUND**  
Fill all cavities below finished grade with concrete. Place a continuous damp-proof course within the first three mortar joints above ground. Seal the face of all brickwork below ground.
- 3.18 **FORM OPENINGS**  
Unless detailed otherwise form openings to typical details from BRANZ Masonry veneer - Good practice guide.
- 3.19 **SEPARATION JOINTS**  
Provide for wall movements of veneer with control joints to NZS 4210: 2.10 Methods of controlling wall movements. Weatherproof as necessary.
- 3.20 **FORM REVEALS**  
Form lintels, jambs and sills as detailed complete with flashings and all ready for following work.
- 3.21 **HEAD FLASHINGS**  
Provide a flexible flashing extending 200mm beyond ends of the opening and sloping to weepholes over all openings in cavity walls, in accordance with E2/AS1, 9.2.4, **Flashings**.
- 3.22 **JAMB FLASHINGS**  
Provide a flexible flashing to jambs of openings in cavity walls, fully lapped with horizontal damp-proof courses at head and sill, in accordance with E2/AS1, 9.2.4, **Flashings**.
- 3.23 **SILL FLASHINGS**  
Provide a flexible flashing under jointed sills, turned up at back and ends, in accordance with E2/AS1, 9.2.4, **Flashings**.
- 3.24 **REBATE DAMP PROOFING**  
Provide damp-proof course to stepped rebates supporting brick veneer in accordance with E2/AS1, 9.2.5, **Foundation support and damp-proofing**.
- Installation - standard brick veneer**
- 3.25 **INSTALL LINTELS**  
Fit angle lintels to openings, sized to NZBC E2/AS1, 9.2.9, **Openings in masonry veneer** Table 18E and placed to NZBC E2/AS1, 9.2.9, **Openings in masonry veneer**.

3.26 CAVITY WIDTH  
No cavity width less than 40mm or more than 75mm.

3.27 PLACE TIES  
Place ties to: -  
- NZS 4210: 2.9.5 Tie anchorage, cover and fixing; and  
- NZS 4210: 2.9.6 Placing of ties  
- NZS 4210: 2.9.7 Tie classification and spacing  
- NZBC E2/AS1, 9.2.7, **Wall ties**, for requirements, spacing, embedment, placement and materials

At unsupported edges and at all openings through veneered walls or non-grouted cavity walls, wall ties to be provided;

At the top and bottom of the opening:

- Not more than 300mm or 2 courses, whichever is the smaller

At the sides of the opening or at an unsupported edge:

- Not more than 300mm

- Where the veneer wall continues above or is interrupted by a damp-proof course or waterproof membrane, wall ties shall be provided in each of the first two courses above the membrane.

#### **Installation - ancillary work**

3.28 BUILD IN FIXINGS  
Build in necessary fixing bricks or blocks for trims.

3.29 BUILD IN ELEMENTS  
Build in sills, copings, lintels, steps and other elements using mortar similar to that in adjacent walls.

3.30 BUILD IN DOORS AND WINDOWS  
Build in door and window frames as the work proceeds and bed in mortar similar to that in adjacent work.

#### **Completion**

3.31 ROUTINE CLEANING  
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

3.32 EFFLORESCENCE, WATER CLEANING  
To remove deposits, brush with a stiff-bristle broom and take away brushings from the locality. Remove remaining deposit with a damp sponge. Wash wall thoroughly with a plentiful supply of clean water. Repeat this process every 4 weeks from appearance through to the completion of the contract works.

3.33 DEFECTIVE OR DAMAGED WORK  
Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures.

3.34 PROTECTION  
Provide the following temporary protection of the finished work:  
~

## 4320 TILE ROOFING

### 1. GENERAL

This section relates to the supply and installation of tile roof, complete with all roof underlays and accessories to create a watertight roof.

#### 1.1 DOCUMENTS

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

NZBC B2/AS1	Durability
NZBC E2/AS1	External Moisture
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
NZS 2295	Pliable, permeable building underlays
NZS 3602	Timber and wood-base products for use in building
NZS 3604	Timber-framed buildings
NZS 4206	Concrete interlocking roofing tiles
NZS 4217	Pressed metal tile roofs
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire

#### 1.2 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

~

Copies of the above literature are available from ~

Web: ~

Email: ~

Telephone: ~

Facsimile: ~

#### Warranties

#### 1.3 WARRANTY - MANUFACTURER/SUPPLIER METAL TILES

Provide a material manufacturer/supplier warranty:

25 years: For tile materials

5 years: For coating

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

#### 1.4 WARRANTY - INSTALLER/APPLICATOR

Provide a material installer/applicator warranty:

5 years: For installation

- Provide this warranty on the installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

#### Requirements

#### 1.5 QUALIFICATIONS

Carry out roofing work using experienced, competent roofers familiar with the materials and techniques specified.

#### 1.6 FIXINGS, WIND

Design and use the fixings appropriate to the manufacturer's requirements and as appropriate for the project wind design stated in the general section 1220 PROJECT.

- 1.7 **CO-ORDINATE**  
Co-ordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof.
- 1.8 **PERFORMANCE**  
Accept responsibility for the weather-tight performance of the completed roofing system, including all penetrations through the roof and junctions with walls and parapets.
- 2. PRODUCTS**
- 2.1 **TIMBER BATTENS**  
To NZS 3604, 10.2.1.16.7 - **Tile Battens**.  
Type: Radiata pine, SG8  
Treatment: H1.2, Boron (code 11) or PTP (code 64)
- With masonry tiles like concrete, do not use timber treated with; Copper Azole (CuAz, Preservative code 58), Alkaline Copper Quaternary (ACQ, Preservative code 90), Micronise Copper Azole (code 88) or Micronised Copper Quaternary (code 89), as they may cause corrosion in steel and galvanised steel.
- Max span of batten;  
Up to 480mm: 50mm x 25mm batten  
430mm - 600mm: 50mm x 40mm  
600mm - 900mm: 50mm x 50mm
- 2.2 **WIRE NETTING**  
Galvanized hexagonal 75mm mesh from 1mm steel wire to AS/NZS 4534.
- 2.3 **UNDERLAY**  
Breather type kraft paper laminates to NZS 2295.
- 2.4 **METAL ROOFING TILES**  
Pressed steel sheet galvanized, or aluminium/zinc coated to AS 1397. Finish as specified. Accessories, capping, flashings, and fixings to match and to the roofing manufacturer's requirements.
- 2.5 **FLASHINGS GENERALLY**  
To E2/AS1, 4.0 **Flashings**. Formable grade 0.55mm BMT for galvanized, aluminium/zinc-coated and pre-painted steel.
- 2.6 **FIXINGS METAL TILES**  
50x2.8mm hot-dip galvanised painted flat-head annular grooved nails, plus neoprene washers when top fixing, to NZBC E2/AS, 8.3.7, **Fixings**, and to tile manufacturer's requirements.
- 3. EXECUTION**
- 3.1 **STORAGE**  
Stack roofing and accessories on clean, level areas of the site and protect from damage and from weather until ready to fix in place. Avoid overloading roof structure when roofing materials are placed on the roof area prior to installation.
- 3.2 **SET-OUT**  
Set out the planned layout before fixing commences, to ensure true lines and the correct relationship to module, grid and roof features.
- 3.3 **LAY ROOF UNDERLAY**  
Lay and fix to NZBC E2/AS1: 8.1.5, **Roof Underlays** and the roofing manufacturer's requirements.
- 3.4 **LAY ROOFING, GENERALLY**  
To NZBC E2/AS1: 8.0 **Roof claddings**. Take care to avoid damaging pre-finished roofing both during and after fixing. Wear only soft-soled shoes on the finished surface.

- 3.5 **INSTALL TILE BATTENS**  
To NZS 3604, 10.2.1.16.7 - **Tile Battens**. Install the tile battens to the roofing manufacturer's requirements and with all joints fully supported and staggered.
- 3.6 **CUT METAL TILES**  
Cut with tools specified by the roofing manufacturer. Fold ends and seal cut edges of tiles and accessories without damaging their integrity or finish, all to the roofing manufacturer's requirements.
- 3.7 **INSTALL METAL TILES**  
Lap metal tiles and fix complete with matching accessories, flashed to roof features and penetrations; all to the roofing manufacturer's requirements and NZS 4217 and to NZBC E2/AS1: 8.3 **Pressed metal tiles**.
- 3.8 **FIXINGS**  
Refer to the roofing manufacturer's literature for fixing details and to NZBC E2/AS1.
- 3.9 **INSTALL COVERS AND FLASHINGS**  
Cut, fit and fix all elements true to line and plane, to NZBC E2/AS1: **4.0 Flashings**, NZBC E2/AS1: **5.0 Roof/wall junctions**, and to the roofing manufacturer's details.
- 3.10 **PENETRATIONS**  
To NZBC E2/AS1. Flash and overflash all penetrations through the roof.
- 3.11 **PENETRATIONS AND JUNCTIONS**  
Check that adjoining walls and parapets are prepared ready for the installation of the roofing. Confirm that openings have been prepared ready for the installation of skylights and other penetrations through the roof. Required work includes the following:  
- underlay turned up at wall and parapet lines  
- underlay finished and dressed off to all openings, ready for the installation of skylights and other penetrations  
- roofing installation neatly finished to all sides of openings and to all wall and parapet junctions  
- installation of flashings (those required to be installed prior to installation of penetrating elements and/or wall linings).
- 3.12 **USE OF SEALANTS**  
Select and use sealants only as recommended by the roofing manufacturer.
- 3.13 **COMPLETE**  
Ensure the work is complete with all flashings, undercloaks, valleys, ridges and hips properly installed so the finished roof is completely weathertight.
- 3.14 **REMOVE FILINGS**  
Remove metal filings from roofing surfaces at least daily.
- 3.15 **CLEAR**  
Clear trade rubbish and unused materials from the roof and surrounds regularly during the work and at completion. Sweep down the completed roof and flush out spoutings, gutters and rainwater pipes, ensuring that metal filings, metal scraps and loose fixings are removed.
- 3.16 **REPLACE**  
Replace damaged or marked elements. Remove unused materials from the site.

## 4521 ALUMINIUM WINDOWS AND DOORS

### 1. GENERAL

This section relates to the manufacture, supply, and installation of:

- aluminium windows
- aluminium doors and frames
- hardware and furniture
- overhead glazing
- flashings

#### 1.1 RELATED WORK

Refer to glazing sections for glass types

#### 1.2 ABBREVIATIONS AND TERMS

SLS	Serviceability limit state
ULS	Ultimate limit state
WANZ	Windows Association of Zealand
PQAS	Powder Coating Quality Assurance System

#### Documents

#### 1.3 DOCUMENTS

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

NZBC E2/AS1	External moisture
NZBC F4/AS1	Safety from falling
NZBC H1/VM1	Energy efficiency
NZBC H1/AS1	Energy efficiency
AS/NZS 1580.108.1	Methods of test for paints and related materials - Determination of dry film thickness on metallic substrates - Non destructive methods
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 1734	Aluminium and aluminium alloys - flat sheets, coiled sheet and plate
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
NZS 3604	Timber-framed buildings
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications
BS 3900	Methods of tests for paints, Part C5: Determination of film thickness
NZS 4211	Specification for performance of windows
NZS 4223.3	Glazing in buildings - Human impact safety requirements
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
WANZ Installation Guide:	The WANZ Guide to Window Installation as described in E2/AS1 Amendment 5.
WANZ PQAS	Powder Coating Quality Assurance System
WANZ SFA 3503-03	Anodic Oxide coatings on wrought aluminium for external architectural application (2005).
BRANZ BU 337	Protecting Window Glass from Surface Damage
AAMA 2604	Voluntary specification, performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels.
AAMA 2605	Voluntary specification, performance requirements and test procedures for superior performing organic coatings on aluminium extrusions and panels.
US Federal Specification	
TT-S-001543A	Sealing compound, silicone rubber base (for caulking, sealing and glazing in buildings and other structures)
TT-S-00230C	Sealing compound, elastomeric type, single component (for caulking, sealing and glazing in buildings and other structures)

#### 1.4 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

~

Copies of the above literature are available from ~

Web: ~

Email: ~

Telephone: ~

Facsimile: ~

#### **Warranties**

#### 1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

5 years: For fabrication

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

#### 1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

2 years: For installation

- Provide this warranty in the installer/applicator standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

#### **Requirements**

#### 1.7 QUALIFICATIONS

Work to be carried out by tradesmen experienced, competent and familiar with the materials and techniques specified.

#### 1.8 COMPLIANCE

Windows and doors to be manufactured and installed to NZBC E2/AS1.

#### 1.9 CERTIFICATION

Provide evidence of a certificate by a laboratory accredited by International Accreditation of New Zealand that the windows and doors offered comply with the requirements of NZS 4211.

#### **Performance**

#### 1.10 PERFORMANCE - WINDOWS AND DOORS

To NZS 4211, including:

- deflection, opening sashes, air infiltration, water penetration, ultimate strength, torsional strength of sashes, marking.

Refer to SELECTIONS.

#### 1.11 PERFORMANCE - STRUCTURAL/WEATHER-TIGHTNESS

The structural and weather-tight performance of the completed joinery, the glazing and infill panels is the responsibility of the window manufacturer.

#### **Performance - Wind (design by contractor)**

#### 1.12 WIND - NON SPECIFIC DESIGN

Design the installation to the wind zone parameters of NZS 3604, table 5.4.

Refer to SELECTIONS for wind zone.

#### **Finishes**

- 1.13 **CERTIFY COATINGS - POWDER COATING**  
Certify on request, compliance with this specification and support with control and sampling records. Test for film thickness to BS 3900, part C5, method No. 4, using method (b) or to AS/NZ 1580.108.1 for certifying thickness and method (a) where any dispute arises as to the thickness provided.  
The coating should be applied by an applicator who can certify that the coating has been applied in accordance with the specification.

## **2. PRODUCTS**

### **Materials**

- 2.1 **WINDOWS**  
Refer to SELECTIONS for type and finish.
- 2.2 **DOORS**  
Refer to SELECTIONS for type and finish.
- 2.3 **ALUMINIUM EXTRUSIONS**  
Alloy designation to comply with AS/NZS 1866. Branded and extruded for anodising or powder coating.
- 2.4 **ALUMINIUM SHEET AND STRIP**  
Complying with AS/NZS 1734 of suitable thickness. Rolled for anodising or powder coating.  
Alloy designation: 5251 - H16 or 5005 - H16
- 2.5 **STAINLESS STEEL SHEET AND STRIP**  
Type: 316 austenitic steel  
Finish grade: 2B (satin lustre)
- 2.6 **GLASS**  
Refer to the glazing section for glass types and installation.
- 2.7 **REVEALS - TIMBER PAINTED**  
Timber reveals for paint finish with all sides primed grooved for wall linings or flush finished for architraves.
- 2.8 **FLASHINGS GENERALLY**  
To NZBC E2/AS1, 9.1.10 **Windows and Doors**. Material, grade and colour of head flashings to match the window frames. Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

### **Components - for cavity systems**

- 2.9 **STANDARD CAVITY CLOSER**  
A perforated device constructed from either aluminium or PVC to close the cavity above the window or door unit, between the cladding and head flashing, to provide ventilation in accordance with NZBC E2/AS1 to the spaces above the window or door.
- 2.10 **WANZ SUPPORT BAR**  
Extruded aluminium support bar with built in drainage and ventilation to NZBC E2/AS1, to provide continuous support to the window unit. Size to suit cladding type.

### **Components**

- 2.11 **GLAZING GASKETS**  
Thermoplastic rubber. Do not stretch glazing gaskets during installation. Measure and cut gaskets 5-10% over length before installation.

- 2.12 **HARDWARE AND FURNITURE**  
Hinges, stays, catches, fasteners, latches, locks and furniture as offered by the window and door manufacturer. Refer to SELECTIONS for type and finish. Key alike all lockable window hardware able to be keyed alike.
- 2.13 **SAFETY STAYS**  
Stainless steel non releasable restrictors to limit window opening to NZBC F4/AS1, Table 2, Acceptable opening sizes for barriers.

### **Sealants**

- 2.14 **STRUCTURAL SEALANT**  
Silicone chemically curing sealant specifically formulated and tested or approved equivalent with not less than a  $\pm 40\%$  movement factor complying with US Federal Specification TT S 001543A.
- 2.15 **WEATHERING/INSTALLATION SEALANT**  
Building sealant used in accordance with manufacturer's instructions for weather sealing aluminium frames to the cladding, complying with US Federal Specification TT S 0011534A, or a one-part polyurethane moisture curing, elastic joint sealant of medium modulus ( $\pm 25\%$  movement) to US Federal Specification TT S 00230C.
- 2.16 **FOAM TAPE**  
Foam tape to NZBC E2/AS1, 9.1.10.7 **Closed cell foam tape.**

### **Finishes**

- 2.17 **POWDER COATED ALUMINIUM - EXTRA DURABLE**  
Polyester powder organic coating in accordance with WANZ PQAS and AS 3715.
- 2.18 **POWDER COATED ALUMINIUM - HIGH DUTY**  
Polyester powder coating in accordance with WANZ PQAS and AAMA 2604.
- 2.19 **POWDER COATED ALUMINIUM - SUPER DUTY**  
PVF<sup>2</sup> fluoropolymer powder coating in accordance with AAMA 2605 and WANZ PQAS.

## **3. EXECUTION**

### **Conditions - generally**

- 3.1 **DO NOT DELIVER**  
Do not deliver to site any elements which cannot be unloaded immediately into suitable conditions of storage.
- 3.2 **UNLOAD WINDOW JOINERY**  
Unload, handle and store elements in accordance with the window manufacturer's requirements.
- 3.3 **AVOID DISTORTION**  
Avoid distortion of elements during transit, storage and handling.
- 3.4 **PREVENT DAMAGE**  
Prevent prefinished surfaces rubbing together, and contact with mud, plaster and cement. Keep paper and cardboard wrappings dry.
- 3.5 **PROPRIETARY ELEMENTS**  
Fix in accordance with the window manufacturer's requirements.
- 3.6 **PROTECTIVE COVERINGS**  
Retain protective coverings and coatings to BRANZ BU 337 and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades. Remove protection on completion.

- 3.7 **ADDITIONAL PROTECTION**  
Supply and fix additional protection as necessary to prevent marking of surfaces which will be visible on completed work.

**Conditions - fixings and fastenings**

- 3.8 **SUPPLY OF FIXINGS**  
Use only fixings and fastenings recommended by the manufacturer of the component being fixed and to comply with the ULS wind pressure stated in SELECTIONS. Ensure fixings and fastenings exposed to the weather are of aluminium, or Type 316 stainless steel or if not exposed to the weather may they be hot-dip galvanized steel with a coating weight of 610 g/m<sup>2</sup> complying with AS/NZS 4680.

- 3.9 **INSTALLATION FIXING**  
To NZBC E2/AS1, 9.1.10.8, **Attachments for windows and doors**. Fix windows/doors through reveal to frame with a pair of 75 x 3.15mm minimum galvanised jolt head nails or a pair of 8 gauge x 65mm minimum stainless steel screws. Fix at a maximum of 450 centres along all reveals and a maximum of 150mm from reveal ends. Ensure fixings do not penetrate metal flashings.  
Install packers between reveals and framing at fixing points, except at the head.

**Assembly**

- 3.10 **FABRICATION**  
Fabricate frames as detailed on shop drawings. Install glazing, hinges, stays and running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.
- 3.11 **TIMBER / PVC REVEALS**  
Before fixing to aluminium frames, ensure that timber reveals which are being painted have been primed on all surfaces.
- 3.12 **HARDWARE GENERALLY**  
Factory fit all required and scheduled hardware. Account for all keys and deliver separately to the site manager.
- 3.13 **SAFETY STAYS**  
Factory fit safety stays to all windows scheduled for safety stays and to all windows where safety stays are required to comply with NZBC F4/AS1 4.0, Opening windows.

**Installation - windows and doors**

- 3.14 **CORROSION PROTECTION**  
Before fixing, apply suitable barriers of bituminous coatings, stops or underlays between dissimilar metals in contact, or between aluminium in contact with concrete.
- 3.15 **CONFIRM PREPARATION OF EXTERIOR WALL OPENINGS**  
Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames. Do not proceed with the window and door installation until required preparatory work has been completed.

Required preparatory work includes the following:

- wall underlay/building wrap to openings finished and dressed off ready for the installation of window and door frames to NZBC E2/AS1:9.1.5 **Wall underlays to wall openings**.
- Full height 20mm jamb battens to NZBC E2/AS1 figure 72A (direct fix only)
- claddings neatly finished off to all sides of openings
- installation of flashings (those which are required to be installed prior to frames).

- 3.16 **INSTALLATION**  
Fix to comply with the reviewed shop drawings and installation details including flashings and bedding compounds, pointing sealants and weathering sealants.

3.17 **INSTALLATION CAVITY CONSTRUCTION**  
Install to WANZ Installation Guide details and drawings including WANZ sill support bars. For thresholds with support bars fixed through membranes, pre-fill support bar screw holes with silicone sealant to NZBC E2/AS1, figure 62(d).

3.18 **INSTALL FLASHINGS**  
Install flashings to heads, jambs and sills of frames as supplied and required by the window manufacturer and as detailed on the drawings. Finish head flashings to match window finish.

Place all flashings so that the head flashing weathers the jamb flashings, which in turn weathers over the upstand of the sill flashing. Ensure that sill flashings drain to the outside air.

Except where window/door frames are recessed, ensure that head flashings over-sail unit by 20mm minimum plus any jamb scribe width at each end.

3.19 **COMPLETE AIR SEAL**  
To NZBC E2/AS1:9.1.6 Air seals. Form an air-tight seal by means of a proprietary expanding foam or sealants used with backing rods, applied between the window / door reveal and structural framing to a depth of 10 - 20mm, to provide a continuous air tight seal to the perimeter of the window or door.

3.20 **FIX HARDWARE**  
Fix all sash and door hardware and furniture as scheduled.

#### **Application - jointing and sealing**

3.21 **SEAL FRAMES ON SITE**  
Seal frames to each other and to adjoining structure and finishes, all as required by the window manufacturer and to make the installation weathertight. In very high and extra high or greater wind zones, seal between the window head and the head flashing. Do not seal the junction between the sill member and the cladding or sill flashing which must remain open.

3.22 **PREPARE JOINTS**  
Ensure joints are dry. Remove loose material, dust and grease. Prepare joints in accordance with the sealant manufacturer's requirements, using required solvents and primers where necessary. Mask adjoining surfaces which would be difficult to clean if smeared with sealant.

3.23 **BACK UP**  
When using back-up materials do not reduce depth of joint for sealant to less than the minimum required by the manufacturer of the sealant. Insert polyethylene rod or tape back-up behind joints being pointed with sealant.

3.24 **SEALANT FINISH**  
Tool sealant to form a smooth fillet with a profile and dimensions required by the sealant manufacturer. Remove excess sealant from adjoining surfaces, using the cleaning materials nominated by the sealant manufacturer and leave clean.

#### **Completion - cleaning**

3.25 **REMOVE TRADE DEBRIS**  
Remove trade debris by appropriate means on a floor by floor basis as each floor is completed and again before any work is covered up by others. Arrange for general removal.

3.26 **TRADE CLEAN**  
Trade clean window frames, operable windows and doors, glass and other related surfaces inside and out at the time of installation to remove marks, dust and dirt, to enable a visual inspection of all surfaces.

## **Completion**

- 3.27 **PROTECTIVE COVERINGS**  
Retain protective coverings and coatings and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades.
- 3.28 **SAFETY**  
Indicate the presence of transparent glasses for the remainder of the contract period, with whiting, tape or signs compatible with the glass type. Indicators other than whiting must not be applied to the glass surface. Masking tape must not be used for this purpose.
- 3.29 **IN SITU TOUCH-UP TO POWDER COATED ALUMINIUM**  
In situ touch-up of polyester or fluoropolymer coated aluminium is only permitted only to minor surface scratching. Otherwise replace all damaged material.
- 3.30 **REMOVE**  
At the appropriate stage of the project, remove safety indicators and protective coverings and wipe down all joinery thoroughly.
- 3.31 **REPLACE**  
Replace damaged, cracked or marked elements.

## 4610 GLAZING RESIDENTIAL

### 1. GENERAL

This section relates to the supply and fixing of glass products for external and internal joinery in residential type buildings and includes:

- windows and doors
- frameless shower and bath screens
- splashbacks, wall linings
- balustrade systems, pool fences
- mirrors and mirror frames

#### 1.1 RELATED WORK

Refer to ~ for ~

#### 1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

PVB                      Polyvinyl Butyral  
CIP                        Cast in place

#### Documents

#### 1.3 DOCUMENTS

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

NZBC F4/AS1        Safety from falling  
NZBC H1/AS1        Energy Efficiency  
AS/NZS 1170.2       Structural design actions - Wind loads  
NZS 3604            Timber-framed buildings  
NZS 4211            Specification for performance of windows  
NZS 4218            Thermal insulation - Housing and Small Buildings  
NZS 4223.1          Glazing in buildings - Glass selection and glazing  
NZS 4223.Supp1    Glazing in buildings - Supplement 1 to NZS 4223.1:2008 and NZS 4223.4:2008  
NZS 4223.2          Glazing in buildings - Insulating glass units  
NZS 4223.3          Glazing in buildings - Human impact safety requirements  
NZS 4223.4          Glazing in buildings - Wind, dead, snow and live action  
AS/NZS 2208        Safety glazing materials in buildings  
AS/NZS 4666        Insulating glass units  
BRANZ BU 337      Protecting window glass from damage

#### 1.4 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

~

Copies of the above literature are available at

Web                     ~  
Telephone:            ~  
Facsimile:             ~  
Email:                  ~

#### Warranties

#### 1.5 WARRANTY - MANUFACTURER/SUPPLIER

Warrant glass under normal environmental and use conditions against failure of materials.

10 years:              for insulating glass units  
10 years:              for laminated glass

10 years: for toughened glass

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

### **Performance**

- 1.6 ENERGY EFFICIENCY  
Provide glazing to meet the energy requirements of NZS 4218 and NZBC H1/AS1 for housing small buildings.  
Refer to SELECTIONS and schedules for location and type of glazing.

## **2. PRODUCTS**

### **Materials**

- 2.1 CLEAR FLOAT GLASS  
Clear ordinary annealed transparent float glass for general window glazing. Thickness to NZS 4223.1 and NZS 4223. Supp 1.
- 2.2 TEXTURED, PATTERNED OR OBSCURE GLASS  
Translucent, annealed, rolled glass with a decorative pattern on one surface.
- 2.3 LAMINATED GLASS  
Grade A Safety Glass to AS/NZS 2208 with PVB or CIP resin interlayer.
- 2.4 TOUGHENED GLASS  
Grade A Safety Glass to AS/NZS 2208.
- 2.5 TINTED FLOAT GLASS  
Body tinted float glass.
- 2.6 REFLECTIVE AND COATED FLOAT GLASS  
Either coated float glass incorporating both solar and thermal insulation properties; or coated float glass with only the thermal insulation properties.
- 2.7 INSULATING GLASS UNITS (IGU'S)  
To AS/NZS 4666, NZS 4223.2 and the IGU Manufacturers Association (IGUMA) requirements.

### **Materials, mirrors**

- 2.8 MIRROR GLASS  
Clear annealed mirror float glass, including silver, activation, passivation and two protective coats.

### **Materials, screens**

- 2.9 GLASS SCREENS SHOWER & BATH  
Proprietary shower / bath screens, formed to shape before toughening, complete with matching hardware.

### **Components, aluminium and uPVC glazing**

- 2.10 GLAZING TAPE AND GASKETS  
Single/double sided pressure sensitive self-adhesive low/medium/high density foam tapes/butyl tapes selected to suit the glazing detail to window manufacturers' requirements.
- 2.11 SETTING BLOCKS  
Santoprene/Neoprene, 80-90 Shore A hardness, set at quarter points or to detail, to support the weight of glass panes.

## **Components, wall mounted glass (mirrors and splashbacks)**

- 2.12 GLASS ADHESIVE  
Adhesive mirror-mastic and double-sided adhesive tape.

### **3. EXECUTION**

#### **Conditions**

- 3.1 GENERAL REQUIREMENTS  
To NZS 4223.1, NZS 4223.3, NZS 4223.4. All external glazing to be wind and watertight on completion.
- 3.2 DELIVERY  
Keep glass dry and clean during delivery and bring on to site when ready to glaze directly into place. Comply also with the storage requirements set out in BRANZ BU 337.
- 3.3 GLASS CONDITION  
All glass to have undamaged edges and surfaces.
- 3.4 GLASS THICKNESS  
If not specifically stated in the glazing schedule determine the minimum thickness of glass for each sheet as required by NZS 4223.1, NZS 4223.3, NZS 4223.4 and NZS 4223. Supp 1. For windows tested to NZS 4211, ensure glass meets the requirements of the window testing.  
Determine the final glass thickness based on whether wind loading or human impact considerations govern.
- 3.5 REBATE DIMENSIONS  
Provide rebates for glazing to the widths and depths necessary for each situation including minimum glass edge cover to NZS 4223.1, Section 4 Glazing.
- 3.6 JOINTING, PUTTY AND SEALING MATERIAL COMPATIBILITY  
Ensure jointing, putty and sealing materials are compatible with glass substrates. Confirm compatibility with laminated glass, IGUs and coatings.

#### **Conditions - human impact safety requirements**

- 3.7 SAFETY GLAZING, GENERAL REQUIREMENTS  
Glazing of doors, side panels, low level and window seat glazing, bathrooms, stairwell landings and similar locations, to NZS 4223.3 for thickness and maximum areas of safety glass.
- 3.8 SAFETY GLAZING MATERIAL  
Use only safety glazing materials defined in NZS 4223.3, that also comply with the relevant requirements of AS/NZS 2208. Ensure material is permanently marked and if cut by the distributor or installer mark each piece to NZS 4223.3, 2.8 Identification.
- 3.9 CONTAINMENT  
Edge cover to comply with NZS 4223.1, Section 4 Glazing, table 5. Otherwise to NZS 4223.3, 2.3 Edge cover.

#### **Assembly**

- 3.10 WORKING OF GLASS  
All working of glass as required in NZS 4223.1.
- 3.11 EDGE WORK AND BEVELLING  
Edgework other than a clean cut. Refer to SELECTIONS/drawings for type.
- 3.12 SURFACE TREATMENT  
Refer to SELECTIONS/drawings for finish.

3.13 SURFACE CUTTING  
Refer to SELECTIONS/drawings for finish.

3.14 INSTALL SAFETY GLASS  
To NZS 4223.3.

**Application aluminium**

3.15 INSTALL GLASS TO ALUMINIUM FRAMES  
Install glass to NZS4223.1.  
- Bead glaze to Section 4 Glazing.  
- Channel glaze to Section 4 Glazing, and Section 5 for Framed, Unframed, Partly Framed Glass Assemblies.

**Application - wall mounted glass (mirrors and splashbacks)**

3.16 WALL MOUNTED GLASS, ADHESIVE FIXED  
For mirrors and splashbacks, fix with adhesive mirror-mastic and double-sided adhesive tape. Adhesive area 0.2 m<sup>2</sup> per 1 m<sup>2</sup> of glass to NZS 4223.3.

**Application miscellaneous**

3.17 INSTALL GLASS BALUSTRADES  
Confirm/design and carry out installation to NZS 4223.3, 22 Barriers (Balustrades, fences, and screens). NZBC F4/AS1: Safety from falling, 1.0 Barriers in buildings.

3.18 INSTALL GLASS SHOWER & BATH SCREENS  
Install shower and bath screens and doors to manufacturer's requirements.

**Finishing**

3.19 SAFETY  
Indicate the presence of transparent glass for the remainder of the construction period, with whiting, tape or signs compatible with the glass type.

**Completion**

3.20 TRADE CLEAN  
Clean off or remove safety indicators at completion of the building.

3.21 REPLACE  
Replace damaged, cracked or marked glass.

3.22 LEAVE  
Leave work to the standard required by following procedures.

3.23 REMOVE  
Remove debris, unused materials and elements from the site.

# 4710P PINK® BATTS® & PINK® BATTS® SILENCER® INSULATION

## 1. GENERAL

This section relates to Tasman Insulation **Pink® Batts®** insulation materials installed into residential buildings.

It includes:

Thermal:

- **Pink® Batts® Ceiling Insulation (Pink® Batts® Classic and Pink® Batts® Ultra®)**
- **Pink® Batts® Wall Insulation (Pink® Batts® Classic and Pink® Batts® Ultra®)**
- **Pink® Batts® Silencer®**

### 1.1 RELATED WORK

Refer to ~ for ~

#### Documents

### 1.2 DOCUMENTS

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

NZBC C/AS1-AS6 Protection from fire

NZBC H1/AS1 Energy efficiency

NZS/AS 1530.1 Methods for fire tests on building materials, components and structures - Combustibility test for materials

AS/NZS 3000 Electrical installations

NZS 4218:2004 Energy Efficiency - Small building envelope

NZS 4220 Code of practice for energy conservation in non-residential buildings

NZS 4243.1 Energy Efficiency - Large buildings - Building thermal envelope

NZS 4246 Energy efficiency - Installing insulation in residential buildings

AS/NZS 60598.2.2:2001 Luminaires- Particular Requirements - Recessed luminaires

AS/NZS 60695.11.5 Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this section are:

Tasman Insulation New Zealand: Product Data Sheets and Installation Instructions

BRANZ Appraisal 238 - Pink® Batts® Insulation

BRANZ Appraisal 632 - Pink® Batts® SnugFloor® Underfloor Insulation

BRANZ Appraisal 767 - Pink® Batts® Skillion Roof Insulation

Manufacturer/supplier contact details

Company: **Tasman Insulation New Zealand**

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

Telephone: 0800 746 522

#### Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

Lifetime Warranty	For <b>Pink® Batts®</b> insulation products
-------------------	---

- Commence the warranty from the date of practical completion of the contract works.
- Provide this Warranty on the **Pink® Batts® Lifetime Warranty Certificate** form.

Refer to the general section 1237 WARRANTIES for additional requirements.

#### Requirements

### 1.5 QUALIFICATIONS, PINK® BATTS®

Installers to be **PinkFit® - Preferred Pink® Batts® installers**. A list of approved installers can be obtained from the web, by telephone or from the local building supplies merchant.

- 1.6 NO SUBSTITUTIONS  
Substitutions are not permitted to any specified Tasman Insulation **Pink® Batts®** insulation or associated products, components or accessories.

**Performance - combustibility**

- 1.7 FIRE PREVENTION  
**Pink® Batts®** insulation materials are considered a non-combustible material to NZS/AS 1530.1 and need not be separated from heat sources such as fire places, heating appliances, flues and chimneys to NZBC C/AS1 to C/AS6, except if used in conjunction with, or attached to other heat sensitive materials.

**2. PRODUCTS**

**Materials - thermal**

- 2.1 PINK® BATTS® CEILING INSULATION  
**Pink® Batts® Ceiling Insulation (Pink® Batts® Classic and Pink® Batts® Ultra®)** is a light weight flexible bio-soluble glass wool manufactured from up to 80% recycled glass, bonded with a thermosetting resin to form rectangular slabs. Refer to SELECTIONS for R values and thickness options.  
NOTE: When insulation abutting or covering recessed downlights is intended to be in contact with IC, CA 80, CA 135 luminaries the insulation must withstand a 30s Needle Flame test to AS/NZS 60695.11.5. Pink® Batts® insulation meets this requirement.

- 2.2 PINK® BATTS® WALL INSULATION  
**Pink® Batts® Wall Insulation (Pink® Batts® Classic and Pink® Batts® Ultra®)** is a light weight flexible bio-soluble glass wool manufactured from up to 80% recycled glass, bonded with a thermosetting resin to form rectangular slabs. Refer to SELECTIONS for R values and thickness options.

**Components**

- 2.3 FASTENERS  
Insul anchors complete with retaining washer.
- 2.4 TAPES  
Proprietary plastic tape stapled across framing to retain insulation in unlined wall and ceiling locations.
- 2.5 ADHESIVE TAPE  
Pressure sensitive adhesive tape.

**3. EXECUTION**

- 3.1 STORAGE  
Accept materials undamaged and dry and store in a location that protects them from the weather and damage. Avoid distortion, stretching, compression, puncturing and damage to edges of materials. Do not use damaged or wet insulation materials.
- 3.2 HANDLING  
Wear protective clothing as necessary and when handling, avoid delamination or distortion of the rectangular form. Maintain full thickness unless compression is an installation system requirement.
- 3.3 INSPECTION  
Before starting installation of blankets and slabs, check that the location and framing are free from moisture, that the cavities are not interconnected and that mesh, wall underlays and vapour barriers are in place.

## Application - general

### 3.4 INSTALL INSULATION - GENERAL

Lay, install, fit and fix to NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope, and to manufacturer's requirements. Install in housing to NZS 4218 and NZS 4246. Install in large buildings to NZS 4243.1 and NZS 4220. Allow insulation to re-loft/relax prior to installation. Do not cover vents. Confirm with fireplace manufacturer for clearances; **Pink® Batts®** insulation need not be separated except if used in conjunction with, or attached to other heat sensitive materials. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

### 3.5 RECESSED LIGHT FITTINGS - CLEARANCE

Non-residential applications;

The clearance between insulation and recessed downlights

- 100mm gap to AS/NZS 3000, figure 4.9.
- Provide larger clearances where required by the light manufacturer.

Residential applications;

- Ensure new recessed downlights are one of the new classes classified in AS/NZS 60598.2.2; CA 80, CA 135, IC and IC - F
- Classification type CA 80, CA 135, to AS/NZS 60598.2.2; insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to AS/NZS 60598.2.2; insulation can abut and cover over the top of the downlight
- Provide larger clearance where required by the light manufacturer.
- In a retrofit situation where recessed downlights are unclassified or unknown, ensure 100mm clearance from the insulation to AS/NZS 3000, figure 4.9.

## Application, thermal insulation

### 3.6 INSTALL PINK® BATTS® CEILING INSULATION

Ensure that the product is installed dry; if wet replace before installation. If cutting is required, cut oversize by 5-10mm to ensure a friction fit. Insulate around vents (not over them) to allow unhindered ventilation.

Fit **Pink® Batts® Ceiling Insulation** beneath electrical wiring and plumbing. Install to the outer edge of the top plate. Maintain a 25mm gap clearance between the **Pink® Batts®** insulation and roof underlay. Refer to NZS 4246 for installation guidelines and **Pink® Batts®** installation instructions for detailed information.

### 3.7 INSTALL PINK® BATTS® WALL INSULATION

Ensure the product is installed dry; if wet replace before installation. If cutting is required, cut oversize by 5-10mm to ensure a friction fit. Fill gaps around windows and doors with off-cuts. Insulate around vents (not over them) to allow unhindered ventilation.

Fit **Pink® Batts® Wall Insulation** behind electrical wiring and plumbing. Ensure there are no gaps, folds or undesirable compression at edges.

Refer to NZS 4246 for installation guidelines and **Pink® Batts®** installation instructions for detailed information.

## Completion

### 3.8 CLEAN UP

Clean up as the work proceeds, so no spare offcuts or any other matter or item remain behind claddings or linings.

### 3.9 LEAVE

Leave work to the standard required by following procedures.

### 3.10 REMOVE

Remove debris, unused materials and elements from the site.

## 5113G GIB® PLASTERBOARD LININGS

### 1. GENERAL

This section relates to the supply, fixing and jointing of GIB® plasterboard linings and accessories to timber and steel framed walls and ceilings to form:

- standard systems
- superior finish quality systems
- bracing systems
- fire rated garage boundary wall systems
- wet area systems

#### 1.1 RELATED WORK

Refer to ~ for ~.

#### 1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

AWCINZ Association of Wall and Ceiling Industries New Zealand

#### Documents

#### 1.3 DOCUMENTS

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

NZBC C/AS2-AS6	Protection from fire
NZBC E2/AS1	External moisture
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 3604	Timber-framed buildings
AS/NZS 4600	Cold-formed steel structures
ISO 5660.1	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method)
ISO 5660.2	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 2: Smoke production rate (dynamic measurement)

BRANZ Technical Paper P21 BRANZ Technical Paper P21: A wall bracing test and evaluation procedure (2010)

NASH Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria

#### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

- GIB® Site Guide (Dec 2014)
  - GIB Ultraline® Plus lining system (February 2006)
  - GIB® Noise Control Systems (March 2006)
  - GIB® Fire Rated Systems (Oct 2012)
  - GIB Aqualine® Wet Area Systems (March 2007)
  - GIB Superline® (June 2013)
  - GIB® Ezybrace® Systems (June 2011), with amendments (Dec 2014)
  - GIB® Ezybrace® Software (2011), with amendments (Dec 2014)
  - GIB® Ezybrace® for Steel Frame Housing (NASH) Software (2011)
  - GIB® Rondo® Metal Ceiling Batten Systems
  - GIB-Cove®
  - GIB® Goldline™ Platinum Tape-on Trims (Jan 2006)
  - GIB® UltraFlex® high impact corner mould (Sept 2004)
  - GIB® Tough Systems (Nov 2014)
- BRANZ Appraisal 294 (2011) - GIB® Ezybrace® Systems  
BRANZ Appraisal 427 (2007) - GIB Aqualine® Wet Area Systems

GreenTag Certification WWLCG001-001-A-2015 - GreenTag™ GreenRate/Level C for:

- GIB® Standard (10mm & 13mm)
- GIB Fyreline®(10mm, 13mm, 16mm &19mm)
- GIB Braceline® (10mm & 13mm)
- GIB® Noiseline® (10mm & 13mm)
- GIB Toughline® (13mm)

Copies of the above literature are available at

Company: Winstone Wallboards

Web: www.gib.co.nz

Telephone: 0800 100 442

## Requirements

### 1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any specified GIB® systems, GIB® system components, GIB® plasterboard, associated GIB® products or GIB® accessories.

### 1.6 INSTALLER WORK SKILLS AND QUALIFICATIONS

GIB® plasterboard fixers and plasterers to be experienced competent workers, familiar with GIB® plasterboard lining systems installation and finishing techniques. Submit evidence of experience on request. For example:

- National Certificate of Interior Systems; or
- Certified Business member of AWCINZ.

## Performance

### 1.7 INSPECTIONS AND ACCEPTANCE

Allow for inspection of the finished plasterboard surface:

- before applying sealer and
  - before applying finish coatings or decorative papers,
- so that after assessment of the type and/or angle of illumination and its effect on the completed decorative treatment, group approval and acceptance of the surface can be given.

## 2. PRODUCTS

### Materials

#### 2.1 GIB® PLASTERBOARD

Gypsum plaster core encased in a face and backing paper formed for standard and water resistance use to AS/NZS 2588. Refer to SELECTIONS for location, type, thickness and finish.

GIB® Standard plasterboard

GIB Wideline® plasterboard

GIB Ultraline® and/or GIB® Ultraline PLUS high quality surface plasterboard

GIB Fyreline® fire resistant plasterboard

GIB Braceline® & GIB® Noiseline® dual purpose wall bracing & noise control plasterboard

GIB Aqualine® wet area plasterboard

GIB Toughline®

GIB Superline®

#### 2.2 CORNICE

GIB-Cove® plasterboard cornice. Refer to SELECTIONS for profile and size.

### Components

#### 2.3 CEILING BATTENS

GIB® Rondo® metal ceiling battens, batten joiners and perimeter channel.

#### 2.4 SCREWS

GIB® Grabber® drywall screws.

- 2.5 NAILS  
GIB® Nails (gold passivated).  
Size: 30mm, 40mm
- 2.6 TAPE ON TRIMS AND EDGES  
GIB® Goldline™ tape-on trims  
GIB® UltraFlex® high impact corner mould  
GIB® Levelline® Tape on Trim
- 2.7 METAL ANGLE TRIMS  
GIB® galvanized steel slim angle trims.
- 2.8 CONTROL JOINTS  
GIB® Rondo® P35 control joints.  
GIB® Goldline™ tape-on trims

**Accessories**

- 2.9 ADHESIVE  
Timber frame and/or steel frame:  
GIBFix® One ultra low VOC water based wallboard adhesive  
GIBFix® All-Bond solvent based wallboard adhesive

2.10 JOINTING COMPOUND

Bedding compound:	GIB Tradeset®, GIB Lite Blue®, GIB MaxSet®, GIB ProMix® All Purpose, GIB Plus 4®
Finishing compound:	GIB ProMix® All Purpose, GIB® Trade Finish®, GIB® Trade Finish® Lite, GIB ProMix® Lite, GIB® U-Mix, GIB Plus 4®, GIB Trade Finish® Multi
Cove:	GIB-Cove® Bond

- 2.11 JOINTING TAPE  
GIB® paper jointing tape.
- 2.12 GAP FILLER  
GIB® Gap Filler ultra low VOC multi-purpose acrylic flexible filler

**3. EXECUTION**

**Conditions**

- 3.1 STORAGE  
Store GIB® plasterboard sheets and accessories in dry conditions stored indoors out of direct sunlight in neat flat stacks on either an impervious plastic sheet or clear of the floor with no sagging and avoiding damage to ends, edges and surfaces. Reject damaged material. Refer to GIB® Site Guide (Dec 2014).
- 3.2 LEVELS OF PLASTERBOARD FINISH  
Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in AS/NZS 2589.
- 3.3 CONFIRM LEVELS OF PLASTERBOARD FINISH ACCEPTANCE  
Before commencing work, agree in writing upon the surface finish assessment procedure towards ensuring that the quality of finish expectations are reasonable and are subsequently obtained and acceptable.

**Do not apply decorative treatment until it is agreed in writing by the contractor, subcontractors and decorator that the specified plasterboard Level of Finish has been achieved.**

"Levels of plasterboard finish" is a tool for specifying the required quality of finish when installing and flush stopping GIB® plasterboard **prior** to the application of a range of decorative finishes under various lighting conditions. Refer to **AS/NZS 2589**.

#### 3.4 SUBSTRATE

Do not commence work until the substrate is plumb, level and to the standard required by the sheet manufacturer's requirements. Refer to GIB® Site Guide (Dec 2014).

#### 3.5 TIMBER FRAME MOISTURE CONTENT

Maximum allowable moisture content to AS/NZS 2589 for timber framing at lining: 18% or less for plasterboard linings. Refer to NZBC E2/AS1 and GIB® Site Guide (Dec 2014).

#### 3.6 PROTECTION

Protect surfaces; cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage. Refer to GIB® Site Guide (Dec 2014).

### **Application**

#### 3.7 INSTALL CEILING BATTENS

Install to GIB® Rondo® Ceiling Batten Systems requirements.

#### 3.8 LINING WALLS AND CEILINGS GENERALLY

Form to GIB® Site Guide (Jan 2010). Ensure bulk insulation thickness shall not exceed that of the wall framing.

#### 3.9 BOARD ORIENTATION

Minimise joints by careful sheet layout using the largest sheet sizes possible, and generally fixing horizontally. Where part sheets are required for various stud heights they should be positioned so the cut sheet is as low as possible to keep joints below eye level.

#### 3.10 FORM WET AREA SYSTEMS

Form to GIB Aqualine® Wet Area Systems requirements.

#### 3.11 FORM CONTROL JOINTS

Form control joints to GIB® Site Guide (Dec 2014) requirements.

#### 3.12 INSTALL COVES

Install to GIB-Cove® literature using GIB-Cove® Bond.

#### 3.13 INSTALL TAPE-ON TRIMS

Install to GIB® Goldline™ Tape-on trims literature and/or GIB® Ultraflex high impact corner mould literature.

### **Finishing**

#### 3.14 FINISHING GENERALLY

To GIB® Site Guide (Dec 2014) and AS/NZS 2589.

### **Completion**

#### 3.15 REPLACE

Replace damaged sheets or elements.

#### 3.16 CLEAN DOWN

Clean down completed surfaces to remove irregularities and finally sand down with fine paper to the sheet manufacturer's requirements, to leave completely smooth and clean.

#### 3.17 REMOVE

Remove debris, unused materials and elements from the site.

#### 3.18 LEAVE

Leave work to the standard required by following procedures.

## 6211 WALL TILING

### 1. GENERAL

This section relates to the supply and installation of ceramic wall tiles.

It includes:

- cement render walls
- concrete masonry walls
- timber substrate walls

#### 1.1 RELATED WORK

Refer to 6221 FLOOR TILING for floor tiling.

#### Documents

#### 1.2 DOCUMENTS

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

AS 3740	Waterproofing of wet areas within residential buildings
AS 3958.1	Ceramic tiles - Guide to the installation of ceramic tiles
AS ISO 13007.1	Ceramic tiles - Grouts and adhesives: Terms, definitions and specifications for adhesives
AS ISO 13007.3	Ceramic tiles - Grouts and adhesives: Terms, definitions and specifications for grouts
BRANZ	Good practice guide - Tiling

#### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

~

Manufacturer/supplier contact details

Company: ~  
Web: ~  
Email: ~  
Telephone: ~

#### Warranties

#### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

~ years: For ~

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

#### 1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

~ years: For ~

- Provide this warranty on the installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

#### Requirements

#### 1.6 QUALIFICATIONS

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

1.7 **NO SUBSTITUTIONS**  
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.8 **ADHESIVES COMPATIBILITY**  
Adhesives selected for use on proprietary substrates or waterproof membranes to have documented compatibility approval from the respective manufacturers.

## 2. **PRODUCTS**

### **Materials**

2.1 **WALL TILES**  
Refer to SELECTIONS for product selection.

### **Accessories**

2.2 **LIQUID WATERPROOFING MEMBRANE**  
To AS 3740.

2.3 **SAND AND CEMENT GROUT**  
1 part Portland cement to 2-3 parts fine sand mixed to a paste consistency with a minimum of clean water.

2.4 **GROUT**  
Cement based, compressible and to suit particular location/use. To AS ISO 13007.3.

2.5 **TILE ADHESIVE**  
To AS ISO 13007.1.

2.6 **MOVEMENT JOINT SEALANT**  
To BRANZ Good practice guide: Tiling, section 5.0.  
- Neutral cured sealant for areas where waterproof membranes are used or where used against aluminium.  
- Acid cured sealant except for areas where waterproof membranes are used or where used against aluminium.  
Note: Check compatibility of membrane and sealant, use bond breaking tape to separate them if required.

## 3. **EXECUTION**

3.1 **DELIVERY, STORAGE AND HANDLING**  
Take delivery of materials and goods and store on site and protect from damage. Protect finished surfaces, edges and corners from damage. Move/handle goods in accordance with manufacturer's requirements. Reject and replace goods that are damaged or will not provide the required finish.

3.2 **CHECK TILES**  
Check tiles to ensure that they are as specified, from the same batch, of a consistent colour and pattern and sufficient to complete the work. Reject tiles that vary widely in colour or pattern. Reject tiles that are damaged.

3.3 **CONFIRM LAYOUT**  
Before commencing work confirm the proposed layout of tiles and expansion joints and other visual considerations of the finished work.

3.4 **SETTING OUT**  
Before commencing the setting out confirm the number and location of cut tiles. Minimise in number with no cut tiles less than half size and only at the perimeter of the work.

### **Conditions**

3.5 SERVICES AND ACCESSORIES

Ensure that all services and accessories are in place and located to suit the tile layout, and that the substrate, background and adjoining surfaces (with the preparation called for in this section) are of the quality necessary to allow tiling of the required standard.

3.6 SUBSTRATE TEMPERATURE

Do not carry out tiling where the substrate temperature is below 5°C or above 40°C.

3.7 LIGHTING

Light the tile work as closely and clearly as possible to that of the finished lighting, to ensure that differences in plane surface are highlighted during installation.

**Application - preparing new surfaces**

3.8 NEW CONCRETE OR MASONRY WALLS

Ensure structural walls have air dried for 4 weeks before applying mortar/adhesive. Ensure concrete and/or concrete block is dry and if in doubt check for moisture content by hygrometer. Do not proceed with tiling work until readings for the whole area show 75% relative humidity or less.

Remove contaminants including form release oil that may affect bonding or adhesion. Surface to finish clean and dry with a texture giving a complete key.

**Application - waterproof membranes**

3.9 INSTALL WATERPROOFING MEMBRANE

Install waterproofing membrane between the tile adhesive and the substrate. Reinforce all junctions of the waterproofing membrane to BRANZ Good practice guide - Tiling; 7.0 Waterproofing interior wet areas. Unless otherwise specified or shown on the drawings, install waterproof membranes as follows: -

Unenclosed shower cubicle

- To 1800mm above floor and 300mm above shower rose.
- To at least 1500mm from shower rose.
- To the floor within 1500mm of the shower rose.

Bath with a shower over and no shower screen

- To 1500mm from the shower rose and top edge.
- To 1800mm above base of bath.
- To the floor within 1500mm of the shower rose.

Bath with shower over and a screen for the shower

- To 1800mm height around sides of bath.

Bath

- To 150mm minimum around the sides and along walls horizontally 150mm minimum.

Splashback to a vanity

- To 300mm minimum up wall behind the vanity.
- To the floor level at least twice the width of the vanity and 500mm min beyond it at each end.

3.10 LIQUID WATERPROOFING MEMBRANE

Apply the selected liquid waterproof membrane system to the membrane manufacturer's requirements and in accordance with AS 3740 and to BRANZ Good practice guide - Tiling, 7.0 Waterproofing interior wet areas.

**Application - tile installation**

3.11 TILE FIXING GENERALLY

To AS 3958.1. Apply adhesive, prepare and fix tiles by the method required by the adhesive manufacturer and tap them firmly into place.

### 3.12 FITTING TILES

Ensure cut edges are smooth and installed without jagged or flaked edges. Do not install single tiles in more than one piece. Maintain the heights of wall tile work in full courses to the nearest dimension. Within allowed tolerances, ensure corners of tiles are flush and level with corners of adjacent tiles. Keep joint lines, including mitres, straight and of an even width. Fully bed trim units, moulded or shaped pieces and other accessories with an appropriate bedding material. Fix accessories level, plumb and true to the designated projection at detailed locations and heights.

### 3.13 MOVEMENT JOINTS

Provide movement joints with a minimum width of 4mm, carried through tile and bedding and where substantial movement is anticipated, through the rigid sheet to the structure. Install joints over expansion joints, at junctions between different backgrounds, abutting other materials, at storey heights horizontally and 3 to 4 metres vertically, at internal corners and at junctions with floors and columns. Ensure joints are clean, formed, filled and with sealant inserted to the sealant manufacturer's requirements.

### 3.14 TILE FINISH AND JOINTS

Ensure finished surfaces are flat and true to a tolerance of  $\pm 4$ mm in 2 metres from the required plane. Clean surplus bedding material from joint spaces and tile surface. Ensure joint widths are consistent throughout the installation with 1.5mm width for dust-pressed tiles and 6mm for extruded tiles, measured at the tile face. Ensure joint alignment is consistent throughout the installation and to a tolerance of  $\pm 4$ mm in 2 metres from the detailed joint alignment.

### 3.15 THIN BED FIXING

Apply adhesive to a maximum 3mm bed thickness with a minimum of voids.

#### Notched trowel method

- For internal dry applications, spread adhesive to a uniform thickness and "rib" it with a notched trowel to the adhesive manufacturer's requirements. Press tiles and beat into place to obtain adequate coverage by adhesive on the back of each tile.

#### Floating method

- Apply adhesive to a uniform thickness. Apply tiles with a twisting or sliding action and tap back firmly into the floated bedding.

#### Buttering

- With a trowel butter adhesive evenly over the whole of the back of the tile, slightly thicker than the final required adhesive thickness. Press and tap firmly into position leaving no voids. Do not use "spot-fixing".

Occasionally remove a tile as fixing proceeds to check the maintenance of adequate contact with the adhesive.

### 3.16 THICK BED FIXING

Apply thick-bed cement based adhesive to an average 6mm bed thickness as a floated bed and to the tile manufacturer's requirements. Prepare and fix tiles by the method required by the tile manufacturer and beat and tap them firmly into place.

#### Grouting

### 3.17 APPLY GROUTING

Remove spacers. Apply grouting mix to as large an area as can be worked before setting commences. Work with a grouting tool back and forth until joints are completely filled with no adhesive showing. Avoid damage to the surface of tiles, using masking tape where necessary. Finish to the depth of the cushion and flush with surface to cushion edge and square edge tiles. Remove surplus grout with a damp cloth and tool the joints to finish the grout uniform in colour, smooth and without voids, pinholes or low spots.

- 3.18 **APPLY PROPRIETARY GROUTING**  
Remove spacers. Prepare joints, mix and apply grout and finish off to the tile manufacturer's requirements, uniform in colour, smooth and without voids, pinholes or low spots.

**Cleaning**

- 3.19 **CLEAN TILES**  
Upon completion of setting and grouting, thoroughly sponge and wash the tiles to leave them completely clean and without blemish. Finally polish glazed tiles with a clean dry cloth.

**Completion**

- 3.20 **ROUTINE CLEANING**  
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

- 3.21 **DEFECTIVE OR DAMAGED WORK**  
Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Adjust operation of equipment and moving parts not working correctly. Leave work to the standard required for following procedures.

- 3.22 **PROTECTION**  
Provide the following temporary protection of the finished work:  
~

## 6221 FLOOR TILING

### 1. GENERAL

This section relates to the supply and installation of ceramic floor tiles.

It includes:

- concrete substrates
- timber substrate floors
- timber floor overlays

#### 1.1 RELATED WORK

Refer to 6211 WALL TILING for wall tiling.

#### Documents

#### 1.2 DOCUMENTS

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

NZBC D1/VM1	Access routes
NZBC D1/AS1	Access routes
NZBC E3/AS1	Internal moisture
AS/NZS 3661.1	Slip resistance of pedestrian surfaces - Requirements
AS 3740	Waterproofing of wet areas within residential buildings
AS 3958.1	Ceramic tiles - Guide to the installation of ceramic tiles
NZS 4121	Design for access and mobility - Buildings and associated facilities
AS/NZS 4671	Steel reinforcing materials
AS ISO 13007.1	Ceramic tiles - Grouts and adhesives: Terms, definitions and specifications for adhesives
AS ISO 13007.3	Ceramic tiles - Grouts and adhesives: Terms, definitions and specifications for grouts
BRANZ	Good practice guide: Tiling

#### 1.3 MANUFACTURER/ SUPPLIER DOCUMENTS

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

~

Copies of the above literature are available from ~

Web:	~
Email:	~
Telephone:	~
Facsimile:	~

#### Warranties

#### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

~ years: For ~

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

#### 1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

~ years: For ~

- Provide this warranty on the installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

## **Requirements**

- 1.6 **QUALIFICATIONS**  
Tilers to be experienced, competent trades people familiar with the materials and techniques specified.
- 1.7 **NO SUBSTITUTIONS**  
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.
- 1.8 **DEFLECTION CRITERIA FOR SUSPENDED FLOORS**  
Check that the floor is rigid enough for the tiling. Deflection of suspended floors should not exceed 1/360th of the span under dead load and live load.
- 1.9 **ADHESIVES COMPATIBILITY**  
Adhesives selected for use on proprietary substrates or waterproof membranes to have documented compatibility approval from the respective manufacturers.
- 1.10 **PROVIDE SPARE TILES**  
Provide spare tiles. Refer to SELECTIONS for type and quantity.

## **Performance**

- 1.11 **SLIP RESISTANCE FOR ACCESS ROUTES**  
Slip resistance for tiles to comply with NZBC D1/AS1: 2.0 Level access routes and 3.0 Ramps.  
- when in place on a level access route, to have a mean coefficient of friction ( $\mu$ ) not less than 0.4 when tested in accordance with AS/NZS 3661.1.  
- when in place on a sloping access route, to have a coefficient of friction ( $\mu$ ) not less than  $0.4 + 0.0125S$  (S = slope of surface expressed as a percentage).
- 1.12 **PROVIDE EVIDENCE OF SLIP RESISTANCE**  
Provide evidence that the tiles comply with the standard of performance specified.
- 1.13 **CERTIFY SLIP RESISTANCE**  
Provide certificates and any other evidence at the time of selection/supply that the tiles comply with NZBC D1/MM1 and NZBC D1/AS1: Access routes.

## **2. PRODUCTS**

### **Materials**

- 2.1 **FLOOR TILES**  
Refer to SELECTIONS for product selection.
- 2.2 **REINFORCING MESH**  
To AS/NZS 4671, galvanized 500mm x 500mm x 2.5mm.
- 2.3 **SEPARATING LAYER**  
Single layer heavy gauge polyethylene film.
- 2.4 **BUILDING UNDERLAY**  
Breather type bitumen saturated kraft paper.

### **Components**

- 2.5 **EXPANSION JOINT, METAL AND RUBBER**  
Clear anodised aluminium/brass with metal anchor to set into in-situ concrete, cement screed/bed and complete with rubber infill.
- 2.6 **EXPANSION JOINT, METAL AND COMPOUND**  
Aluminium/brass angles with high density foam rubber insert and jointing compound.

- 2.7 EXPANSION JOINT, PLASTIC  
Rigid stabilised PVC sides with flexible central section.

#### **Accessories**

- 2.8 SCREED  
Mix of 3:1 Portland cement, coarse washed sand gauged with liquid polymer additive to the tile manufacturer's stated requirements.
- 2.9 CEMENT MORTAR  
Sand and cement bedding coat with liquid polymer additive, to the tile manufacturer's stated requirements.
- 2.10 LIQUID WATERPROOFING MEMBRANE  
To AS 3740.
- 2.11 TILE ADHESIVE  
To AS ISO 13007.1.
- 2.12 SAND AND CEMENT GROUT  
1 part Portland cement to 2-3 parts fine, washed sand, mixed to a paste consistency with a minimum of clean, potable water.
- 2.13 PROPRIETARY GROUT  
Cement based, compressible and to suit particular location/use. To AS ISO 13007.3.
- 2.14 MOVEMENT JOINT SEALANT  
To BRANZ Good practice guide: Tiling, section 5.0.  
- Neutral cured sealant for areas where waterproof membranes are used or where used against aluminium.  
- Acid cured sealant except for areas where waterproof membranes are used or where used against aluminium.  
Note: Check compatibility of membrane and sealant, use bond breaking tape to separate them if required.

### **3. EXECUTION**

- 3.1 DELIVERY, STORAGE AND HANDLING  
Take delivery of materials and goods and store on site and protect from damage.  
Protect finished surfaces, edges and corners from damage.  
Move/handle goods in accordance with manufacturer's requirements.  
Reject and replace goods that are damaged or will not provide the required finish
- 3.2 CHECK TILES  
Check tiles to ensure that they are as specified, from the same batch, of a consistent colour and pattern and sufficient to complete the work. Reject tiles that vary widely in colour or pattern. Reject tiles that are damaged.
- 3.3 CONFIRM LAYOUT  
Before commencing work confirm the proposed layout of tiles and expansion joints and other visual considerations of the finished work.
- 3.4 SETTING OUT  
Before commencing the setting out confirm the number and location of cut tiles. Minimise in number with no cut tiles less than half size and only at the perimeter of the work.
- 3.5 GENERALLY  
Prepare surface and complete tiling work in accordance with AS 3958.1, as modified by BRANZ Good practice guide: Tiling.

#### **Conditions**

### 3.6 SERVICES AND ACCESSORIES

Ensure that all services and accessories are in place and located to suit the tile layout, and that the substrate, background and adjoining surfaces (with the preparation called for in this section) are of the quality necessary to allow tiling of the required standard.

### 3.7 DO NOT START

Do not start laying tiles until concrete floors are cured, moisture content of floors is such that shrinkage is complete, thermal movement has been accommodated and the levels and surface finish will achieve tile laying of the required standard.

### 3.8 SUBSTRATE TEMPERATURE

Do not carry out tiling where the substrate temperature is below 5°C or above 40°C.

### 3.9 MOISTURE CONTENT

Ensure the floor is dry and if in doubt check for moisture content by hygrometer. Do not proceed with tiling work until readings for the whole area show 75% relative humidity or less.

### 3.10 SCREEDS

Form screeds with a deviation from plane of not more than 5mm over 3 metres.

### 3.11 FALLS

Form screeds in areas where water is used in significant amounts with a deviation from plane of not more than 5mm over 3 metres. Unless otherwise specified form screeds with the following falls:

Unless stated otherwise provide minimum fall gradients to BRANZ Good Practice Guide - Tiling, clause 6.5 Falls in floors.

1 : 40 minimum For tiled decks which also acts as a roof

1 : 60 minimum For paving over ground

1 : 50 minimum For unenclosed shower bases (to NZBC E3/AS1, 3.3.5)

1 : 60 minimum For enclosed shower bases

1 : 50 minimum For shower bases for people with disabilities (to NZS 4121, 10.5.11.3 (b).)

1 : 60 minimum For commercial kitchens or similar

### **Application - preparing new surfaces**

### 3.12 CONCRETE FLOORS

Completely remove surface contaminants such as paints, oils, release and curing compounds. Remove projections, unevenness and loose material to leave a clean dust and dirt free surface.

### **Movement joints**

### 3.13 MOVEMENT JOINTS

Provide movement joints with a minimum width of 4mm, carried through tile and bedding and where substantial movement is anticipated, through the rigid sheet to the structure. Install joints over expansion joints, at junctions between different backgrounds, abutting other materials, at internal corners and at junctions with floors and columns. Ensure joints are clean, formed, filled and with sealant inserted to the sealant manufacturer's requirements.

### 3.14 METAL EXPANSION JOINT

Accurately locate and fix joints in situ, with the bedding, or on top of the bedding, to finish flush with the installed tile and to the tile manufacturer's requirements. Fit and fix rubber/rubber compound inserts to finish flush. Fit expansion joints at regular intervals over the floor area at intervals not exceeding 4 metres, at changes in floor plane and where the floor plane is interrupted.

### **Waterproofing**

- 3.15 **INSTALL WATERPROOFING MEMBRANE - INTERIOR WET AREAS**  
Install waterproofing membrane to manufacturers requirements and to BRANZ Good tiling practice, 7.0 Waterproofing interior wet areas. Reinforce all junctions of the waterproofing membrane to BRANZ Good practice guide: Tiling; 7.0 Waterproofing interior wet areas. Unless otherwise specified or shown on the drawings, install waterproof membranes as follows:
- Unenclosed shower cubicle
- To 1800mm above floor and 300mm above shower rose.
  - To at least 1500mm from shower rose.
  - To the floor within 1500mm of the shower rose.
- Bath with a shower over and no shower screen
- To 1500mm from the shower rose and top edge.
  - To 1800mm above base of bath.
  - To the floor within 1500mm of the shower rose.
- Bath with shower over and a screen for the shower
- To 1800mm height around sides of bath.
- Bath
- To 150mm minimum around the sides and along walls horizontally 150mm minimum.
- Splashback to a vanity
- To 300mm minimum up wall behind the vanity.
  - To the floor level at least twice the width of the vanity and 500mm min beyond it at each end.

#### **Application - tile installation**

- 3.16 **BONDED CEMENT MORTAR**  
Apply proprietary cement slurry bond coat over the whole of the floor to the tile manufacturer's requirements. Thoroughly mix and place the 40mm thick mortar bed over the bond coat and firmly tamp, screed and compact to the required level. Apply proprietary cement slurry bond coat to the wet mortar bed and set tiles while still tacky, firmly beating into the bedding and aligning the 3mm tile joints at the same time.
- 3.17 **MODIFIED CEMENT BASED ADHESIVE**  
Apply and float thick or thin bed of modified cement based adhesive to bed thickness to the adhesive manufacturer's requirements. Rib surface with a notched trowel, press tiles and place with required grout joints and to obtain adequate coverage by adhesive on the back of each tile to AS 3958.1.
- 3.18 **MODIFIED CEMENT BASED ADHESIVE AND WATERPROOF MEMBRANE**  
Apply appropriate waterproof membrane to manufacturer's requirements. Apply and float thick or thin bed of modified cement based adhesive to bed thickness to the adhesive manufacturer's requirements. Rib surface with a notched trowel, press tiles and place with required grout joints and to obtain adequate coverage by adhesive on the back of each tile to AS 3958.1.
- 3.19 **PLASTER SCREED AND SEPARATING LAYER**  
Lay polyethylene sheet/building underlay to a smooth surface, joints lapped 100mm minimum. Place galvanized steel mesh over with spacers to centralise it in the mortar bed. Thoroughly mix and place the proprietary screed mix to the manufacturer's requirements and compact to the required level. Ensure drying times are observed before installation of tiles by thin/thick set method.
- 3.20 **EXPANSION JOINT, COMPOUND**  
Provide expansion joints; at 4 metre intervals, at the perimeter of floors, at changes of level and around structural features. Carefully clean out the joint, insert the backing rod and fill with compound placed by gun. After the correct interval, finish the surface off flush to the compound manufacturer's requirements.

## **Grouting**

- 3.21 **APPLY GROUTING**  
Remove spacers. Apply grouting mix to as large an area as can be worked before setting commences. Work with a grouting tool back and forth until joints are completely filled with no adhesive showing. Avoid damage to the surface of tiles, using masking tape where necessary. Finish to depth of cushion and flush with surface to cushion edge and square-edge tiles. Remove surplus grout with a damp sponge and tool the joints to finish the grout uniform in colour, smooth and without voids, pinholes or low spots.
- 3.22 **APPLY PROPRIETARY GROUTING**  
Remove spacers. Prepare joints, mix and apply grout and finish off to the grout manufacturer's requirements, to finish the grout uniform in colour, smooth and without voids, pinholes or low spots.

## **Cleaning**

- 3.23 **CLEAN TILES**  
Upon completion of setting and grouting, thoroughly sponge and wash the tiles to leave them completely clean and without blemish. Finally polish glazed tiles with a clean dry cloth.

## **Completion**

- 3.24 **ROUTINE CLEANING**  
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.
- 3.25 **DEFECTIVE OR DAMAGED WORK**  
Repair damaged or marked tiles. Replace damaged or marked tiles where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures. Ensure tiles are not disturbed by foot traffic for at least 24 hours after laying and after grouting.
- 3.26 **PROTECTION**  
Provide the following temporary protection of the finished work:  
Provide protection to tiles by laying sheet material such as insulating board for the period between completion of laying and completion of the contract works.

## 6221B BOSTIK ASA TILING & WATERPROOFING SOLUTIONS

### 1. GENERAL

This section relates to the preparation of floor and wall surfaces for tiling systems with **Bostik ASA**:

It includes:

- acoustic underlays
- levelling screeds
- primers
- undertile heating
- waterproofing systems
- adhesives
- sealants
- grouts

#### 1.1 RELATED WORK

Refer to ~ for ~.

#### Documents

#### 1.2 DOCUMENTS

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

NZBC D1/AS1	Access routes
NZBC D1/VM1	Access routes
NZBC E2/AS1	External moisture
NZBC E3/AS1	Internal moisture
AS CA27	Code of recommended practice for internal plaster on solid backgrounds
AS 1315	Portland Cement
AS/NZS 3661.1	Slip resistance of pedestrian surfaces - Requirements
AS 3740	Waterproofing of wet areas within residential buildings
AS 3958.1	Ceramic tiles - Guide to the installation of ceramic tiles
AS/NZS 4858	Wet area membranes
ISO 13007.1	Ceramic tiles - Grouts and adhesives - Part 1: Terms, definitions and specifications for adhesives
BRANZ	Good practice guide: Tiling

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

#### 1.3 MANUFACTURERS DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

ASA Technical Data Sheets  
ASA Safety Data Sheets  
BRANZ Appraisal 580 - Dampfix 2 and Dampfix 3 External Waterproofing Membranes  
BRANZ Appraisal 581 - Dampfix 2 and Dampfix 3 Wet Area Membranes  
BRANZ Appraisal 662 - Bostik Safe Fix Adhesive  
BRANZ Appraisal 744 - Dampfix Gold Exterior Waterproofing Membrane  
BRANZ Appraisal 745 - Dampfix Gold Interior Waterproofing Membrane  
CSIRO Test Report No. 3918 - Dampfix Gold Waterproofing Membrane  
CETEC VOC Content Test Certificate - Bostik Safe Fix  
CETEC VOC Content Test Certificate - ASA Asaphonic

Manufacturer/supplier contact details

Company: **Bostik New Zealand Limited**  
Web: [www.bostik.co.nz](http://www.bostik.co.nz)  
Email: [nzsales@bostik.com](mailto:nzsales@bostik.com)

Telephone: 09 257 5847

### **Warranties**

- 1.4 **WARRANTY - MANUFACTURER/SUPPLIER**  
Provide a material Bostik ASA warranty for:  
15 years: For materials for waterproofing systems only  
10 years: For adhesive materials only

- Provide this warranty on the manufacturer's standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

- 1.5 **WARRANTY - INSTALLER/APPLICATOR - WATERPROOFING SYSTEM**  
Provide an installer/applicator warranty:  
5 years: For installation of waterproofing system

- Provide this warranty in the installer/applicator standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

- 1.6 **WARRANTY - INSTALLER/APPLICATOR - TILING SYSTEM**  
Provide an installer/applicator warranty:  
2 years: For supply and installation of the tiling system

- Provide this warranty in the installer standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

### **Requirements**

- 1.7 **NO SUBSTITUTIONS**  
Substitutions are not permitted to any specified Bostik ASA materials, or associated products, components or accessories.

- 1.8 **QUALIFICATIONS**  
Waterproofing work to be carried out by a Bostik ASA trained Dampfix waterproofing course applicator.  
Tiling to be carried out by competent tilers experienced with the materials and in the techniques specified.

- 1.9 **DEFLECTION CRITERIA FOR SUSPENDED FLOORS**  
Check that the floor is rigid enough for the tiling. Deflection of suspended floors should not exceed 1/360th of the span under dead load and live load.

- 1.10 **PROJECT REGISTRATION**  
This project is registered with Bostik ASA for quality assurance. Confirm with Bostik / ASA quality assurance co-ordinator any relevant key dates and proposed tenderers by e-mail [matthew.welch@bostik.com](mailto:matthew.welch@bostik.com).

### **Performance**

- 1.11 **QUALITY ASSURANCE**  
Prepare an inspection and test plan (ITP) for the work. Record on the ITP the inspections and checks as they are made. Make ITP's available for inspection.  
Refer to Bostik ASA for further information.
- 1.12 **INTERNAL / EXTERNAL MOISTURE**  
Wet area membranes under tiled areas to AS 3740, NZBC E2/AS1, NZBC E3/AS1 and to BRANZ Good Tiling Practice.

## **2. PRODUCTS**

## **Wet area membranes and external waterproofing systems**

- 2.1 **DAMPFIX 2 WATERPROOFING SYSTEM**  
Acrylic, fibre-reinforced, liquid applied waterproofing membrane. ASA Dampfix 2 system includes:  
- ASA Multiprime for porous substrates  
- Bostik N40 Primer for etching PVC wastes  
- Bostik Moisture Seal for sealing against rising damp  
- ASA Flexible Silicone (neutral cure) for use as an expansion joint filler and bond breaker for wall/wall and wall/floor junctions.  
Refer to BRANZ Appraisal 580 for external waterproofing membranes and BRANZ Appraisal 581 for wet area membranes.
- 2.2 **DAMPFIX 3 WATERPROOFING SYSTEM**  
A two part, cement based, acrylic modified, fibre reinforced waterproofing membrane. ASA Dampfix 3 system includes:  
- ASA Multiprime for porous substrates  
- Bostik N40 Primer for etching PVC wastes  
- Bostik Moisture Seal for sealing against rising damp  
- ASA Flexible Silicone (neutral cure) for use as an expansion joint filler and bond breaker for wall/wall and wall/floor junctions.  
Refer to BRANZ Appraisal 580 for external waterproofing membranes and BRANZ Appraisal 581 for wet area membranes.
- 2.3 **DAMPFIX GOLD WATERPROOFING SYSTEM**  
An elastomeric one part, fibre reinforced water based polyurethane membrane. Dampfix Gold system includes:  
- ASA Multiprime for porous substrates  
- ASA Multiprime 2 Part for non porous substrates  
- Bostik N40 Primer for etching PVC wastes  
- Bostik Moisture Seal for sealing against rising damp  
- ASA Flexible Silicone (neutral cure) for use as an expansion joint filler and bond breaker for wall/wall and wall/floor junctions.  
To AS/NZS 4858. Refer to CSIRO Test Report No. 3918.

### **Substrate Adhesive**

- 2.4 **BOSTIK SAFE FIX ADHESIVE**  
Multi purpose construction adhesive based on silane-modified polymers. Refer to BRANZ Appraisal 662 for materials to be adhered to the substrate.

### **Tiles - Adhesives**

- 2.5 **SUPERFIXALL**  
Off white tile adhesive designed for use on rigid surfaces. Suitable for domestic tiling. Use with ASA Megalastic to upgrade flexibility and bond strength but maintaining long open time. Suitable tile types include ceramic and terracotta. Has classification C1 in terms of ISO 13007.1.
- 2.6 **CONFLEX**  
Premium rubber modified tile adhesive designed for demanding or high traffic applications. All round adhesive suitable for commercial and tile on tile installations. Grey in colour. Efflorescence and moisture resistant. Has classification C2S1EF in terms of ISO 13007.1.
- 2.7 **CONFLEX GOLD**  
Premium rubber modified tile adhesive designed for demanding or high traffic applications. All round adhesive suitable for commercial and tile on tile installations. Grey in colour. Efflorescence and moisture resistant. Has classification C2S1EF in terms of ISO 13007.1.

- 2.8 **RAPIDSET WHITE**  
Fast setting tile adhesive with good workability and strength. Commercial and high traffic tiling can be done at a normal pace but with fast return to service. Performance may be upgraded by replacing the water in the mix with ASA Megalastic to give flexibility and water resistance. White in colour. Has classification C2FT in terms of ISO 13007.1.
- 2.9 **SUPERGLUE**  
Lightweight high performance adhesive. High bond strength, high flexibility and suitable for tile on tile. Suitable for commercial and high traffic tiling. Has classification C2S2EF in terms of ISO 13007.1.
- 2.10 **MEGAFIX**  
Brilliant white adhesive for use in bathrooms, with mosaics or when a very white adhesive is required. Smooth, unsanded formulation means that grout joints are not required to be raked out before grouting. Has classification C1S1ET in terms of ISO 13007.1.
- 2.11 **ASAFLEX**  
A two component, flexible adhesive suitable for most ceramic tile installations including tiling on timber and on rubber acoustic mat. Suitable for areas of movement, vibration or temperature fluctuation. Eliminates strike through of concrete and shrinkage cracks to tiles. Has classification C1S2E in terms of ISO 13007.1.

### **Sealants**

- 2.12 **SEALANTS**  
Sealants and back-up materials as described in clause 2.7 of AS 3958.1 and clause 9.18 of AS 3740. ASA Flexible Silicone (neutral cured), for use as an expansion joint filler and bond breaker for wall/wall and wall/floor junctions.  
Note: Check compatibility of membrane and sealant, use bond breaking tape to separate them if required.

### **Components**

- 2.13 **STRIPS AND WEATHERBARS**  
Unless otherwise specified edge strips, floor finish divider strips and weather bars shall be aluminium.
- 2.14 **EXPANSION JOINT, METAL AND RUBBER**  
Clear anodised aluminium/brass with metal anchor to set into in-situ concrete, cement screed/bed and complete with rubber infill.
- 2.15 **EXPANSION JOINT, METAL AND COMPOUND**  
Aluminium/brass angles with high density foam rubber insert and jointing compound.
- 2.16 **EXPANSION JOINT, PLASTIC**  
Rigid stabilised PVC sides with flexible central section.

## **3. EXECUTION**

### **General**

- 3.1 **HANDLING AND STORAGE**  
Take delivery of packets of tiles undamaged and dry. Handle tiles with care to avoid chipping, soiling and damage. Store on hard level standings in non-traffic, non-work areas that are enclosed, clean and dry.
- 3.2 **CHECK TILES**  
Check tiles to ensure that they are as specified, from the same batch, of a consistent colour and pattern and sufficient to complete the work. Reject tiles that vary widely in colour or pattern. Reject tiles that are damaged.

- 3.3 **CONFIRM LAYOUT**  
Before commencing work confirm the proposed layout of tiles and expansion joints and other visual considerations of the finished work.
- 3.4 **SETTING OUT**  
Before commencing the setting out confirm the number and location of cut tiles. Minimise in number with no cut tiles less than half size and only at the perimeter of the work.
- 3.5 **BACKGROUND MATERIALS**  
Ensure that the installation of background materials and substrate materials meets relevant standards and the manufacturer's instructions. Inspect background and substrate materials for any conditions unsuitable for tiling over. Do not commence work until the affected area is rectified. Confirm any specific preparation required for the adhesive being used.
- 3.6 **PREPARATION OF BACKGROUNDS**  
Prepare backgrounds in accordance with AS 3958.1, section 4 and in accordance with the manufacturer's instructions for the selected substrate.

### **Conditions**

- 3.7 **SERVICES AND ACCESSORIES**  
Ensure that all services and accessories are in place and located to suit the tile layout, and that the substrate, background and adjoining surfaces (with the preparation called for in this section) are of the quality necessary to allow tiling of the required standard.
- 3.8 **DO NOT START**  
Do not start laying tiles until concrete floors are cured, moisture content of floors is such that shrinkage is complete, thermal movement has been accommodated and the levels and surface finish will allow for tile laying of the required standard.
- 3.9 **SUBSTRATE TEMPERATURE**  
Do not carry out tiling where the substrate temperature is below 5°C or above 40°C.
- 3.10 **MOISTURE CONTENT**  
Ensure the floor is dry and if in doubt check for moisture content by hygrometer. Do not proceed with tiling work until readings for the whole area show 75% relative humidity or less.

### **Application**

- 3.11 **APPLICATION GENERALLY**  
Prepare backgrounds as described in AS 3958.1, Section 4. Suitably prepare backgrounds and substrates in accordance with the manufacturer's instructions to receive the bedded finish. Remove all dirt, dust, grease, oil, loose particles and any other form of contamination or deleterious material. Ensure that substrates are sound and dry. Installation to be in accordance with AS 3958.1, Section 5, including setting out, fitting, movement joints, sealants, tile finish and joints, and grouting.
- 3.12 **SETTING OUT**  
Setting out, cutting and fitting of tiles to be as described in AS 3958.1, clauses 5.4.2 and 5.4.3. Set out tiling as shown on the drawings. Confirm bond and pattern before installing. Provide even and correct falls to floor tiles where required, including falls to floor wastes. Ensure that a level finish is provided at wall lines. Where falls are not required ensure that the tiles are laid level.
- 3.13 **TILE FINISH AND JOINTS**  
Provide tile finish and joints, including tolerances, as described in AS 3958.1, clause 5.4.6. Joint widths to be suited to tile and in accordance with the manufacturer's instructions.

- 3.14 **ADHESIVE APPLICATION METHODS**  
Ensure that the whole of the back of the tile is in good contact with the adhesive with no voids. Remove a tile periodically during installation to ensure correct coverage. Do not fix tiles over skinned adhesive.  
Notched trowel method  
Adhesive application to be as described in AS 3958.1, clause 5.6.2(a). Notched trowel sizes shall be 4.5mm x 4.5mm x 4.5mm (mosaics) 6mm x 6mm x 6mm, 10mm x 10mm x 10mm, 12mm x 12mm x 12mm. Use an appropriately notched trowel to achieve full coverage.  
Buttering method:  
Adhesive application to be as described in AS 3958.1, Clause 5.6.2(c).  
Tiles in awkward locations:  
The buttering method may be required, or fixing might be necessary to achieve full bedding, even though the notched trowel method is used generally.

### **Waterproofing**

- 3.15 **WET AREA MEMBRANE WATERPROOFING**  
Provide waterproofing to wet areas as described in AS 3740.  
Material: Refer to SELECTIONS  
Locations: Extent of wet areas as described in AS 3740 and as shown on the drawings.  
Installation: Supply and install waterproofing membrane to Bostik's recommendations, by an ASA trained Dampfix waterproofing course applicator.
- 3.16 **EXTERNAL WATERPROOFING**  
As shown on the drawings or SELECTIONS to external decks, balconies and rooftops.  
Material: Refer to SELECTIONS  
Installation: Supply and install waterproofing membrane to Bostik's recommendations, by a Dampfix approved waterproofing course applicator.

### **Completion**

- 3.17 **REPLACE**  
Replace damaged tiles or elements.
- 3.18 **CLEANING**  
Upon completion of setting and grouting, thoroughly sponge and wash the tiles to leave them completely clean and without blemish. Finally polish glazed tiles with a clean dry cloth.
- 3.19 **LEAVE**  
Leave work to the standard required by following procedures.
- 3.20 **REMOVE**  
Remove debris, unused materials and elements from the site.
- 3.21 **PROTECT TILES**  
Protect tiles from damage. Ensure tiles are not disturbed by foot traffic for at least 24 hours after laying and after grouting. Provide protection to tiles by laying sheet material such as insulating board for the period between completion of laying and completion of the contract works.

## 7123B BUTELINE HOT & COLD WATER SYSTEM

### 1. GENERAL

This section relates to the **New Zealand manufactured Buteline** Hot and Cold Water System, from the network utility supply authority water main to designated points and appliances, the installation of hot water heating appliances, distributing piped hot water and the installation of isolating valves.

- **Buteline** Lilac tubing distribution of reclaimed / recycled non portable water supply.

#### 1.1 RELATED WORK

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for tapware supply.

#### Documents

#### 1.2 DOCUMENTS

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

NZBC B2/AS1	Durability
NZBC C/AS1-AS7	Protection from fire
NZBC G4/AS1	Ventilation
NZBC G12/AS1	Water supplies
AS/NZS 2642.1	Polybutylene pipe fittings - Polybutylene (PB) pipe extrusion compounds
AS/NZS 2642.2	Polybutylene pipe fittings - Polybutylene (PB) pipe for hot and cold water applications
AS/NZS 2642.3	Polybutylene pipe fittings - Mechanical jointing fittings for use with polybutylene (PB) pipes for hot and cold water applications
AS/NZS 2845.1	Water supply - Backflow prevention devices - Materials, design and performance requirements
AS/NZS 3500.1:2003	Plumbing and Drainage - Water services
NZS 4602	Low pressure copper thermal storage electric water heaters
NZS 4606.3	Storage water heaters - Specific requirements for water heaters with composite shells
NZS 4607	Installation of thermal storage electric water heaters: valve vented systems
NZS 4617	Tempering (3-port mixing) valves
AS/NZS 5601.1: 2010	Gas installations - general installations
NZS 7602	Polyethylene pipe (Type 5) for cold water services
Gas (Safety and Measurement) Regulations 2010	
Plumbers, Gasfitters and Drainlayers Act 2006	

#### 1.3 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

MBIE (DBH) Certificate of Accreditation 94/005B **Buteline** Polybutylene Pipe System  
**Buteline** Plumbers technical and installation manual

Copies of the above literature are available from **Buteline**

Web: [www.buteline.com](http://www.buteline.com)  
Email: [ml@buteline.co.nz](mailto:ml@buteline.co.nz)  
Telephone: 0-9-273 5800  
Facsimile: 0-9-273 5808

#### Warranties

#### 1.4 WARRANTY

Warrant this work under normal environmental and use conditions against failure of materials and execution.

Warranty period: 2 years

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

- 1.5 **WARRANTY - MANUFACTURER/SUPPLIER**  
Provide a **Buteline** materials warranty in the suppliers standard form.  
Warranty period: 25 years

#### **Requirements**

- 1.6 **NO SUBSTITUTIONS**  
Substitutions are not permitted to any specified **Buteline** product or component, or associated **Buteline** products, components or accessories.

- 1.7 **QUALIFICATIONS**  
Registered plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a certifying plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

- 1.8 **PIPEWORK LAYOUTS**  
~

- 1.9 **INFORMATION FOR OPERATION AND MAINTENANCE**  
Supply maintenance information to requirements set out in the 1239 OPERATION & MAINTENANCE section.

#### **Performance**

- 1.10 **TESTING**  
Confirm the timing before carrying out any tests. Supply potable water and the apparatus needed.

Slowly fill service pipes with water to exclude air. Test to either NZBC G12/AS1, 7.5.1a, 1500 kpa for period not less than 15 minutes or to AS/NZS 3500.1:2003, 16.3.1 **Hydrostatic test**, 1500 kpa for period not less than 30 minutes. Ensure there is no measurable loss of pressure for a minimum of 30 minutes. Slowly fill distribution pipes with water to exclude air. Ensure that with draw-off taps closed the system must remain water-tight.

- 1.11 **GAS CERTIFICATE OF COMPLIANCE**  
Provide a Certificate of Compliance (CoC) as required by the Gas (Safety and Measurement) Regulations 2010 to the owner, and when required provide a copy to the energy supplier before connection.

- 1.12 **GAS SAFETY CERTIFICATION**  
Provide a Gas Safety Certificate (GSC) as required by the Gas (Safety and Measurement) Regulations 2010 and provide a copy to the owner and when required the BCA. To be provided at completion of the work, prior to Practical Completion.

- 1.13 **GAS APPLIANCE COMPLIANCE**  
Supplier to provide a Supplier Declaration of Compliance (SDoC) in accordance with the requirements of the Gas (Safety and Measurement) Regulations 2010.

## **2. PRODUCTS**

### **Materials**

- 2.1 **POLYBUTYLENE PIPE**  
**Buteline** polybutylene tubing to AS/NZS 2642.1, AS/NZS 2642.2 and AS/NZS 2642.3 complete with fittings and accessories brand-matched with 50 year durability to NZBC B2/AS1, table 1 and NZBC G12/AS1, table1, with **MBIE (DBH) Certificate of Accreditation 94/005B** for both residential and commercial applications.

- 2.2 POLYBUTYLENE LILAC PIPE  
**Buteline** polybutylene lilac tubing to AS/NZS 2642.2 for use in non potable water supply systems.
- 2.3 WATER METER  
 To the requirements of the network utility operator.
- 2.4 ADJUSTABLE WALL ELBOW  
**Buteline** Bute-1 adjustable wall elbow with 4 way fixing clamp.
- 2.5 VALVES  
 Pressure reducing or limiting valve, filter, non-return valve, cold water expansion valve, pressure relief or temperature valve, pressure relief valve and isolating valves to NZBC G12/AS1: Water supplies.
- 2.6 INSULATION  
 Pre-formed pipe sections complete with bends and fittings, with fixing tape to the manufacturer's requirements.
- 2.7 TEMPERING VALVE  
 Tempering valve to NZS 4617 to NZBC G12/AS1.
- 2.8 BACKFLOW PREVENTION DEVICES  
 Provide backflow prevention devices to AS/NZS 2845.1 where it is possible for water or contaminants to backflow into potable water supply. Refer to NZBC G12 /AS1, 3.4 Backflow protection, and NZBC G12 /AS1, table 2, Selection of Backflow Prevention.

### **Materials - hot water heating appliances**

- 2.9 GAS HOT WATER HEATER, CONTINUOUS FLOW TYPE  
 Continuous flow unit with an integral gas burner and flue.

### **Components**

- 2.10 JOINTING COMPONENTS  
**Buteline** manufactured jointing components made from either reinforced thermo polymer or DR Brass designed for use with **Buteline** Polybutylene pipe.
- 2.11 PROTECTIVE TAPE  
 Plasticised PVC tape or similar for protection of jointing components for underground installations.

## **3. EXECUTION**

### **Conditions**

- 3.1 HANDLE AND STORE  
 Handle and store pipes, fittings and accessories to avoid damage. Store on site, under cover on a clean level area, stacked to eliminate movement and away from work in progress.
- 3.2 CORE HOLES AND SLEEVES  
 Review location and fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Strip core holes and make good after installation of pipework.
- 3.3 CONCEAL  
 Conceal pipework within the fabric of the building unless detailed otherwise. Satin finish chrome plate exposed work, complete with matching ferrule at the surface penetration.
- 3.4 THERMAL MOVEMENT  
 Accommodate movement in pipes resulting from temperature change by the layout of the pipe runs. Sleeve through concrete or steel penetrations.

3.5 PIPE SIZE  
Flow rates to each outlet to be no less than those given in NZBC G12/AS1, table 3, Acceptable flow rates to sanitary fixtures, with pipe size as determined in NZBC G12/AS1, table 4, Tempering valve and nominal pipe diameters.

3.6 EQUIPOTENTIAL BONDING  
Earth metallic water supply pipe and metallic sanitary fixtures to NZBC G12/AS1.

**Application - jointing**

3.7 JOINTING POLYBUTYLENE PIPE  
Aluminium clamped fitting to NZBC G12/AS1 and AS/NZS 2642, part 3.

**Application - distribution systems**

3.8 WATER SUPPLY CONNECTION  
Arrange with the network utility operator for a connection to the water main and from there through a water meter and gate valve. Provide back flow prevention to NZBC G12/AS1.

3.9 COLD WATER INSTALLATION  
From connection point, size the runs and branches to deliver the acceptable flow rate to NZBC G12/AS1, table 3, Acceptable flow rates to sanitary fixtures at each outlet. Allow for the expected concurrent use of adjoining fixtures. Lay out pipes in straight runs with support spacing to NZBC G12/AS1, table 7, Water supply pipework support spacing firmly fixed and buffered to eliminate noise and hammer, with preformed tee-connection take-offs and branches, complete with necessary valves, fittings and insulation to hot water line where required.

**Application isolating valves**

3.10 MAIN ISOLATING VALVE  
Install an isolating ball cock in an accessible position at the point of entry to the building.

3.11 INSTALL ADDITIONAL ISOLATING VALVES - CONCEALED  
Install additional isolating valves in an accessible and visually discrete position adjacent to or near by the specific fixture to allow for easy connection and operation. When the building is divided into zones, ensure an isolating valve is installed in each zone.

3.12 IN LINE FILTER  
Install an in line filter immediately adjacent to the main isolating valve at the point of entry to the building, in an accessible position to allow for easy cleaning.

**Application - hot water systems**

3.13 HOT WATER CYLINDER INSTALLATION GENERALLY  
Install hot water cylinders complete to the manufacturer's requirements and to NZBC G12/AS1, 6.11, Water heater installation. Valve-vented systems to NZS 4607.

3.14 SEISMIC RESTRAINTS - GAS WATER HEATING APPLIANCES  
Gas appliances to be restrained to manufacturer's requirements, AS/NZS 5601.1 and NZBC C/AS1-AS7, 7.2 Gas-burning Appliances.

3.15 GAS HOT WATER HEATER INSTALLATION, CONTINUOUS FLOW TYPE  
Install complete with the necessary fittings to the manufacturer's requirements and in accordance with NZBC G12/AS1, 6.11, Water heater installation. Install flue in accordance with the manufacturer's details and requirements and, AS/NZS 5601.1 (for internal or external appliances) or NZBC G4/AS1 (internal appliances). Refer to section 7221 GAS APPLIANCES for installation of gas appliances.

3.16 **HOT WATER PIPEWORK**  
Use a take-off spigot to give separate branches to each fitting, lay out pipes with support spacing to NZBC G12/AS1, table 7 Water supply pipework support spacing. Fix firmly and buffer to eliminate noise and hammer, with preformed tee-connection take-offs and branches, and preformed bends, complete with all necessary valves and fittings. Lag all pipes with rigid insulation to the manufacturer's requirements.

3.17 **INSTALL TEMPERING VALVE**  
Install tempering valve with 1 metre minimum length of copper pipe from outlet of hot water cylinder and to manufacturer's instructions.

**Installation - tapware**

3.18 **INSTALLING APPLIANCE ISOLATING VALVES - CONCEALED**  
Install isolating valves for appliances in accessible positions. Locate in adjacent cupboards and position to allow for easy connection and operation.

3.19 **INSTALLING TAPWARE**  
Install tapware supplied under 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES. Install in accordance with the manufacturer's requirements.

**Completion**

3.20 **REPLACE**  
Replace damaged or marked elements.

3.21 **LEAVE**  
Leave work to the standard required by following procedures.

3.22 **REMOVE**  
Remove debris, unused materials and elements from the site.

## 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES

### 1. GENERAL

This section relates to the supply and installation of sanitary fixtures, tapware and sanitary accessories.

#### 1.1 RELATED WORK

Refer to 7120 or 7123 HOT AND COLD WATER SYSTEM for hot water cylinders.  
Refer to 7420 or 7421 SANITARY SYSTEMS for the supply and fitting of waste disposal pipework  
Refer to the electrical section/s for electrical connection of accessories.

#### Documents

#### 1.2 DOCUMENTS

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

NZBC E3/AS1	Internal moisture
NZBC F2/AS1	Hazardous building materials
NZBC G1/AS1	Personal hygiene
NZBC G12/VM1	Water supplies
NZBC G12/AS1	Water supplies
NZBC G13/AS1	Foul water
NZBC G13/AS3	Plumbing and drainage
AS/NZS 1730	Washbasins
AS/NZS 2023	Baths for ablutionary purposes
AS/NZS 3500.1:2003	Plumbing and drainage - water services
AS/NZS 3500.2:2003	Plumbing and drainage - sanitary plumbing and drainage
AS/NZS 3662	Performance of showers for bathing
NZS 4223.3	Glazing in buildings - Human impact safety requirements
Plumbers, Gasfitters and Drainlayers Act 2006	

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

#### 1.3 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

~

Copies of the above literature are available from ~

Web: ~

Email: ~

Telephone: ~

Facsimile: ~

#### Requirements

#### 1.4 QUALIFICATIONS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a Certifying Plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

#### 1.5 SUPPLIER

A specialist in the supply of tapware, and employing experienced architectural representatives available to assist during the course of the installation.

#### 1.6 SUBMIT A SUPPLIER'S SCHEDULE

~

## **2. PRODUCTS**

2.1 **SANITARY FIXTURES**  
Refer to SELECTIONS for product selection.

2.2 **TAPWARE**  
Refer to SELECTIONS for product selection.

2.3 **SANITARY APPLIANCES**  
Refer to SELECTIONS for product selection.

## **3. EXECUTION**

### **Conditions - sanitary fixtures**

3.1 **DELIVERY**  
Only deliver to the site fixtures or fittings that can be immediately unloaded into suitable storage or be placed for direct installation.

3.2 **STORAGE AND HANDLING**  
Take delivery of and store components complete with protective casings and coverings in areas that are enclosed, clean and dry and where no work is being done. Remove protection only to the extent that will allow installation.

3.3 **QUALITY STANDARDS INCLUDING NZBC G13/AS1**  
Installation work to comply with NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC G13/AS1 and the fixture manufacturer's requirements.

3.4 **SUBSTRATE**  
Ensure substrate and fixings will allow work of the specified standard.

3.5 **CO-ORDINATION**  
Do not proceed if the points of supply and drainage services do not match the points of the fixtures without force or distortion.

3.6 **INSTALLATION REQUIREMENTS INCLUDING NZBC G13/AS1**  
Install to NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC G13/AS1, NZBC E3/AS1 and to the fixture manufacturer's installation requirements for each component. Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries and sealants in sequence. Seal between all sanitary fixtures and wall linings, fixtures and the tops they are in, the tops and wall linings, to NZBC E3/AS1, 3.2.2. Fixtures include baths, basins, tubs or sinks, Tops include, vanities, bath surrounds, sink benches, etc, and there upstands.

3.7 **PROVIDE SUPPORT**  
Confirm fixing points needed for each unit and provide solid blocking at each fixing bracket location.

### **Conditions - tapware**

3.8 **RETAIN**  
Retain tapware in the manufacturer's original packaging and ensure that units are complete with fixings and installation instructions. Label each unit separately with its fitting name and space number.

3.9 **STORE**  
Store tapware packages in a shelved, dry and securely locked area. Provide supervision when the secure area is unlocked and packages and cartons are being distributed; signing off each package from the schedule as released.

### **Installation - sanitary fixtures**

3.10 **INSTALLING TOILET PAN**  
Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries/bedding and sealants in sequence. Fit the toilet pan in position, plumb, level, flush and rigid without stressing the attachment points of the component. Fixings to be corrosive resistant. Fit seat.

3.11 **INSTALLING CISTERNS**  
Fit firmly in place and connect the specified cisterns from the supply services through the flush pipes to the relative fixtures in the positions as detailed all plumb and level.

**Installation - Basins**

3.12 **INSTALLING WASHBASINS**  
Install to NZBC G1/AS1, AS/NZS 1730. Set basins firmly to walls or vanities as detailed and to comply with NZBC E3/AS1. Connect to supply and drains through trap to the drainage system.

3.13 **INSTALLING VANITIES - INTEGRAL BASINS**  
Install in accordance with the manufacturer's requirements. Connect to supply and drains through trap to the drainage system. Seal top and upstand to wall surface to comply with NZBC E3/AS1.

**Installation - Showers**

3.14 **INSTALLING SHOWER FITTINGS**  
Shower waste, mixer and rose to be install to NZBC G1/AS1 and to AS/NZS 3662.

3.15 **INSTALLING SHOWER CUBICLE**  
Install to NZBC G1/AS1 and to NZS 3662 and in accordance with shower manufacturer's details and requirements. Ensure that doors fit closely and accurately. Test for water egress around sides and base. Lining materials and finishes to comply with NZBC E3/AS1.

3.16 **INSTALLING SHOWER DOOR AND SCREEN**  
To NZS 4223.3 and to the product manufacturer's requirements. Set units level, plumb and true to line and required location, with moving parts and actions freely and easily operating.

**Installation - Baths**

3.17 **INSTALLING BATHS**  
Install to NZBC G1/AS1. Set firmly in cradle with required points fully supported, level and flush. Connect to supply and drainage services.

**Installation - Sinks**

3.18 **INSTALLING SINK BENCHES**  
Install in accordance with manufacturer's/supplier's requirements. Connect to supply and drainage services.

3.19 **INSTALLING CLEANERS SINKS AND TUB UNITS**  
Install in accordance with manufacturer's requirements. Connect to supply and drainage services.

**Installation - Miscellaneous**

3.20 **INSTALLING STAINLESS STEEL FIXTURES**  
Carry out preparatory work and fit elements in position plumb, level, flush and rigid without stressing the attachment points in sequence. Connect to supply and drainage services.

**Application - tapware**

3.21 GENERAL  
To AS/NZS 3500.1 dated 2003 and in accordance with the manufacturer's requirements.  
Maintain safe water temperatures to comply with NZBC G12/AS1.

**Completion**

3.22 REPLACE  
Replace damaged or marked elements.

3.23 PROTECTIVE COVERINGS  
Leave fixtures, fittings and accessories clean and unblemished with stickers and protective coverings removed, with supply and drainage connections and all parts fully operating and working. Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following work.

3.24 REMOVE  
Remove debris, unused materials and elements from the site.

# 7411C CONTINUOUS SPOUTING RAINWATER SYSTEMS

## 1. GENERAL

This section deals with **Continuous Spouting NZ Ltd** rainwater disposal systems including spouting and downpipes, in various metal substrates.

### 1.1 RELATED WORK

Refer to ~ for ~

### 1.2 ABBREVIATIONS

The following abbreviations are used throughout this part of the specification:

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc.

### Documents

### 1.3 DOCUMENTS

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

NZBC E1/AS1	Surface Water
NZBC E2/AS1	External moisture
BS EN 988	Zinc and zinc alloys. Specification for rolled flat products for building
AS 1566	Copper and copper alloys - Rolled flat products
AS/NZS 2728	Prefinished/prepainted sheet metal products for interior/exterior building applications - Performance requirements
NZMRM CoP	NZ metal roof and wall cladding Code of Practice

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

### 1.4 MANUFACTURER'S DOCUMENTS

**Continuous Spouting New Zealand Ltd** documents relating to work in this section are: Continuous Spouting, Fascia, Spouting, Downpipes.

Copies of the above literature are available from **Continuous Spouting NZ Ltd**:

Web:	<a href="http://www.continuous.co.nz">www.continuous.co.nz</a>
Email:	<a href="mailto:sales@continuous.co.nz">sales@continuous.co.nz</a>
Telephone:	0800 50 1993

Area Contact	E-mail
Auckland	<a href="mailto:auckland@continuous.co.nz">auckland@continuous.co.nz</a>
Northland	<a href="mailto:northland@continuous.co.nz">northland@continuous.co.nz</a>
Hamilton	<a href="mailto:Waikatobayofplenty@continuous.co.nz">Waikatobayofplenty@continuous.co.nz</a>
Taranaki	<a href="mailto:westcoastnorthisland@continuous.co.nz">westcoastnorthisland@continuous.co.nz</a>
Gisborne	<a href="mailto:gisborneeastcoast@continuous.co.nz">gisborneeastcoast@continuous.co.nz</a>
Hawkes Bay	<a href="mailto:centralnorthisland@continuous.co.nz">centralnorthisland@continuous.co.nz</a>
Wellington	<a href="mailto:wellington@continuous.co.nz">wellington@continuous.co.nz</a>
Christchurch	<a href="mailto:info@canterburycontinuous.co.nz">info@canterburycontinuous.co.nz</a>
Otago	<a href="mailto:info@otagocontinuous.co.nz">info@otagocontinuous.co.nz</a>
Nelson	<a href="mailto:topofthesouth@continuous.co.nz">topofthesouth@continuous.co.nz</a>

### Warranties

### 1.5 WARRANTY

Provide **Continuous Spouting NZ Ltd** warranty covering material and installation in the standard form.

Product performance, life expectancy and warranty are dependent upon environment, maintenance and material selection. Refer to **Continuous Spouting NZ Ltd** for the

appropriate warranty terms, conditions and environmental considerations based on performance requirements to AS/NZS 2728.

Refer to the general section 1237 WARRANTIES for details of when completed warranty must be submitted.

### **Requirements**

1.6 **NO SUBSTITUTIONS**  
Substitutions are not permitted to any specified system, or associated components and products.

1.7 **QUALIFICATIONS**  
**Continuous Spouting** NZ Ltd installers and local agents to be experienced competent tradesmen, familiar with the materials and the techniques specified.

### **Performance**

1.8 **TEST**  
Test the completed rainwater disposal system with water to ensure spoutings are laid to correct falls, that both spouting and downpipes are unobstructed and that no ponding occurs in spoutings.

1.9 **DESIGN**  
Layout, falls and capacity of spouting to falls and the size and position of downpipes to comply with NZBC E1/AS1. Refer to NZMRM CoP NZ metal roof and wall cladding Code of Practice recommendations, sections 8.4 Gutters and 8.5 Downpipes.

## **2. PRODUCTS**

### **Materials**

2.1 **COLORCOTE® ZINCALUME**  
ColorCote® ZR8™ and Colorcote ZRX™ manufactured from Zincalume™ AZ150 coated steel, to AS/NZS 2728.

### **Products**

2.2 **SPOUTING**  
Manufactured by **Continuous Spouting** NZ Ltd using onsite plant to provide made to measure continuous lengths of spouting. Complete with matching brackets and screws. Spouting to be sized to comply with NZBC E1/AS1 and installed to NZBC E2/AS1 8.1.6. Refer to SELECTIONS for type.

2.3 **DOWNPIPES**  
Complete with stand-off brackets, screw fixed. Refer to SELECTIONS for type.

### **Components**

2.4 **DROPPERS**  
Material to match spouting, sized to fit inside the downpipe.

2.5 **BRACKETS**  
Material to match the spouting.  
Refer to SELECTIONS for type.

2.6 **SEALANT**  
Neutral cure silicone or Fixall Hitack MS Polymer sealant.

## **3. EXECUTION**

### **Conditions**

3.1 **HANDLE AND STORE**  
Handle and store downpipes, spouting and accessories to avoid damage. Store on site under cover, on a clean level area, stacked to eliminate movement and away from work in progress. Avoid exposure to sunlight if strippable film is still on the product.

3.2 **SUBSTRATE**  
Check that fascias, barge or cladding are level and true to line and face and will allow work of the required standard without distortion to the product alignment. Do not proceed until they are up to standard.

3.3 **THERMAL MOVEMENT**  
Make adequate provision in the fixing and jointing of the spouting for thermal movement in the length of the spouting.

3.4 **CORROSION**  
Separate metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips.

Check compatibility of metals used for rainwater goods, against the materials being used for roofing and flashings.

**Application - metal**

3.5 **INSTALL METAL SPOUTING**  
Establish minimum falls necessary (minimum 1:500) to outlets to prevent ponding and screw fix brackets true-to-line between 800mm to 900mm centres maximum. In areas where snow fall is possible the centres should be reduced to 600mm and snow strap fitted. Cut out neatly for and fit the pre-formed downpipe dropper and seal and rivet around the joint. All installation to NZMRM CoP NZ metal roof and wall cladding Code of Practice recommendations section 8.4 Gutters.

3.6 **INSTALL METAL DOWNPIPES**  
Form downpipes complete with offsets and shoes as needed with all joints lapped and sealed as required. Screw fix with matching pipe clips to rigidly stand plumb to the wall, and discharging into the stormwater gully or pipe inlet. All installation to NZMRM CoP NZ metal roof and wall cladding Code of Practice recommendations section 8.5 Downpipes.

**Application - general**

3.7 **INSTALLATION GENERALLY**  
Install to NZMRM CoP NZ metal roof and wall cladding Code of Practice recommendations where not otherwise specified.

3.8 **INSTALL OUTLETS AND OVERFLOWS**  
Install outlets and overflows where required to NZMRM CoP NZ metal roof and wall cladding Code of Practice, clause 8.6.2 Outlets and overflows.

**Completion**

3.9 **REPLACE**  
Replace damaged or marked elements.

3.10 **LEAVE**  
Leave the whole of this work discharging completely and freely into the stormwater system and free of all debris. Leave work to the standard required by following procedures.

3.11 **REMOVE**  
Remove debris, unused materials and elements from the site.

## **7420 SANITARY SYSTEMS**

### **1. GENERAL**

This section relates to above ground gravity flow sanitary systems;  
- for foul water  
- from sanitary fixtures to first underground drain connection  
- including system wastes, floor wastes, floor waste gullies, traps, vents and valves  
- with associated components and accessories to make the system work

#### **1.1 RELATED SECTIONS**

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures tapware and accessories.  
Refer to 7430 DRAINAGE for underground drains.

#### **1.2 DOCUMENTS**

Documents referred to in this section are:

NZBC G1/AS1	Personal hygiene
NZBC G13/AS1	Foul water - Sanitary plumbing
NZBC G13/AS3	Plumbing and drainage
AS 2887	Plastic waste fittings
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent applications
AS/NZS 2032	Installation of PVC pipe systems
AS/NZS 3500.2:2003	Plumbing and drainage - Sanitary plumbing and drainage Plumbers, Gasfitters and Drainlayers Act 2006

#### **1.3 MANUFACTURER'S DOCUMENTS**

Manufacturer's and supplier's documents relating to work in this section are:

~

Copies of the above literature are available by phoning ~.

#### **1.4 QUALIFICATIONS**

Carry out all work under the direct supervision of a certifying plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

### **2. PRODUCTS**

#### **2.1 PVC-U WASTE, DISCHARGE AND VENT PIPES**

PVC-U pipe to AS/NZS 1260 complete with fittings brand-matched to the pipe manufacturer's requirements.

#### **2.2 EXPOSED PIPES AND TRAPS**

Chrome plate on copper pipes and associated copper and brass fittings.  
White polybutylene or PVC, including all associated fittings.

### **3. EXECUTION**

#### **3.1 EXECUTION GENERALLY - NZBC G13/AS1**

Carry out this work and complete all tests to NZBC G1/AS1: 2.0, 3.0 and NZBC G13/AS1.

#### **3.2 ELECTROLYTIC ACTION**

Avoid electrolytic action by eliminating actual contact or continuity of water between dissimilar metals.

#### **3.3 INSTALL TRAPS, WASTE AND VENT PIPES - NZBC G13/AS1**

Connect waste outlets to traps and run waste pipes and back vents concealed, sized and fixed to NZBC G13/AS1 and AS/NZS 2032. Discharge wastes into the drainage system stack, soil pipe, or gully trap as shown. Bird proof mesh to all roof vents and vermin proof mesh to all untrapped waste pipes.

- 3.4 **PENETRATIONS**  
At penetrations through constructions provide and fit collars and escutcheon plates to match pipework.
- 3.5 **TEST**  
Test soil and waste disposal systems to ensure no leakage exists and leave in proper working order.
- 3.6 **CLEAN UP**  
Remove labels and clean fittings. Remove unused materials from the site.

## 7430 DRAINAGE

### 1. GENERAL

This section relates to the supply and laying of gravity foul water (sewage), stormwater and groundwater drainage.

#### 1.1 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZBC B1/AS1	Structure
NZBC E1/AS1	Surface water
NZBC G13/AS2	Foul Water
NZBC G13/AS3	Plumbing and Drainage
AS/NZS 1254	PVC-U pipes and fittings for Stormwater and Surface Water applications
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent applications
AS/NZS 2032	Installation of PVC pipe systems
AS/NZS 2033	Installation of Polyethylene pipe systems
AS 2439.1	Perforated Plastics Drainage and Effluent Pipes and Fittings - Perforated drainage pipe and associated fittings
AS/NZS 2566.1	Buried Flexible Pipelines - Structural Design
AS/NZS 2566.2	Buried Flexible Pipelines - Installation
NZS 3104	Specification for concrete production
AS/NZS 3500.2:2003	Plumbing and drainage - Sanitary plumbing and drainage
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
AS/NZS 4671	Steel reinforcing materials
AS/NZS 5065	Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications

Plumbers, Gasfitters and Drainlayers Act 2006

#### 1.2 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

~

Copies of the above literature are available from ~

Web:	~
Email:	~
Telephone:	~
Facsimile:	~

#### 1.3 AS BUILT DOCUMENTS

Supply a 1:100 scale as-built drawing of drains and fittings to the territorial authority and to the owner on completion.

#### 1.4 QUALIFICATIONS

Drainlayers to be experienced, competent and familiar with the materials and techniques specified. Carry out all work under the direct supervision of a certifying drainlayer under the Plumbers, Gasfitters and Drainlayers Act 2006.

### 2. PRODUCTS

#### 2.1 CONCRETE

17.5 MPa prescribed mix to NZS 3104.

#### 2.2 REINFORCEMENT

Plain round and/or deformed steel bars, Grade 300 to AS/NZS 4671.

#### 2.3 PVC-U PIPES

PVC-U pipes bends, junctions, fittings and joints to AS/NZS 1254 and AS/NZS 1260. Underground PVC-U pipe to be Classified as follows:

Classification	Use
SN4 - SN6	Domestic & light load areas
SN8 - SN10	Commercial & Industrial medium load areas
SN16	Public roads & high load areas

- 2.4 GULLY TRAPS - NZBC G13/AS2  
To NZBC G13/AS2: 3.3 Gully traps, complete with grating.
- 2.5 INSPECTION COVERS  
Cast iron frame with screw-down cover.
- 2.6 TRENCH BACKFILLING MATERIAL - NZBC G13/AS2 & NZBC E1/AS1  
Bedding: Clean granular non-cohesive material with a maximum particle size of 20 mm.  
Bedding & surround: Clean granular non-cohesive material with a maximum particle size of 20 mm.  
Compacted selected fill: Any Fine grain soil or granular material which is free from topsoil and rubbish and has a maximum particle size of 20 mm.  
Ordinary fill: Excavated material.  
Concrete: 75 mm thick concrete pad.
3. EXECUTION
- 3.1 EXCAVATE  
Excavate for drains to a firm even base with correct gradients set in straight runs. Trenches running parallel, below and close to foundations of buildings to NZS 3604 or NZS 4229 to be separated to:  
- NZBC E1/AS1, 3.9.7, **Proximity of Trench to Building**, for stormwater and subsoil drains.  
- NZBC G13/AS2, 5.6, **Proximity of Trench to Building**, for foul water drains.
- 3.2 MANUFACTURER'S REQUIREMENTS  
All drainage installations to the pipe and fitting manufacturer's requirements.
- 3.3 DRAINAGE GENERALLY - NZBC G13/AS2 & NZBC E1/AS1  
Carry out drainage work and tests to NZBC G13/AS2 (foul water), NZBC E1/AS1 (stormwater). Lay uPVC pipe systems to relevant sections of AS/NZS 2032, NZS 2566.1 and AS/NZS 2566.2. Lay polyethylene pipes and fittings to relevant sections of AS/NZS 2033 and NZS 2566.1.
- 3.4 LAY FOUL WATER DRAINS  
Lay drains in straight runs to correct gradients, to discharge into the network utility operator's sewer. Set inspection fittings on a concrete base.
- 3.5 INSTALL GULLY TRAPS  
Set on concrete 50mm above the surrounding ground or paving and brought up to protect the top of the fitting. Trowel off.
- 3.6 INSTALL FOUL WATER INSPECTION CHAMBERS - NZBC G13/AS2  
Construct as detailed on a poured concrete footing to NZBC G13/AS2, 5.7 **Access points**. Provide all necessary haunching to channels. Fit a cast iron cover and frame.
- 3.7 CONCRETE ENCASEMENT  
Concrete encase shallow drains and drains under driveways, on a 100mm deep 17.5 MPa concrete bed reinforced with three 10mm mild steel bars. Surround pipes with a polythene membrane to allow movement and encase in 100mm 17.5 MPa concrete.
- 3.8 FIELD TEST  
Field test drains for watertightness (PVC-U to AS/NZS 2032 or AS/NZS 2566. 2 Appendix N) to the satisfaction of the territorial authority inspector.

3.9

**PLACING & COMPACTING TRENCH BACKFILLING MATERIAL**

Granular bedding and selected fill shall be placed in layers no greater than 100 mm loose thickness and compacted. Base bedding (beneath the pipe) shall be placed and compacted before pipes are laid.

Up to 300mm above the pipe, compaction shall be by tamping by hand using a rod with a pad foot (having an area of  $75 \pm 25$  mm by  $75 \pm 25$  mm) over the entire surface of each layer to produce a compact layer without obvious voids, without disturbing the drains.

More than 300 mm above the pipe, compaction shall be by at least four passes of a mechanical tamping foot compactor (whacker type) with a minimum weight of 75 kg.

# 7701 ELECTRICAL BASIC

## 1. GENERAL

This section relates to the wiring for domestic and small scale commercial installations, including:

- power
- lighting
- electrical automation
- security system
- complete with componentry
- electrically-powered fittings
- fire rated sealers, liners and accessories

### 1.1 RELATED WORK

Refer to ~ for ~.

### 1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

CFL	compact fluorescent lamp
ELV	extra low voltage
GLS	general lighting service
IP	international (ingress) protection classification
LCD	liquid crystal display
LED	light emitting diode
MCB	miniature circuit breaker
NUO	Network Utility Operator
PCB	printed circuit board
PIR	passive infrared
RCBO	residual current-operated circuit breaker with over current protection
RCCB	residual current-operated circuit breakers
RCD	residual current device
SIA	security integration architecture
TPS	tough plastic sheathed
TCF	Telecommunications Carriers' Forum

### Documents

### 1.3 DOCUMENTS

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

NZBC E2/AS1	External moisture
NZBC F6/AS1	Visibility in escape routes
NZBC F7/AS1	Warning systems
NZBC G4/AS1	Ventilation
NZBC G9/AS1	Electricity
AS/NZS 1125	Conductors in insulated electric cables and flexible cord
AS/NZS 1768	Lightning protection
AS/NZS 2201.1	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
AS 2293.1	Emergency escape lighting and exit signs for buildings - System design, installation and operation
AS 2293.3	Emergency escape lighting and exit signs for buildings - Emergency escape luminaires and exit signs
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3008.1.2	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical New Zealand installation conditions

AS/NZS 3100	Approval and test specification-general requirements for electrical equipment
AS/NZS 3112	Approval and test specification - Plugs and socket-outlets
AS/NZS 3113	Approval and test specification - Ceiling roses
AS/NZS 3190	Approval and test specification - Residual current devices (current-operated earth-leakage devices)
AS/NZS 3350.1	Safety of household and similar electrical appliances - General requirements
AS/NZS 3439.3	Low-voltage switchgear and controlgear assemblies - Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards
AS 3786	Smoke alarms
NZS 4514	Interconnected smoke alarms for houses
AS/NZS 5000.2	Electric cables - Polymeric insulated - for working voltages up to and including 450/750v
AS/NZS 60598.2.2:2001	Luminaires - Particular requirements - Recessed luminaires
IEC 61643	Components for low voltage surge protection devices
Electricity (Safety) Regulations 2010 (Reprint as at 4 April 2016)	
TCF Premises Wiring Code of Practice 2011	

#### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this section are:

~

Manufacturer/supplier contact details

Company: ~

Web: ~

Email: ~

Telephone: ~

#### **Warranties**

#### 1.5 WARRANTY

Warrant the complete electrical installation under normal environmental and use conditions against failure of materials and execution.

1 year: Warranty period

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

#### **Requirements**

#### 1.6 COMPLY

Comply with the Electricity (Safety) Regulations 2010, AS/NZS 3000, AS/NZS 3008.1.2 and TCF Premises Wiring Code of Practice for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection. Arrange for the required inspections of listed work. Pay all fees.

#### 1.7 QUALIFICATIONS

Carry out work under the supervision of an electrical licensed supervisor.

#### 1.8 ELECTRICAL CERTIFICATE OF COMPLIANCE

Supply a certificate of compliance (CoC) to the owner, and if required the NUO, as required by the Electricity (Safety) Regulations (2010), prior to connection.

- Arrange for the NUO to inspect before the meter installation, listed work inspection, polarity check and supply becoming live.

- Arrange for an inspector to inspect as required by regulation 70.

1.9 **ELECTRICAL SAFETY CERTIFICATE**  
Provide an Electrical Safety Certificate (ESC), as required by the Electrical (Safety) Regulations 2010, to the owner and when required the BCA. To be provided no later than 20 working days after connection and prior to Practical Completion.

## 2. **PRODUCTS**

### 2.1 **MAINS SUPPLY, SINGLE PHASE**

Tough plastic sheathed neutral screened cable to AS/NZS 4961 and AS/NZS 3008.1.2, with a minimum rating of 60 amps per phase. Include pilot cable where required by network utility company.

### 2.2 **CABLES**

Tough plastic sheathed copper conductors to AS/NZS 5000.2, stranded above 1.0mm<sup>2</sup>, and to AS/NZS 3008.1.2. Minimum sizes as below. Increase sizes if the method of installation, thermal insulation, cable length or load will reduce the cable rating below that of the MCB rating, or produce an excessive voltage drop.

Lighting circuits: Domestic: 1.5mm<sup>2</sup> on 10 amp MCBs

Lighting circuits: Commercial: 1.5mm<sup>2</sup> on 16 amp MCBs

Power circuits: 2.5mm<sup>2</sup> on 16 amp MCBs for domestic and unenclosed or unfilled cavity construction

2.5mm<sup>2</sup> on 16 amp MCBs for domestic insulated construction, or filled cavity

2.5mm<sup>2</sup> on 20 amp MCBs for unenclosed or unfilled cavity construction

2.5mm<sup>2</sup> on 16 amp MCBs for insulated construction, or filled cavity, or lengths over 30 metres

Hot water cylinder circuits: Single phase: 2.5mm<sup>2</sup> on 20 amp MCBs

Range/oven/hob circuits: Single phase: 6mm<sup>2</sup> on 32 amp MCBs

Heat resistant cable for final connections to all heated appliances, and high temperature cable in ambient conditions that may be above 35°C.

### 2.3 **METER BOX**

Proprietary manufactured, zinc plated powder coated metal case, or ABS plastic, with glazed panel door, weatherproof where mounted outdoors, and complete with meter mounting, main switch and fuse.

### 2.4 **DISTRIBUTION BOARD**

Flush surface mount boards manufactured to AS/NZS 3439.3 and installed in accordance with AS/NZS 3000. Manufactured from engineering grade resin with a glow wire rating of 850°C, complete with neutral and earth busbars, and insulated comb phase bar.

Distribution boards to have 20% spare capacity for future additions and alterations.

### 2.5 **CIRCUIT PROTECTION**

General requirements including main switch 63A or 100A. Residual current protection 30mA, ensure RCCBs' meet Type A and comply with AS/NZS 3190. MCBs to 4.5kA or 6kA rated.

### 2.6 **WALL BOXES**

Standard grid size or equivalent to be manufactured from plastic or metal, with 2 or more gang size to be metal with steel inserts for accessory securing screws. Screw fixed.

### 2.7 **SWITCH UNITS**

Single pole switches to be 16 amp minimum rated, double pole or intermediate to be 16 amp minimum rated. All switches to be 230 volt a.c. polycarbonate flushplate units.

Refer to drawings/schedules for number of switches per unit, dimmer units, neon (indicator or toggle) units and 2 way units.

### 2.8 **HOT WATER SYSTEM SWITCH**

One way 20 amp switch complete with cable clamp for flexible PVC conduit to element enclosure.

- 2.9 **SWITCHED SOCKET UNITS**  
10 amp, 230 volt flat 3 pin socket outlets fitted with safety shutters and manufactured to AS/NZS 3100, AS/NZS 3112 and AS/NZS 3113, single or multi gang as detailed.
- 2.10 **SMOKE ALARMS**  
Type 1 domestic smoke alarm to NZBC F7/AS1. 1.2 **Descriptions of alarm systems.**  
Alarm to AS 3786. A wired 230 volt ionised smoke detector type.
- 2.11 **SURGE PROTECTION**  
Protection for the homes appliances with IEC 61643 Class II surge protection devices fitted to the switchboard. For variable electronic equipment fit IEC 61643 Class III surge protection to switched socket outlets.
- 2.12 **CEILING ROSES**  
White plastic mounting base with screwed cover, manufactured to AS/NZS 3113.  
Terminal type. Cylindrical section TPS for suspended fittings.
- 2.13 **BATTEN HOLDERS**  
Standard white plastic bayonet cap, with cap angled where wall mounted. Brass liners.
- 2.14 **DOOR BELL SYSTEM**  
Complete with transformer for mounting on distribution board.
- 2.15 **LIGHT FITTINGS**  
Fluorescent and High Intensity Discharge fittings with low loss control gear and power factor corrected to 0.95 minimum. Control gear suitable for dimming if this is required. All fittings complete with lamps; Incandescent GLS lamps pearl, coiled-coil 230v rated, bayonet cap; Fluorescent triphosphor 2700K; CFL; halogen ELV 12v dichroic reflector with cover glass unless detailed otherwise; integral/non-integral LEDs, reflectors, lenses, heatsinks and drivers - 3,000K to 4,000K, CRI >80, L70.
- 2.16 **RESIDENTIAL RECESSED LIGHT FITTINGS**  
Residential recessed luminaires to AS/NZS 60598.2.2, types IC-F, IC, CA-80 or CA-135 only.
- 2.17 **EXHAUST FANS**  
Ceiling, wall or duct mounted exhaust fans for ventilation to NZBC G4/AS1, and compliant with AS/NZS 3350.1.
- 2.18 **HEATED TOWEL RAILS**  
Fixed wired heated towel warmers, double insulated, IPX4 splash-proof, compliant with AS/NZS 3350.1, scratch resistant powdercoated or chrome finish.
- 3. EXECUTION**
- 3.1 **MAIN SUPPLY**  
Lay underground mains to the NUO requirements. Excavate trench, install cable and marker tape and backfill.
- 3.2 **METER BOX**  
Fit to meter box manufacturer's and Electricity Retailer's requirements. Recess into external wall in sheltered area and flash to weatherproof to NZBC E2/AS1 fig 69. Arrange for meter installation and connection.
- 3.3 **DISTRIBUTION BOARD**  
Fit to AS/NZS 3000 and board manufacturer's requirements. Recess into wall or surface mount and ensure fire containment properties of the enclosure are maintained.
- 3.4 **CIRCUIT PROTECTION**  
Install MCBs at distribution board to AS/NZS3000 to protect each final sub circuit.

- 3.5 **EARTH BONDS**  
Bond together and to earth all plumbing fittings not adequately isolated, to AS/NZS 3000, the Electricity (Safety) Regulations 2010 and the fitting manufacturer's requirements.
- 3.6 **MAIN EARTH**  
Provide a plastic toby box to contain and protect the earth electrode. Fix the connecting earth wiring closely and securely against wall surfaces.
- 3.7 **EARTH LEAKAGE PROTECTION**  
Install RCD protection to AS/NZS 3000.
- 3.8 **RCD - DOMESTIC INSTALLATIONS**  
Install 30mA RCD protection at the switchboard for all final sub circuits to control outlets and lighting except for fixed or stationary cooking equipment, to AS/NZS 3000.
- 3.9 **RCD - SPECIFIC INSTALLATIONS**  
Install 30mA RCDs at the distribution board.  
Install fixed wired RCD protected outlets (SRCD) in the following areas:  
- Wet areas: bathrooms, laundries, kitchens.  
- Near pools and water features.  
- Where intended for use with cleaning equipment.  
- Hand-held tools subject to movement in use, i.e. work-shops, garages.
- 3.10 **SET-OUT**  
The position of outlets and equipment shown on drawings is indicative of requirements. Confirm documents and site conditions are not in conflict with other services or features. Resolve conflicts and discrepancies before proceeding with work affected. Confirm on site the exact location, disposition and mounting heights of all outlets, fittings, equipment, penetrations, and use of exposed wiring. Fix outlet items level, plumb and in line.
- 3.11 **CABLING**  
Install wiring systems to AS/NZS 3000. All cabling run concealed. No TPS cable laid directly in concrete. Locate holes in timber framing for the passage of cables at the centre line of the timber member. Install cable in conduits where required to pass through concrete or underground. In walls run cabling horizontally and vertically in straight lines. In ceilings either run cabling along ceiling framing or attached to catenary wires. Clip cabling to ceiling framing/catenary wires.
- 3.12 **CABLING CIRCUITS**  
Install all circuits with the appropriately rated cable and circuit protection. Install with a maximum of 8 light switch units or 4 double or single switched socket units on any circuit. Minimum 2 lighting circuits per floor. Separate circuits for all electric heating appliances. Kitchen sockets to be on at least two different circuits.
- 3.13 **LIGHT FITTINGS**  
Install light fittings in locations and at heights specified and confirmed by the owner, in accordance with the fitting manufacturer's requirements.
- 3.14 **EXTRA LOW VOLTAGE LIGHTING**  
Use electronic, transformers (halogen) or drivers (LED) for ELV lamps, one transformer/driver per lamp. Locate to manufacturer's requirements and as close as practicable to the lamp. Ensure transformers/drivers and rear of light fittings are adequately ventilated and appropriately clear of any building elements, to AS/NZS 3000.
- 3.15 **RECESSED LIGHT FITTINGS - CLEARANCE TO INSULATION**  
Non-residential applications;  
The clearance between insulation and recessed downlights;  
- Leave 100mm gap to AS/NZS 3000, figure 4.9  
- Provide larger gaps where required by the downlight manufacturer
- Residential applications;  
- Ensure new recessed downlights are one of the new classes classified in AS/NZS 60598.2.2; CA 80, CA 135, IC and IC - F.

- Classification type CA 80, CA 135, to AS/NZS 60598.2.2; insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to AS/NZS 60598.2.2; insulation can abut and cover over the top of the downlight
- Provide larger gaps where required by the light manufacturer
- In a retrofit situation where the insulation is non-approved or unknown, ensure 100mm clearance from the insulation to AS/NZS 3000, figure 4.9.

### 3.16 ELECTRIC HOT WATER SYSTEM

Wire as a separate circuit through a wall-mounted isolating switch, with the cable from switch to element encased in flexible PVC conduit, clamp fixed at each end. Hot water cylinders, thermostats and 3000 watt element supplied and fitted under the hot and cold water system section.

### 3.17 SMOKE ALARMS

Install Type 1 domestic smoke alarm system to NZBC F7/AS1 3.0 **Domestic smoke alarms**, NZS 4514 and to the alarm manufacturer's requirements. Fit neatly and without damage to the surrounding finish.

### 3.18 SURGE PROTECTION

Install surge protection devices to manufacturer's requirements and in accordance with AS/NZS 3000 and AS/NZS 1768. When fitting IEC 61643 Class II protection at the switchboard, protect the device by a dedicated MCB.

### 3.19 ELECTRIC POWERED FITTINGS AND EQUIPMENT

Install and wire fittings and equipment to individual fittings and equipment manufacturer's requirements. Refer to the drawings for required layouts and locations for equipment. Refer to SELECTIONS for schedules of fittings.

### 3.20 BATHROOM ELECTRICAL FIXTURES

Install all electrical fixtures. Connect the following bathroom and toilet electrical items:

- Heated towel rails: Install to manufacturers requirements and installed in accordance with AS/NZS 3000 and the NZBC G9/AS1
- Mirror demisters: Locate centrally above the wash hand basin(s). Connect wiring to room lighting unless specified otherwise.
- Exhaust fans: Install exhaust fans to manufacturer requirements. Installed in accordance with AS/NZS 3000 and NZBC G4/AS1.

### 3.21 LABELLING

Include label under each controller, switch and circuit breaker on distribution boards. Include a warning notice if light dimmers are used in the installation. List the rating of each circuit.

### **Completion**

### 3.22 COMPLETION

Leave installation operating correctly, with equipment clean and operational.

00022



# 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: 7 MAHIA LANE	
Suburb:	
Town/City: WAIKANAЕ	Postcode:

THE OWNER(S)	
Name(s): K C HOMES LTD.	
Mailing address: 10 TARANUI WAY	
Suburb:	PO Box/Private Bag:
Town/City: PRAIRIE BH.	Postcode:
Phone number:	Email address: kchomesltd@yahoo.com.

**BASIS FOR PROVIDING THIS MEMORANDUM**

I am providing this memorandum in my role as the: Please tick the option that applies

- sole** designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design work myself – no other person will be providing any additional memoranda for the project
- lead** designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and no other person will be providing any additional memoranda for the project
- lead** designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the other designers will provide their own memorandum relating to their specific RBW design
- specialist** designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work

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

I BILL MANICUS carried out / supervised the following design work that is restricted building work

**PRIMARY STRUCTURE, B1**

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick <input checked="" type="checkbox"/> if included. Cross <input type="checkbox"/> if excluded	If appropriate, provide details of the RBW	Tick <input checked="" type="checkbox"/> whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
<b>All</b> RBW design work relating to B1 <input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised	
Foundations and subfloor framing <input checked="" type="checkbox"/>	<u>100mm CONCRETE SLAB</u>	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised	<u>PG 3</u>

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick <input checked="" type="checkbox"/> if included. Cross <input checked="" type="checkbox"/> if excluded	If appropriate, provide details of the RBW	Tick <input checked="" type="checkbox"/> whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Walls <input checked="" type="checkbox"/>	TIMBER FRAMING LINTELS BY PRE-HKIL	<input checked="" type="checkbox"/> Carried out <input checked="" type="checkbox"/> Supervised	PG 2
Roof <input checked="" type="checkbox"/>	TRUSS BT PRE-HKIL	<input type="checkbox"/> Carried out <input checked="" type="checkbox"/> Supervised	PG 4
Columns and beams <input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised	
Bracing <input checked="" type="checkbox"/>	SHEET BRACING	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised	PG 7.
Other <input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised	

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick <input checked="" type="checkbox"/> if included. Cross <input checked="" type="checkbox"/> if excluded	If appropriate, provide details of the RBW	Tick <input checked="" type="checkbox"/> whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
<b>EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2</b>			
All RBW design work relating to E2 <input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised	
Damp proofing <input checked="" type="checkbox"/>	DPL TO UNDERSIDE OF BOTTOM PLATE	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised	REF 3
Roof cladding or roof cladding system <input checked="" type="checkbox"/>	PRESSED METAL TILE	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised	REF 4
Ventilation system (for example, subfloor or cavity) <input checked="" type="checkbox"/>	CLADDING CAVITY SYSTEM	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised	REF 5
Wall cladding or wall cladding system <input checked="" type="checkbox"/>	BULK HEADERS & BEVEL HEAD WEATHERING	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised	REF 5
Waterproofing <input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised	
Other <input type="checkbox"/>		<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised	

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick <input checked="" type="checkbox"/> if included. Cross <input type="checkbox"/> if excluded	If appropriate, provide details of the RBW	Tick <input checked="" type="checkbox"/> whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
<b>FIRE SAFETY SYSTEMS: C1 - C6</b>			
Emergency warning systems Evacuation and fire service operation systems <input checked="" type="checkbox"/> Suppression or control systems Other	<i>Smoke detectors</i>	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised	<i>R-2</i>
<p><b>Note:</b> 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.</p>			

<b>WAIVERS AND MODIFICATIONS</b>	
Waivers or modifications of the Building Code are required. <input type="radio"/> Yes <input type="radio"/> No	
If Yes, provide details of the waivers or modifications below:	
Clause	Waiver/modification required
List relevant clause numbers of building code	Specify nature of waiver or modification of building code required

**ISSUED BY**

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

Name: BILL FRANCISLBP or Registration number: 111338The practitioner is a:  Design LBP  Registered architect  Chartered professional engineer

Design Entity or Company (optional):

Mailing address (if different from below):

Street address/Registered office:

Suburb:

Town/City: PRAM.PO Box/Private Bag: 65

Postcode:

Phone number: 2961248

Mobile:

After hours:

Fax:

Email address:

Website:

**DECLARATION**

I, BILL FRANCIS 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: \_\_\_\_\_

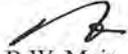
Date: \_\_\_\_\_



# COMPUTER FREEHOLD REGISTER UNDER LAND TRANSFER ACT 1952



## Historical Search Copy

  
R. W. Muir  
Registrar-General  
of Land

**Identifier** 658759  
**Land Registration District** Wellington  
**Date Issued** 21 April 2015

### Prior References

657176

---

**Estate** Fee Simple  
**Area** 522 square metres more or less  
**Legal Description** Lot 16 Deposited Plan 476550

**Original Proprietors**  
V J Limited

---

### Interests

9099897.6 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 1.10.2012 at 11:53 am  
Land Covenant in Easement Instrument 9099897.7 - 1.10.2012 at 11:53 am  
9099897.8 Encumbrance to Charles Fleming Retirement Village Limited - 1.10.2012 at 11:53 am  
9851253.13 Mortgage to Westpac New Zealand Limited - 14.11.2014 at 4:04 pm  
9897467.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 21.4.2015 at 11:17 am  
10268001.1 Variation of Consent Notice 9897467.1 pursuant to Section 221(5) Resource Management Act 1991 - 19.1.2016 at 4:29 pm  
10268001.2 Variation of Consent Notice 9099897.6 pursuant to Section 221(5) Resource Management Act 1991 - 19.1.2016 at 4:29 pm

# CHECKSHEET: SINGLE RESIDENTIAL DWELLING AND ACCESSORY BUILDING

Including single stand-alone dwellings, dwelling additions and/or alterations, re-piling, garages, decks, gazebos, sheds, retaining walls etc.

21 DEC 2016  
 LH

Kapiti Coast District Council,  
 175 Rimu Road, Paraparaumu 5032  
 Private Bag 60601, Paraparaumu 5254  
 For enquiries, phone 04 296 4700

Address of Project: 7 MAHIA LANE, WAIKARANAKI

This checklist shows you the information that has to be supplied with your building consent application. Please attach **2 copies** of the following information (unless otherwise specified) with your completed Building Consent Application Form.

Please tick relevant box in the Customer Use column as you attach the information. If the box is not relevant to your application, write NA across the box. Please check each section carefully and complete those sections that are relevant to your project.

Once you have attached all the required information, please check for completeness as an incomplete application or lack of any supporting information **will mean that your application cannot be accepted for processing.**

**An Application Form is attached to this checklist — Please include this checklist with your application.**

Customer Use	1	GENERAL Complete this section for all applications	For Office Use Only
<input checked="" type="checkbox"/>	a	<b>Building Consent Application Form (1 copy)</b> Completed and signed by the owner or by an agent on behalf of the owner	<input checked="" type="checkbox"/>
<input type="checkbox"/>	b	<b>Proof of Ownership (1 copy)</b> One recent copy of current certificates/s of title (not older than 3 months) <b>AND</b> where applicable one copy of purchase agreement (if recently purchased) or one copy of relevant portions of current lease.	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	c	<b>Locality Plan (1:500) showing:</b> Physical location of the subject building in relation to streets or landmarks, north point, name of building and lot and DP number.	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	d	<b>Restricted Building Work</b> Does the application involved restricted building work? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, provide certificate(s) of design work and advise Council of your Licensed Building Practitioner(s) as per the Advise of Licensed Building Practitioners Guidance sheet.	<input checked="" type="checkbox"/>
<input type="checkbox"/>	e	<b>Inspections and Monitoring</b> Details of proposed inspection regime including monitoring by council officers and other professionals e.g. architects, engineers, surveyors and certification to be supplied on completion.	<input type="checkbox"/>
<input checked="" type="checkbox"/>	f	<b>Site Plan (1:100) showing:</b> Dimensions of all boundaries, north point, finished floor levels, site area, street name and number, lot and DP number, outline of building, distance to boundaries and the position of swimming or spa pools, ground contours (extended to boundaries) and/or levels and designated wind zone of the site (e.g. specific design, very high, high, medium or low). In addition, if a site is identified as being subject to flooding, ponding, on an overflow path, river or stream corridor, or other natural hazards, indicate on plans proposed design will mitigate natural or created hazards. Additional information is available on these sites by request from Kapiti Coast District Council.	<input checked="" type="checkbox"/>
<input type="checkbox"/>	g	<b>Application Fee</b> Applications will not be accepted without payment of the appropriate fees. Fees payable are set out in the published fee schedule of the council that has jurisdiction over the project site.	<input checked="" type="checkbox"/>
<b>For Office Use Only: Building Consent Officer:</b> Application Accepted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Give reason: <i>All relevant documents provided.</i>			
Name: <i>Rishi Parekh</i>		Date: <i>21/12/16</i>	Signature: <i>Rishi Parekh</i>

2 CHANGE OF USE			
Complete for all existing buildings where the proposal involves forming a household unit where one did not exist before Example: the conversion of a garage or shed into a residential unit			
<input type="checkbox"/>	a	<b>Assessment of the Building for Compliance with the Building Code</b> Section 115(a) of the Building Act 2004 requires that the building, in its new use, complies fully with all clauses of the Building Code.	<input type="checkbox"/>
<input type="checkbox"/>	b	<b>Reasonably Practicable</b> The above assessment must relate to all building code clauses. If the proposal is for the project to meet anything less than full compliance with any clauses, your application must clearly state your reasoning, with supporting documentation, and show how you will meet the highest level of compliance that can be considered reasonably practicable.	<input type="checkbox"/>
3 FOUNDATIONS / FLOOR			
Complete for all new buildings, for existing buildings where the footprint of the building will change or where an additional storey is being added			
<input checked="" type="checkbox"/>	a	<b>Foundation Plan (1:100 / 1:50) showing:</b> <ul style="list-style-type: none"> <li>• Dimensions of all new foundations</li> <li>• Sub-floor, including bracing</li> <li>• Footing details</li> <li>• If a concrete slab, show basic details including reinforcing and contractions joints</li> <li>• Piles and footing</li> <li>• If the addition is an upper storey show details on upgrading existing foundations, joints, piles etc</li> <li>• Indicate ventilation to sub floor spaces</li> </ul>	<input type="checkbox"/>
<input type="checkbox"/>	b	<b>Subfloor Bracing</b> Provide subfloor bracing plan and calculations for all piled structures. Where the structure is specifically engineered, this should be included with the structural calculations. Subfloor bracing plan and calculations are required where an additional storey is to be added	<input type="checkbox"/>
4 CONSTRUCTION			
Complete for all new structures or alterations to existing structures			
<input type="checkbox"/>	a	<b>Existing Floor Plan (1:100 / 1:50) showing:</b> (For additions and alterations only) <ul style="list-style-type: none"> <li>• All levels</li> <li>• All designated spaces</li> <li>• All removals</li> <li>• Sanitary fixtures</li> <li>• Smoke detectors</li> </ul>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	b	<b>Proposed Floor Plans (1:100 / 1:50) showing:</b> <ul style="list-style-type: none"> <li>• Room dimensions</li> <li>• Location of partitions</li> <li>• All designated spaces</li> <li>• All floors (new or altered)</li> <li>• Location of sanitary fixtures</li> <li>• Stairs, barriers, handrails, floor joists and beams</li> <li>• Floor joist layout for each level with timber floors</li> <li>• Smoke detectors</li> <li>• Note where wall will form part of the swimming pool fence</li> </ul>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	c	<b>Pre-nail Truss and Frames</b> <ul style="list-style-type: none"> <li>• Specific design wall framing requires clarification</li> <li>• Truss layout must be supported by design certification and design of fixing details, including consideration of load paths to ground</li> <li>• Lintels carrying point loads, such as from girder trusses, require specific engineering design</li> </ul>	<input type="checkbox"/>

<input checked="" type="checkbox"/>	d	<b>Wall Bracing Plan (1:100 / 1:50) showing:</b> <ul style="list-style-type: none"> <li>Bracing details and calculations for wall bracing (also required for existing lower storeys where an additional storey is being added)</li> <li>Sub-floor bracing for decks projecting more than 2m from the house</li> <li>Location, type and number of bracing elements to indicate compliance with NZS 3604:2011 (include calculations)</li> <li>If the bracing was specifically designed by a structural engineer, provide calculations (required for specific design wind zones and lateral distribution of upper floor loads where lower storey bracing is provided in walls beyond the upper storey footprint)</li> </ul>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	e	<b>Sections and Details (1:50 / 1:20 / 1:10) showing:</b> <ul style="list-style-type: none"> <li>Foundation details involving reinforcing and connections</li> <li>Stairs, handrails, decks and decking</li> <li>Insulation systems and materials to floors, walls and roof</li> <li>Barriers providing safety from falling. Specific engineering design required where detail does not comply with NZBC B1/AS2</li> <li>Framing sizes, beams, lintels</li> <li>Roof cladding, eaves, fascias, gutters</li> <li>Flashings to openings</li> <li>Fire rated systems on all walls – closer than 1 metre to boundary</li> <li>Stud heights of rooms and total height from lowest ground floor level to top of ridge</li> <li>Window and door installation details</li> <li>Retaining wall details e.g. type, height of retained ground, relationship to boundary, waterproof membrane and proposed drainage</li> </ul>	<input type="checkbox"/>
<input type="checkbox"/>	f	<b>Fire Report</b> For domestic dwellings of 4 storeys or more, or buildings providing more than one household unit	<input type="checkbox"/>
<b>5 EXTERNAL</b>			
Complete for new buildings or existing buildings with alternations to the external shell			
<input checked="" type="checkbox"/>	a	<b>Elevations (1:100 / 1:50) showing:</b> Accurate lines from boundary to boundary on each elevation, relevant District Plan daylight control lines, the maximum height on each elevation, location of door and window openings, fixed and opening sashes, sill heights, floor levels in relation to ground levels, exterior cladding nominated to all elevations, down pipes and spouting, ventilators to sub-floor area (suspended floors only)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	b	<b>Risk Assessment</b> ( <i>Risk matrix in E2/AS1 may be used for buildings within scope</i> ) Consider exposure, design and detailing to support appropriate selection of cladding	<input type="checkbox"/>
<input checked="" type="checkbox"/>	c	<b>Cladding Details (1:50 / 1:20 / 1:10)</b> Provide details around all penetrations, joinery and other junctions at a level appropriate to the level of risk e.g. roof/wall, balcony/wall, junction of different types of cladding, back flashing details for cavity systems	<input type="checkbox"/>
<input type="checkbox"/>	d	<b>Production Certification</b> Supply copies of product certificates relied on as compliance documents	<input type="checkbox"/>
<input type="checkbox"/>	e	<b>Alternative Solutions</b> If the proposal uses products or systems that are not covered in the Acceptable Solutions of clause E2 of the Building Code provide supporting current information including test results (fully signed reports), case studies, expert opinion (including evidence of experience/qualification, basis for forming opinion and statement of independence) etc to demonstrate compliance	<input type="checkbox"/>
<b>6 SERVICES</b>			
Complete for all projects with new installations or alteration of plumbing or drainage services			
<input checked="" type="checkbox"/>	a	<b>Plumbing and Drainage Plan 1:100 / 1:50) showing:</b> <i>Note: if you have supplied drainage details for surface water disposal on the site plan, no drainage plan is required.</i> <ul style="list-style-type: none"> <li>Sizes of pipe work and drains</li> <li>Fixtures and fittings, hot water system(s)</li> <li>If the building is more than one storey with sanitary fittings on upper floors, provide an isometric layout showing wastes, pipes and falls</li> <li>Drainage layout with inspection bends and junctions indicated for both sewer and stormwater</li> <li>Any other drainage on site including council mains and retaining wall field drains</li> <li>Ventilation of sanitary rooms</li> <li>Calculations for sizing of down pipes</li> <li>Gully traps including overflow relief gullies</li> </ul>	<input type="checkbox"/>

7			STRUCTURAL
Complete for all projects incorporating specific structural design			
<input type="checkbox"/>	a	<b>Structural Calculations</b> If any design work required the services of a structural engineer, attach 2 copies of the calculations with this. The calculations must be prefaced with information explaining the design philosophy and justification of assumptions and methodologies used in analysis	<input type="checkbox"/>
<input type="checkbox"/>	b	<b>Expert Opinion (Producer Statements)</b> If this application for consent relies on any expert opinion including Producer Statements certifying compliance with the New Zealand Building Code, a copy must be attached with this application. (Note all structural Producer Statements are required to have accompanying calculations.)	<input type="checkbox"/>
8			SPECIFICATIONS
Complete for all applications			
<i>Note: the specification must be specific to the project and cover all aspects of the proposed work</i>			
<input checked="" type="checkbox"/>	a	<b>Specification: General</b> <ul style="list-style-type: none"> <li>• Elements of structure (size, spacing, timber treatment)</li> <li>• Finish or fixings to meet durability requirements</li> <li>• Plumbing and drainage materials and design that installation is to comply with</li> <li>• Wet area surfaces</li> <li>• Ventilation systems</li> <li>• Flooring slip resistance for access routes</li> <li>• Glazing</li> <li>• Type of smoke detectors (including existing smoke detectors where they will remain)</li> </ul>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	b	<b>External Claddings</b> For each of the following claddings provide details of the product name, manufacturer, maintenance requirements and warranties offered <ul style="list-style-type: none"> <li>• Building wraps</li> <li>• Wall claddings</li> <li>• Roof claddings</li> <li>• Membranes (roof and decks)</li> <li>• Tanking</li> <li>• Joinery</li> </ul>	<input type="checkbox"/>
9			DEMOLITION / REMOVAL
Complete for all projects involving demolition of significant parts of buildings or the demolition or removal of whole buildings			
<input type="checkbox"/>	a	<b>Means of Barricading the Site</b> Provide details of temporary barriers, gates which swing inwards or other means of restricting public access to the area	<input type="checkbox"/>
<input type="checkbox"/>	b	<b>Proposed Tipping Location for Demolition Materials (address/landfill)</b>	<input type="checkbox"/>
<input type="checkbox"/>	c	<b>Hazardous Building Material</b> Provide safety plan detailing the safe handling and disposal of hazardous materials	<input type="checkbox"/>
<input type="checkbox"/>	d	<b>Site Management Plan Covering</b> Management to control silt runoff, noise and dust	<input type="checkbox"/>
<input type="checkbox"/>	e	<b>Proposed Destination for Relocate Building</b>	<input type="checkbox"/>
<input type="checkbox"/>	f	<b>Access To and From the Site (including use of kerb crossings)</b>	<input type="checkbox"/>
<input type="checkbox"/>	g	<b>Specify Termination of Existing Services</b> <ul style="list-style-type: none"> <li>• Water</li> <li>• Sewer</li> <li>• Stormwater</li> </ul>	<input type="checkbox"/>

<input type="checkbox"/>	h	<b>Details About the Building such as:</b> Number of storeys, type of materials the building is constructed (Photographs of the building would be useful)	<input type="checkbox"/>
--------------------------	---	--	--------------------------

	<p><b>Note:</b> You will need to contact the relevant service authorities specified below to advise them of the extent of your work:</p> <ul style="list-style-type: none"> <li>• electricity,</li> <li>• gas,</li> <li>• drainage,</li> <li>• water,</li> <li>• transport,</li> <li>• telecommunications,</li> <li>• cable television, or</li> <li>• any other services that may be affected.</li> </ul> <p><b>Transportation of Relocated Building</b> You will be required to contact and provide details to Councils Transportation and Traffic Department.</p>	
<b>10</b>	<b>OTHER APPROVALS</b> Complete for all projects involving demolition of significant parts of buildings or the demolition or removal of whole buildings	
<input type="checkbox"/>	<p>Please check Territorial Authority regarding the requirement for other approvals required and fees payable. These may include:</p> <ul style="list-style-type: none"> <li>• Consents under the Resource Management Act</li> <li>• Approvals under bylaws including earthworks, vehicle crossings, road openings and water connections.</li> </ul> <p>Show the location of swimming or spa pools on the property and describe how compliance with the Fencing of Swimming Pools Act will be achieved.</p>	<input type="checkbox"/>

**The issue of a building consent does not relieve the owner of any duty or responsibility under any other Act.**

# BUILDING CONSENT PRODUCTION CHECKLIST



Proposal: <i>single level dwelling</i>		BC: <i>161030</i>
Address: <i>7 Mahia Lane Waikanae</i>	Category: <i>1</i>	Residential: <input checked="" type="checkbox"/> Commercial: <input type="checkbox"/>
Officer:	Date:	

Key	
N/A <input type="checkbox"/>	Not Applicable to this application. (The deletion of whole sections as N/A is permitted. For alternatives comment below each section).
No <input type="checkbox"/>	Plans, specifications & documentation not complying with the Building Code &/or Bld Act (The reason specified alongside each prompt)
Yes <input type="checkbox"/>	Plans, specifications & documentation complying with Category Bld Code &/or Bld Act (The reason specified alongside each prompt)

Site Plan (NZS 3604 Sec 3.4, 4, 5 Code cB1, B2, E1, E2, F1 & F2 Sect. 72, 75 BA04)			
N/A	No	Yes	Comments
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Wind zone <i>(High)</i> V/ High Specific <i>(GIS)</i> Site specific (3604)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Flooding / ponding hazards <i>(GIS)</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Slippage / fault line hazards <i>(GIS)</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Erosion, river & coastal hazards <i>(GIS)</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Subsidence / soft soil hazards <i>(Site inspection notes)</i> <i>Pass</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Corrosion zone Zone D of <i>Zone C</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Soil contamination (F1 GIS)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Distances to boundaries / siting (District plan) <i>RM160298 in process</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Floor levels / contours (E2/AS1 & NZS 3604 E1) <i>FGL 22.0 RFL 223 contours 21.5</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Two or More Allotments (Sec 75 – 83 Bld Act)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Noise / sound insulation (airport & highway)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CT221 notice reviewed <i>RM130101</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Outstanding Building Consents, No CCC
			BC:
			BC:
Additional comments:			

Ambiguity / Contradictions			
N/A	No	Yes	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Manufacturers Specs
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Engineer compared with Designer/Arch
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Any Other contradictions
Additional comments:			

Commercial Fire report (C/MM1, C/As1, C/AS2, C/A34, C/AS4, C/AS5, C/AS6, C/AS7, F6, F7, F8)			
N/A	No	Yes	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Referral to NZFS Fire Engineering unit
Additional Comments:			

**CONSENT NOTICE  
PURSUANT TO SECTION 221 OF  
THE RESOURCE MANAGEMENT ACT 1991**

**IN THE MATTER OF A PLAN LODGED FOR  
DEPOSIT UNDER NUMBER 476550  
AND RESOURCE CONSENT NO. RM 130101**

**(BEING THE SUBDIVISION OF LOT 1 DP 471200),  
AT 19, 27 and 53 State Highway One, Waikanae (Parata Street and Mahia Lane)  
FOR V J Limited**

**The Regional Regulatory Titles Officer at Wellington**

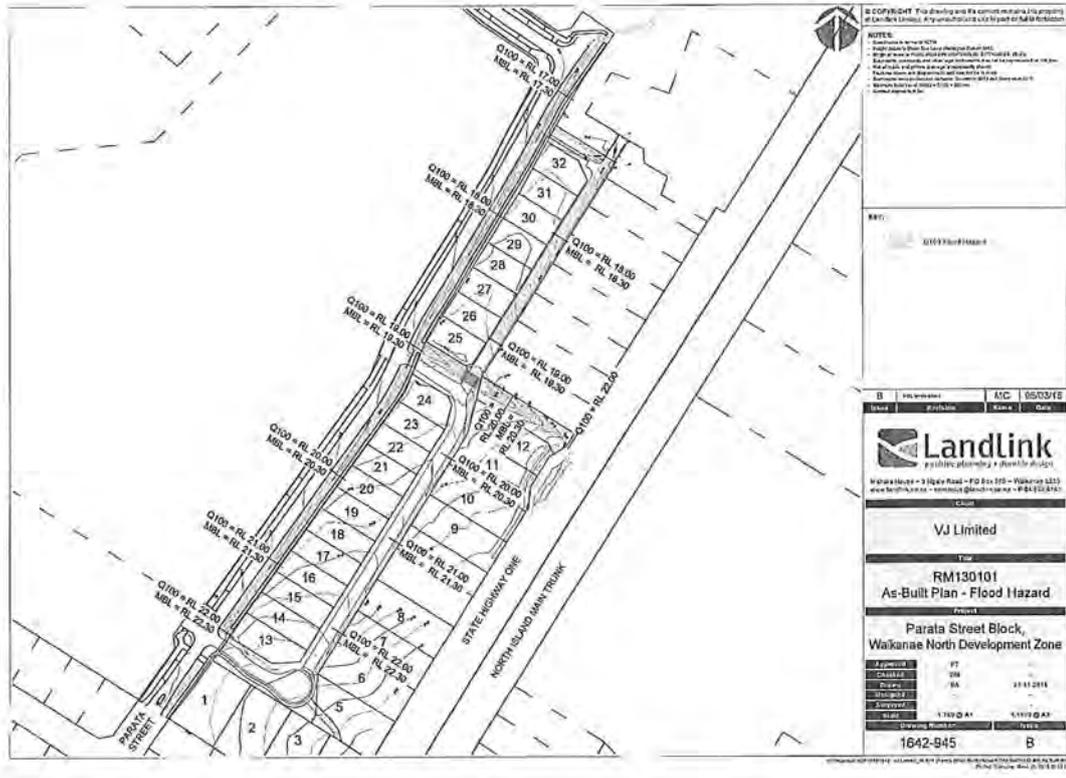
**PURSUANT** to Section 221 of the Resource Management Act 1991 the Kapiti Coast District Council hereby gives notice that it has consented to the subdivision and that the following conditions are to be complied with on a continuing basis:

- 1. With respect to Lots 1, 13 to 32 inclusive and Lots 201 and 202:** Foundation design and construction for any new building or additions and alterations to a building shall take into account the findings and recommendations within the following documents:

  - The Design Report for Parata St Block Waikanae North dated 8 October 2013 and prepared by J D Bell of Landlink; and
  - The report on Foundations, Roading and As Built Earthworks dated 13 November 2014 and prepared by D J Munro of Landlink;

which were submitted to Council in relation to application No. RM130101. Copies of the above documents are available from file RM130101 in Council's Office at any time the office is open to the public and are also stored electronically under e-docs reference nos. 555006 and 555011 respectively.
- 2. With respect to Lots 1, 13 to 32 inclusive and Lots 201 and 202:** The owner of the land has ongoing responsibility for the construction and subsequent management and maintenance of any on site stormwater disposal system to meet the performance standards given in the certified stormwater disposal design as set out in the document entitled "*RM130101 – Subdivision of Lot 3 DP 454080 On site attenuation requirements for residential lots*" dated 20 March 2015. This document is stored by Kapiti Coast District Council on file RM130101 and also electronically under e-docs reference no. 555036. The Tank Calculator referred to in the above report is also stored electronically under e-docs no. 555042. Both documents are available in Council's office at any time the office is open to the public.
- 3. With respect to Lots 201 and 202:** It is the ongoing responsibility of the landowner to protect and maintain any existing and proposed flow paths and natural drainage paths unless otherwise certified by Council's Development Engineer. One method of compliance with this requirement is the construction and maintenance of any vehicular access across any stormwater swale in general accordance with the design shown on Landlink Plan number 1642-E2-150 issue A. A copy of this plan is held on file RM130101 and is also stored electronically at the Kapiti Coast District Council under e-docs reference no. 555609 and is available at any time the office is open to the public.

4. With respect to Lots 1, 13 to 32 inclusive and Lots 201 and 202: All residential buildings shall be established so that the underside of the floor joists and/or floor slab is above the minimum build level as shown on the Flood Hazard map prepared by Landlink Limited and identified as Drawing Number 1642-945 Issue B. A copy of this plan is held on file RM130101 and is also stored electronically at the Kapiti Coast District Council under e-docs reference no. 555529 and is available at any time the office is open to the public. For ease of identification, an image of the Flood Hazard map is set out below:



1642

8 October 2013

Rita O'Brien  
Subdivision Engineer  
Kapiti Coast District Council  
Private Bag 60601  
**PARAPARAUMU 5254**

Dear Rita

## **DESIGN REPORT, PARATA ST BLOCK WAIKANAЕ NORTH**

Our client is planning the subdivision of Lot 3 DP 454080 in the Waikanae North Development Zone. The exact layout of the proposed subdivision is shown on the attached scheme plan numbered 1642-10B. We have inspected the site for its suitability for subdivision with respect to geotechnical issues, foundations, access and stormwater management. This report has been prepared solely for the purposes of the subdivision and the information supplied should not be used for any other purpose other than assessing the suitability of the land for subdivision.

The site is bounded on the East by State Highway 1 and the West by the newly formed Parata St extension. It falls to the west by about 5 m from SH1 to Parata St. It is gently graded and there are no significant land stability issues. 31 additional lots will be created by the subdivision. Lots 1 to 12 are about 1,000 m<sup>2</sup> whilst lots 13 to 32 are 450 to 500 m<sup>2</sup>.

### **Stormwater and Groundwater**

The principles of the stormwater management plan are as follows:

- 1) In the design of Stage 1 the Q100 design flow of 0.682 m<sup>3</sup>/sec was allowed for in the sizing of the attenuation pond. The corresponding flow for the Q10 is 0.428 m<sup>3</sup>/sec. The above flows were based on the assumption that 15 % of the developed area would be impervious. This allowed for all of the roads in the development and 25 m<sup>2</sup> per lot. The current design shows an impervious area of 13% of the total being 2880 m<sup>2</sup> of road and 25 m<sup>2</sup> x 32 lots = 800 m<sup>2</sup> giving a total impervious area of 3680m<sup>2</sup> with the total lot area 27,700 m<sup>2</sup>.
- 2) The above flows for the attenuation allowed 25 m<sup>2</sup> per lot of paving. A consent notice will be required for each lot to control this.

- 3) Individual households are expected to have sufficient stormwater attenuation tanks to provide hydraulic neutrality. The specific design of these will be carried out in accordance with KCDC requirements once the size of each house is known. These attenuation tanks can provide attenuation and also the necessary storage for rainwater to comply with Plan Change 75. Soakage pits are not recommended as the groundwater in the area is already an issue and this does not need exacerbating. The on site soils are clay and provide no soakage capability.
- 4) Each lot will be provided with a discharge point to take overflow from the attenuation tanks. Lots 1, 2, 3, 4, 5, 6 and 13 will discharge through a subsoil drain in the swale immediately north of the new access road between lots 1 and 13. Lots 7 to 12 will each have an individual connection to the subsoil drain in the swale servicing the access road. Lots 13 to 32 will have individual connections to the existing swale on the western side that services Parata St.

The road servicing lots 25 to 32 will be lowered some 300 mm below the lots. A perforated pipe will run under the road to provide subsoil drainage. The lowered road will also act as a drainage path for any overland flow in extreme storms that comes from the east across SH 1. This overland flow currently causes inundation on these lots. The capacity of the lowered road is about 4 m<sup>3</sup>/sec. The likely design flow will be considerable less than this. The current design flow from the catchment on the eastern side of SH1 that causes the surface water is 7.96 m<sup>3</sup>/sec. 5 m<sup>3</sup>/sec of this is already being diverted down the overflow swale immediately to the south of this. Another portion is already being diverted down the east side of SH1. Therefore it is likely that the surface flows into this area will be about 1 m<sup>3</sup>/sec as compared to a capacity of 4 m<sup>3</sup>/sec.

### **Bridge Access**

Access to service lots 25 to 32 will be provided by 2 different methods. A 2 lane bridge will be provided over the overflow swale immediately south of lot 25. This will be sized to ensure that it is flood free in a Q100 event. A culvert will be provided at the north side of lot 32 where the access road crosses the swale between the block and Parata St. The culvert will be sized for the Q10 storm with no overtopping whilst the Q100 storm can pass over the lane with a depth of up to 200 mm as allowed by clause 4.3.4.2 of the SDPR. In a Q100 event where the water may be flowing in this manner the residents of the lane still have flood free access over the bridge which is a maximum of 120 m away from lot 32.

### **Foundations**

90 scala penetrometer tests were carried out on the site. 11 test pits were also excavated. The scala probes extended between 500 and 1800 mm and the test pits went to about 1800 mm. The location of the tests is shown on the attached plan. Tests 1 to 11 were in the road to assist with the design of that whilst the remainder were in the lots to be subdivided. The larger lots, 1 to 12 contain either 3 or 4 tests whilst the smaller lots, 13 to 31 only contain 2 tests except for lot 15 that contains 4 tests. The results from the tests in lots 13 to 31 show a reasonable level of consistency and it was not considered necessary to carry out the additional 30 tests to gain more knowledge of the soil conditions. The results are attached as a table at the end of this report.

The soils typically comprise topsoil overlying deposited clays and gravels. The surfaces of the lots 1 to 12 and the eastern portions of lots 17 to 23 are wet as there is currently very little drainage. This is caused because there is a layer of clay over most of the site immediately below the topsoil. These lots will be provided with subsoil drainage during the development. NZS 3604: 1999 Timber Framed Buildings requires that the number of blows per 75 mm be greater than 3 at a depth of 600 mm or less for the soils to be classified as good ground not requiring specific design. The tests show that the founding levels could be at 600 mm depth for piles on some of the lots whereas others may need to be founded at depths of up to 1200 mm. It is our professional opinion that a house can be constructed on all lots using conventional foundations such as piles or concrete slabs.

We would recommend that the foundations are subject to specific design because:

- 1) The exact location of the house on each lot is not known and may not correlate to the location of the tests.
- 2) Lots 1 to 12 have a gentle slope from east to west that may require some excavation and or filling to create a level building platform.
- 3) The variability of founding depths across all 32 lots is such that it is not possible to certify a consistent depth for all lots.
- 4) Groundwater may need to be controlled in the foundations of some lots particularly if using a concrete slab on grade.

### **Pavement Design**

Typically the road surface will be about 300 mm below the existing ground level. The pavement will be founded about 600 mm below the existing ground. At that depth the penetrometer shows a result of at least 25 mm per blow as per fig. 3.1 of NZS 4404:2010. This equates to a CBR reading of approx. 9.5. Therefore as per the mechanistic design process a pavement thickness of 200 could be acceptable. However the KCDC requirement for a minimum pavement thickness of 300 mm is the governing condition. Care will be taken during the excavation for the pavement to ensure that any unsuitable material is excavated to waste.

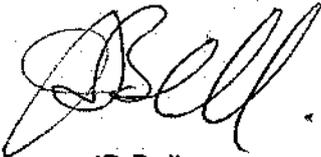
### **Waste water**

The sanitary sewer reticulates from an existing manhole in the existing 150dia SS line at the northern end of the lane (asset ID: 20120920115607) and at a manhole in the centre of the site (WSM00311). The extensions to the mains will follow the natural grade of the land at between 0.8% and 1.0% at depths of 1.2-2.0m along the rear lanes.

The additional design flows from the development are 1.0 litres /sec at WSM0031 and 0.4 litres/sec at asset ID: 20120920115607. The design flow from the catchments east of SH1 is 82.6 litres/sec. The design flow at the critical section downstream of this is 84.03 litres/sec in the 375 mm dia PVC pipe (asset ID 20120411085708). The capacity of this sewer is 105 litres/sec. Therefore there is spare capacity of 22.4 litres/sec.

We trust that the above plan addresses the issues relating to the overall management of stormwater on the development. Please contact the writer if you have any queries.

Yours faithfully  
**LANDLINK LTD**



JD Bell  
Engineer

**Penetrometer test result Parata Street Block Waikanae North**

Test no	1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18	19	20	23	24
Blows per 100 mm																					
Depth																					
100																					
200				2																	
300	3	4		3				3		3							6	2	2		
400	4	3		5	4	2		2	2	3	2					3	3	1	2		
500	R	5	4	5	5	2	3	4	1	5	R	2	3	6	3	4	2	2	3	3	3
600		6	6	4	4	1	7	4	2	R	3	3	3	2	2	4	6	7	6	3	3
700		7	R	3	R	3	7	4	3		3	7	3	5	4	R	4	R	9	5	4
800		8		3		3	6	5	3					7	7	6	6		7	4	R
900		R		R		R	6	5	6					5	5	8	8		R	4	
1000							9	5	5					6	7					5	
1100							9	6	6					6	6					R	
1200							8	4	6					6	6						
1300							R	4	6					6	6						
1400							4	4	5					5	5						
1500							4	4	9					9	9						
1600							R	R	R												
1700																					
1800																					
1900																					
2000																					
2100																					

**Penetrometer test result Parata Street Block Waikanae North**

Blows per 100 mm	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Test no																					
Depth																					
100																					
200																					
300																					
400																					
500																					
600																					
700																					
800																					
900																					
1000																					
1100																					
1200																					
1300																					
1400																					
1500																					
1600																					
1700																					
1800																					
1900																					
2000																					
2100																					

**Penetrometer test result Parata Street Block Waikanae North**

Test no	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
Blows per 100 mm																					
Depth																					
100																					
200																					
300																					
400	4	8		2	4	2	1	2		2	3	2		4	2						
500	4	6	3	2	4	3	3	3	1	2	4	3		3	2						
600	3	4	5	2	3	2	4	4	3	3	4	2	3	4	3					1	
700	5	4	4	5	5	4	4	4	2	3	5	2	3	4	4					2	3
800	5	7	5	8	5	7	1	R	2	5	6	4	3	4	6					2	8
900	6	7	6	8	R	4	4		5	R	6	6	6	8	7					2	R
1000	5	6	6	8		8	8	4	4	4	4	6	7	6	7					3	
1100	10	10	11	11		12	12	7	7	9	9	4	9	6	6					4	
1200	R	14	12	10		11	11	7	7	6	6	4	9	8	7					4	
1300		10	R	10		10	10	6	6	6	6	4	8	5	8					5	
1400		9		R		8	8	12		7	7	4	10	6	11					7	
1500		10				10	10			R	R	10	9	9	4					9	
1600		5				9	9					R	9	9	4					9	
1700		5				9	9					R	13	7	4					10	
1800		6				9	9					R	13	7	4					13	
1900		8				9	9					R	13	7	7					R	
2000		10				9	9					R	13	7	13						

**Penetrometer test result Parata Street Block Waikanae North**

Blows per 100 mm	67	68	69	70	71	72	73	74	75	76	78	79	80	81	82	83	84	85	86	87	88
Test no																					
Depth																					
100																					
200																					
300				3																	
400				4							9										
500											R										
600				3																	
700				10																	
800				8																	
900				4																	
1000				5																	
1100				4																	
1200				4																	
1300				5																	
1400				4																	
1500				5																	
1600				6																	
1700				6																	
1800				7																	
1900																					
2000																					

**Penetrometer test result Parata Street Block Waikanae North**

Blows per 100 mm

Test no	89	90	91	92	93
Depth					
100					
200					
300	2				2
400	5	1	3		3
500	2	3	3	2	3
600	2	5	4	3	4
700	1	4	6	2	5
800	2	1	R	5	15
900	1	2		3	R
1000	4	2		2	
1100	5	7		6	
1200	5	5		7	
1300	5	7		3	
1400	4	7		4	
1500	6	8		R	
1600	R				
1700					
1800					
1900					
2000					

**Test Pits Parata Street Block Waikanae North**

Pit No	94	95	96	97	98	99	100	101	102	103	104
Depth											
100	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil
200	Grey Brown Clay Gravels	Yellow Clay	Yellow Clay	Clay	Yellow Brown Clay	Yellow Brown Clay	Yellow Brown Clay	Yellow Clay	Brown Clay	Yellow Brown Clay	Clay
300											
400											
500											
600											
700											
800											
900	Grey clay	Yellow Clay	Grey Clay Gravels	Grey Gravels merged on slope with clay below	Dark Brown Clay	Yellow Brown Clay	Yellow Brown Clay	Yellow Clay	Grey Clay	Grey Clay very hard	Brown gravels
1000											
1100											
1200	Grey Gravels	Brown Clay Gravels	Sandy Silty Clay minor organics, soft	Grey clay very tight	Sandy Gravels	Gravels		Grey Gravels very tight	Gravels very tight		
1300											
1400											
1500											
1600											
1700											
1800											
1900											

13 November 2014

Rita O'Brien  
Subdivision Engineer  
Kapiti Coast District Council  
Private Bag 60601  
**PARAPARAUMU 5254**

Dear Rita

### **RM130101 - FOUNDATIONS ROADING AND AS BUILT EARTHWORKS**

An original engineering report was provided in October 2013, followed by an update report on 8 November 2013 and finally a report titled "Revisions to Engineering Design VJ Ltd" dated 21 May 2014. This as-built report describes the completed works and notes the changes to the design which have occurred since then.

Copies of all as built drawings are separately appended to this report as part of the overall 224 application.

A Traffic Audit has been prepared by Statham Consulting Limited and is also appended.

#### **Geotechnical and Earthworks**

Apart from Roading works, the only significant earthworks were those relating to the general section filling required to provide building platforms 300mm above the Q100 flood levels adjacent to affected properties. This work was undertaken generally in accordance with the design documents to provide flood free building platforms 300 above the estimated Q100 levels. This material was to a maximum depth of 300mm and utilised silty sandy gravel with a predominance of topsoil excavated from the adjoining roads. This material is compacted but is not intended to meet the criteria for engineered fill under NZS 4431, and is not intended to provide the required founding under NZS 3604.

Previously undertaken penetrometer results and test pits are appended. The soils over the extent of the residential lots typically comprise topsoil overlying deposited clays and gravels. The surfaces of the lots 1 to 12 and the eastern portions of lots 17 to 23 are wet as there is currently very little drainage. This is caused because there is a layer of clay over most of the site immediately below the topsoil. NZS 3604: 1999 Timber Framed Buildings requires that the number of blows per 75 mm be greater than 3 at a depth of 600 mm or less for the soils to be classified as good ground not requiring specific design. The tests show that the founding levels could be at 600 mm depth for piles on some of the lots whereas others may need to be founded at depths of up to 1200 mm. It is our professional opinion that a house can be constructed on all lots using conventional foundations such as piles or concrete slabs. We would recommend that the foundations are subject to specific design because

1. The exact location of the house on each lot is not known and may not correlate to the location of the tests.

Mahara House – 3 Ngaio Road - PO Box 370 Walkanae 5250  
www.landlink.co.nz ~ contactus@landlink.co.nz ~ P 04 902 6161 ~ F 04 902 6162

2. Lots 1 to 12 have a gentle slope from east to west that may require some excavation and filling to create a level building platform.
3. The variability of founding depths across all 31 lots is such that it is not possible to certify a consistent depth for all lots.
4. Groundwater may need to be controlled in the foundations of some lots particularly if using a concrete slab on grade.

### Roading

Prior to construction a series of penetrometer tests were undertaken along the length of the proposed road system, to confirm design. These are appended to the Samcon report attached.

The Roothing earthworks initially assumed a pavement structure consisting of 150mm layers each of AP65 hardfill, and M4 Basecourse over a prepared and compacted subgrade. An initial Geotechnical investigation including Penetrometer testing which is attached, tended to reinforce this original design.

Apart from minor alterations, the roading has been constructed in accordance with the geometry and levels indicated on the Approved Design. The main exceptions are where changes to levels have been required as a result of remedial works.

Modifications have been made to the subsoil drainage in Mahia Lane North. The original location was under the kerb and channel on the eastern side of the lane, however after the need for substantial remediation works this was shifted to the western side. The subgrade was sloped towards the drain to ensure proper drainage of the sub-base.

An additional subsoil drain has been installed beneath Mahia Lane south, from chainage 180 to 215 to drain a spring encountered beneath the road formation. This discharges into the overflow swale.

During the course of construction ground conditions were encountered in various locations which dictated that the design be modified. In consultation with Graeme Walker of Samcon Ltd, Landlink prepared revisions to the road construction as follows:

#### PARATA BLOCK REMEDIAL WORK

LOCATION	TREATMENT	DETAILS
<b>Mahia Lane South:</b>		
Ch 10-120	Place grid and cloth. Possible additional layer of metal. Digout for 2 areas of trees roots.	Generally place Tri-Ax 160 Geogrid over Bidim A19 with additional 100mm of hardfill under the specified pavement structure.  Locally, Remove Tree Roots, excavate 200 and Provide additional 300 Hardfill to match level over geogrid
Ch 120-152	Excavate unsuitable dispose onsite, place grid and cloth, import, place and compact hardfill.	Excavate additional 200 and place Tri-Ax 160 Geogrid over Bidim A19. Place 200 additional hardfill under specified pavement structure.
Ch 153 - 210 (Extra depth as specified by Graeme Walker)	Excavate unsuitable to depth of 900mm dispose onsite, import, place and compact Boulders, Hardfill, GAP 65 and M4 basecourse. Grid and cloth not necessary with this treatment	Over-excavate 900 and reconstruct with 400 boulders, 450 compacted hardfill and additional 50mm AP65.

Mahara House – 3 Ngaio Road - PO Box 370 Waikanae 5250  
[www.landlink.co.nz](http://www.landlink.co.nz) ~ [contactus@landlink.co.nz](mailto:contactus@landlink.co.nz) ~ P 04 902 6161 ~ F 04 902 6162

Mahia Lane North:		
Ch 17 to Ch 20	Excavate unsuitable dispose onsite, import, place and compact boulders and hardfill.	Over excavate 2m placing 1.3m boulders and 400 compacted hardfill before placing specified pavement structure
Ch 20 to 145	Excavate unsuitable dispose onsite import place and compact boulders/ hardfill.	Excavate additional 600 and place 600 boulders plus 400 compacted hardfill under specified pavement structure.
Ch 145 to 170	Excavate unsuitable dispose onsite import place and compact hardfill.	Excavate additional 300 and place 300 compacted hardfill under specified pavement structure.

### Access

Individual entrances have not been built during the main construction works. The proposed design can be found on 1641-123E which shows the detail required where an accessway must pass through a stormwater swale. This crossing is awaiting approval by KCDC.

The purpose of such is to standardise the appearance in the development and provide an engineered solution which maintains swale grade and stormwater flow, whilst easing the grade separation through the swale.

A consent notice will require each lot to have a crossing constructed to follow this design.

Yours faithfully  
**LANDLINK LTD**



DJ Munro  
Project Engineer

Encl.

1. Culvert Foundation PS4 and Report (Samcon)
2. Samcon Road Design and Construction Report
3. Samcon Remediation email
4. Preliminary Test Results



APPENDIX 4  
PRELIMINARY TEST RESULTS

Mahara House – 3 Ngaio Road - PO Box 370 Waikanae 5250  
[www.landlink.co.nz](http://www.landlink.co.nz) – [contactus@landlink.co.nz](mailto:contactus@landlink.co.nz) – P 04 902 6161 ~ F 04 902 6162

*Land Surveying & Civil Engineering ~ Planning & Resource Management ~ Urban & Landscape Design*

**Penetrometer Test Results – Parata Street Block, Waikanae North**

Blows per 100mm	Test no	1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18	19	20	23	24
100	Depth																					
200		3	4		2				3		3								2			
300		4	3		3				2		3								1			
400		R	5		5				4		5								2			
500			6		4				1		4								2			
600			7		4				4		4								7			
700			8		3				4		4								R			
800			R		3				5		5								4			
900					3				5		5								7			
1000					R				6		6								R			
1100									9		9								4			
1200									6		6								4			
1300									4		4								5			
1400									4		4								4			
1500									4		4								5			
1600									R		R								R			
1700									4		4								4			
1800									4		4								8			
1900									R		R								6			
2000									R		R								6			



### Penetrometer Test Results – Parata Street Block, Waikanae North

Blows per 100mm	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Test no																					
Depth																					
100																					
200																					
300																					
400																					
500																					
600																					
700																					
800																					
900																					
1000																					
1100																					
1200																					
1300																					
1400																					
1500																					
1600																					
1700																					
1800																					
1900																					
2000																					

### Penetrometer Test Results – Parata Street Block, Waikanae North

Blows per 100mm

Test no	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
Depth																					
100																					
200																					
300																					
400	4	8	3	2	4	2	1	2	1	2	3	2		4	2	2					
500	4	6	2	2	3	3	3	3	3	2	4	3		3	3	1					
600	3	4	5	2	3	2	4	4	3	4	4	2		4	3	2				1	
700	5	4	4	5	5	4	4	4	2	3	3	2		4	4	2				2	
800	5	7	5	8	5	7	1	R	2	5	5	4		4	2	2				2	
900	6	7	6	8	R	6	4		5	R	6	6		8	7	2				3	
1000	5	6	6	8		R	8		4		4	6		6	7	2				2	
1100	10	10	11	11		8	8		4		6	6		6	7	4				6	
1200	R	14	12	10		12	12		7		9	4		6	5	5				2	
1300		10	R	10		10	11		7		6	4		8	7	7				5	
1400		9		R		8	10		6		6	4		5	8	7				10	
1500		10				10	8		12		7	4		6	11	5				R	
1600		5				9	10				R	10		9	4	7				9	
1700		5				9	9					R		R	4	4				9	
1800		6				10	13							13	7	7				10	
1900		8				9	9							7	7	7				13	
2000		10				9	9							9	13	7				R	

### Penetrometer Test Results – Parata Street Block, Waikanae North

Blows per 100mm	67	68	69	70	71	72	73	74	75	76	78	79	80	81	82	83	84	85	86	87	88
Test no																					
Depth																					
100																					
200																					
300				3									2	2	4	4		4	4	4	2
400				4				6	3	3	9	2	3	3	3	2	4	4	8	2	3
500				3				6	4	5	R	3	7	2	6	1	2	8	R	2	3
600			6	10	4		4	R	2	6		2	3	3	R	2	6	8	2	2	3
700		2	R	8	5	4	4		4	10		3	3	7		4	R	8	4	4	1
800		3		4	6	9	3		3	7		3	4	9		4		5		8	2
900		4		5	6	8	5		5	7		3	3	9		4		4		8	3
1000		4		4	4	7	6		4	6		2	4	R		4		6		8	R
1100		2		4	4	7	8		4	R		3	4			4		6		R	
1200		6		4	4	5	9		10			11	R								
1300		7		5	4	3	R		12			R									
1400		9		4	7	3			10												
1500		9		5	4	4			10												
1600		7		5	7	4			9												
1700		9		6	6	6			9												
1800		10		6	6	7			13												
1900		10		7	7	12															
2000		18		7		R															



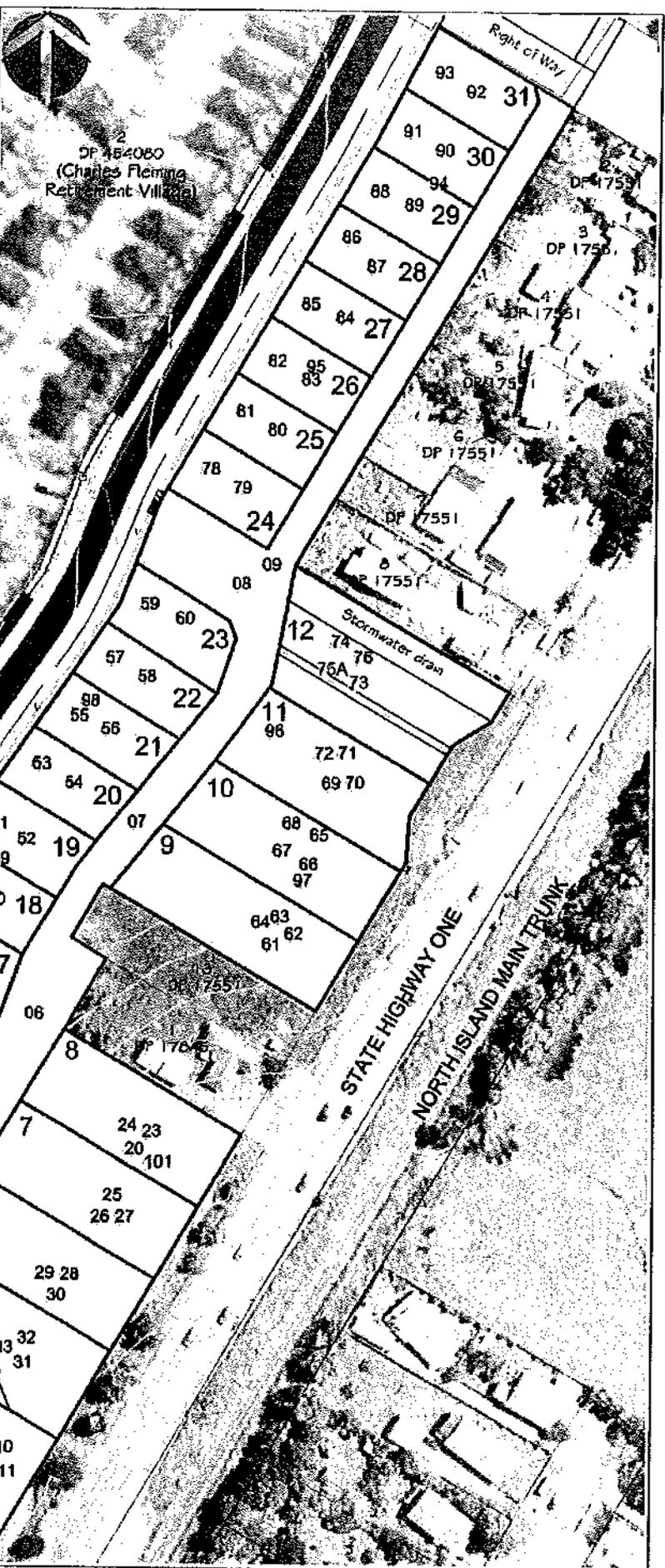
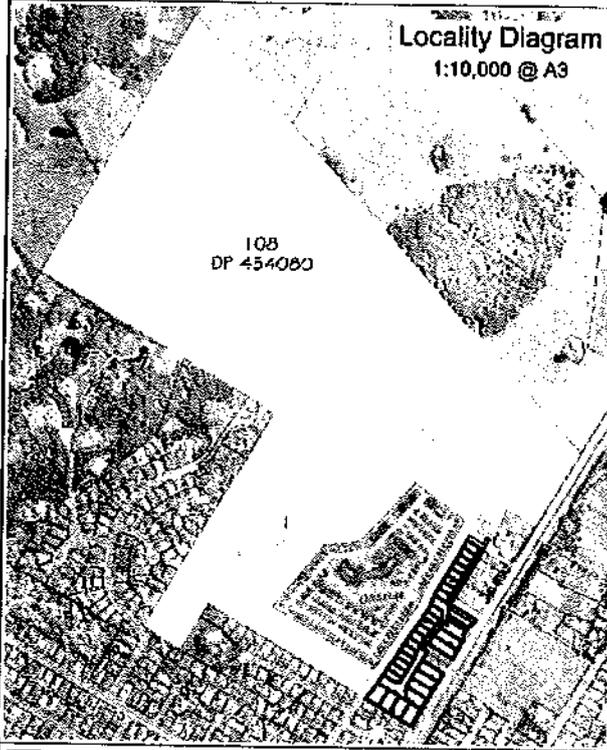
## Penetrometer Test Results – Parata Street Block, Waikanae North

Blows per 100mm	89	90	91	92	93
Test no					
Depth					
100					
200					
300	2				2
400	5	1	3		3
500	2	3	3	2	3
600	2	5	4	3	4
700	1	4	6	2	5
800	2	1	R	5	15
900	1	2		3	R
1000	4	2		2	
1100	5	7		6	
1200	5	5		7	
1300	5	7		3	
1400	4	7		4	
1500	6	8		R	
1600		R			
1700					
1800					
1900					
2000					

### Test Pits – Parata Street Block, Waikanae North

Depth	94	95	96	97	98	99	100	101	102	103	104
100	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil	Topsoil
200	Grey Brown Clay Gravels	Yellow Clay	Yellow Grey Clay	Clay	Yellow Brown Clay	Yellow Brown Clay	Yellow Brown Clay	Yellow Clay	Brown Clay	Yellow Brown Clay	Clay
300				Brown Gravels stained	Grey Clay			Grey Gravels	Gravels	Gravels	
400					Dark Brown Clay			Yellow Clay		Grey Clay very hard	Brown gravels
500								Grey Gravels very tight	Grey Clay		
600								Grey Clay			
700								Grey Gravels			
800								Grey Clay			
900								Grey Gravels very tight			
1000								Grey Clay			
1100								Grey Clay			
1200								Grey Clay			
1300								Grey Clay			
1400								Grey Clay			
1500								Grey Clay			
1600								Grey Clay			
1700								Grey Clay			
1800								Grey Clay			
1900								Grey Clay			

**Locality Diagram**  
1:10,000 @ A3



© COPYRIGHT This drawing and its content remains the property of Landlink Ltd. Any unauthorised use in part or full is forbidden.

NOTES:  
1. All dimensions shown on this drawing are indicative only.

108  
DP 454080

10  
DP 68445

DP 88880

CLIENT	TITLE	REVISION	A - Original issue
VJ Limited	Tests Pits on Lot 3 DP 454080	SURVEYED	DRAWN
PROJECT	Parata Street Block, Waikanae North	DESIGNED	CHECKED
		BA & PT	PT
		APPROVED	PT
		DATE	PROJECT NUMBER
		4 June 2013	1642
		SCALE	PLAN NO.
		1:1,000 @ A3	4
			A

20 March 2015

## **RM130101 - SUBDIVISION OF LOT 3 DP 454080 ON SITE ATTENUATION REQUIREMENTS FOR RESIDENTIAL LOTS**

### **Introduction**

The concept of hydraulic neutrality of stormwater is a key feature of land development on the Kapiti Coast. Hydraulic neutrality requires that each lot is managed so that the total stormwater flow discharging from the site is no more than the original flow which left the site before it was developed.

The conditions relating to this subdivision are those detailed in its Resource Consent, RM130101 as well as the over-riding conditions and constraints placed on all developments by the Kapiti Coast District Council (KCDC).

In this instance the key requirements are:

1. Site attenuation is required to be designed for a Q100 storm event.
2. Site outflows are to be constrained to the pre-development Q100 and Q10 flows in the respective storm events.
3. Maximum impermeable areas are stipulated in the Waikanae North Design Guide, being section D.10.1-1 of the KCDC District Plan. These include the allowed site coverage for houses in the various precincts, and are detailed further in the examples shown below.
4. Detailed design is required for all components (with supporting calculations).
5. Provision must be made for effective operation and maintenance.

### **Indicative Design**

Attenuation of stormwater can be achieved in a number of ways, summarised as follows:

1. **Sink it:** holds stormwater and slowly infiltrates it into the ground
2. **Slow it:** holds stormwater flow and slowly releases it to the sewer system
3. **Reuse it:** holds stormwater and uses it to meet non-potable water demands
4. **Move it:** directs water flows to a downstream area of storage.

In this development, the 'sink it' option is not likely to be successful because ground conditions are typically of low permeability, however this may be subject to specific site testing. The 'slow it' and 'reuse it' options are the most likely options to be available to landowners, and to assist, the developer has provided for the equivalent of 25m<sup>2</sup> of paved (impermeable) surface attenuation off-site (in an attenuation pond). This is therefore a 'move it' method for a small part of the attenuation requirement.

The Council recommend using their 'On-site Detention Tank Design' calculator which helps to define the size of an attenuation tank. The attached calculations use this calculator as a base, with modifications made to allow for the specific stormwater conditions that apply to this subdivision. In any given situation, over-attenuation can be

provided for additional paving they might wish to create above that which has been accommodated off site (25m<sup>2</sup>). Each development will need to calculate their individual tank sizing based on lot area, house size and impervious area. We note that the water reuse standard in the District Plan requires a minimum tank size of 10,000 litres (unless a grey water reuse option is used).

Each individual site will need to prepare a Stormwater Design Report (SDR) to show how their lot will achieve hydraulic neutrality. The SDR will be need to be supported by calculations as summarised below, and appended to this report.

We have prepared 'indicative design calculations' for each precinct type in this subdivision. Lot sizes are approximate as they vary slightly, but we have chosen two lot sizes that demonstrate the requirements over a likely range of sizes.

In utilising the OSD calculator, the relevant rainfall depths for the respective storm events as assessed by Tonkin and Taylor in their report "Waikanae North Stage 2 Stormwater Modelling" dated October 2013 have been referenced. Attenuation volumes have been based on a Q100 event of 171.80 mm, with outfall constrained of a Q10 event of 115.00 mm. The provision for an impermeable area of 25m<sup>2</sup> has been modelled as "pre-development runoff", and none of the remaining garden or lawn area is assumed to be captured by the attenuation tank.

## **Precinct 2, example lot 1060m<sup>2</sup>**

### Lot size = 1062 m<sup>2</sup>

a) Building Only		
Buildings at 40% coverage (D.1.2.1)	= 425m <sup>2</sup>	
Required tank size	= 7,750 litres (assuming a provision of 25m <sup>2</sup> impermeable per site).	
Outlet Orifice size	= 42mm	
Peak Discharge	= 3.6 l/s	
b) Maximum Development		
Maximum impermeable area (from design guide) of 50%	= 531m <sup>2</sup>	
Additional paved area to be attenuated = 531-425 = 106 - 25 (allowance)		
m <sup>2</sup> = 81 m <sup>2</sup> /lot		
Required tank size	= 9,090 litres (assuming a provision of 25m <sup>2</sup> impermeable per site).	
Outlet Orifice size	= 45mm	
Peak Discharge	= 4.2 l/s	

The above figures are in addition to the minimum storage requirements under the District Plan

**Precinct 4, example lot 601m<sup>2</sup>**

Lot size = 601 m<sup>2</sup> Approx

a) Building Only		
Buildings at 50% coverage (D.1.2.1)	=	301m <sup>2</sup>
Required tank size	=	5,490 litres (assuming a provision of 25m <sup>2</sup> impermeable per site).
Outlet Orifice Size	=	36 mm
Peak Discharge	=	2.7 l/s

b) Maximum Development

Maximum impermeable area (from design guide) of 70% = 421m<sup>2</sup>

Additional paved area to be attenuated = 421-301 = 120 - 25 (allowance)  
m<sup>2</sup> = 95 m<sup>2</sup>/lot

Required tank size	=	7,070 litres
Outlet Orifice Size	=	40 mm
Peak Discharge	=	3.4 l/s

This level of storage could be reduced by using permeable pavements, or ground soakage to supplement the attenuation.

The above figures are in addition to the minimum storage requirements under the District Plan.

APPENDIX  
OSD CALCULATIONS

20 March 2015

## **RM130101 - SUBDIVISION OF LOT 3 DP 454080 ON SITE ATTENUATION REQUIREMENTS FOR RESIDENTIAL LOTS**

### **Introduction**

The concept of hydraulic neutrality of stormwater is a key feature of land development on the Kapiti Coast. Hydraulic neutrality requires that each lot is managed so that the total stormwater flow discharging from the site is no more than the original flow which left the site before it was developed.

The conditions relating to this subdivision are those detailed in its Resource Consent, RM130101 as well as the over-riding conditions and constraints placed on all developments by the Kapiti Coast District Council (KCDC).

In this instance the key requirements are:

1. Site attenuation is required to be designed for a Q100 storm event.
2. Site outflows are to be constrained to the pre-development Q100 and Q10 flows in the respective storm events.
3. Maximum impermeable areas are stipulated in the Waikanae North Design Guide, being section D.10.1-1 of the KCDC District Plan. These include the allowed site coverage for houses in the various precincts, and are detailed further in the examples shown below.
4. Detailed design is required for all components (with supporting calculations).
5. Provision must be made for effective operation and maintenance.

### **Indicative Design**

Attenuation of stormwater can be achieved in a number of ways, summarised as follows:

- 1. Sink it:** holds stormwater and slowly infiltrates it into the ground
- 2. Slow it:** holds stormwater flow and slowly releases it to the sewer system
- 3. Reuse it:** holds stormwater and uses it to meet non-potable water demands
- 4. Move it:** directs water flows to a downstream area of storage.

In this development, the 'sink it' option is not likely to be successful because ground conditions are typically of low permeability, however this may be subject to specific site testing. The 'slow it' and 'reuse it' options are the most likely options to be available to landowners, and to assist, the developer has provided for the equivalent of 25m<sup>2</sup> of paved (impermeable) surface attenuation off-site (in an attenuation pond). This is therefore a 'move it' method for a small part of the attenuation requirement.

The Council recommend using their 'On-site Detention Tank Design' calculator which helps to define the size of an attenuation tank. The attached calculations use this calculator as a base, with modifications made to allow for the specific stormwater conditions that apply to this subdivision. In any given situation, over-attenuation can be

provided for additional paving they might wish to create above that which has been accommodated off site (25m<sup>2</sup>). Each development will need to calculate their individual tank sizing based on lot area, house size and impervious area. We note that the water re use standard in the District Plan requires a minimum tank size of 10,000 litres (unless a grey water reuse option is used).

Each individual site will need to prepare a Stormwater Design Report (SDR) to show how their lot will achieve hydraulic neutrality. The SDR will be need to be supported by calculations as summarised below, and appended to this report.

We have prepared 'indicative design calculations' for each precinct type in this subdivision. Lot sizes are approximate as they vary slightly, but we have chosen two lot sizes that demonstrate the requirements over a likely range of sizes.

In utilising the OSD calculator, the relevant rainfall depths for the respective storm events as assessed by Tonkin and Taylor in their report "Waikanae North Stage 2 Stormwater Modelling" dated October 2013 have been referenced. Attenuation volumes have been based on a Q100 event of 171.80 mm, with outfall constrained of a Q10 event of 115.00 mm. The provision for an impermeable area of 25m<sup>2</sup> has been modelled as "pre-development runoff", and none of the remaining garden or lawn area is assumed to be captured by the attenuation tank.

## **Precinct 2, example lot 1060m<sup>2</sup>**

Lot size = 1062 m<sup>2</sup>

### **a) Building Only**

Buildings at 40% coverage (D.1.2.1)	= 425m <sup>2</sup>
Required tank size	= 7,750 litres (assuming a provision of 25m <sup>2</sup> impermeable per site).
Outlet Orifice size	= 42mm
Peak Discharge	= 3.6 l/s

### **b) Maximum Development**

Maximum impermeable area (from design guide) of 50% = 531m<sup>2</sup>

Additional paved area to be attenuated = 531 - 425 = 106 - 25 (allowance)  
m<sup>2</sup> = 81 m<sup>2</sup>/lot

Required tank size	= 9,090 litres (assuming a provision of 25m <sup>2</sup> impermeable per site).
Outlet Orifice size	= 45mm
Peak Discharge	= 4.2 l/s

The above figures are in addition to the minimum storage requirements under the District Plan

**Precinct 4, example lot 601m<sup>2</sup>**

Lot size = 601 m<sup>2</sup> Approx

a) Building Only		
Buildings at 50% coverage (D.1.2.1)	=	301m <sup>2</sup>
Required tank size	=	5,490 litres (assuming a provision of 25m <sup>2</sup> impermeable per site).
Outlet Orifice Size	=	36 mm
Peak Discharge	=	2.7 l/s

b) Maximum Development		
Maximum impermeable area (from design guide) of 70%	=	421m <sup>2</sup>
Additional paved area to be attenuated = 421-301 = 120 - 25 (allowance)		
m <sup>2</sup> = 95 m <sup>2</sup> /lot		
Required tank size	=	7,070 litres
Outlet Orifice Size	=	40 mm
Peak Discharge	=	3.4 l/s

The above figures are in addition to the minimum storage requirements under the District Plan

The above figures could be reduced by using permeable pavements, ground soakage or grey-water re-use ('slow it, sink it or reuse it') to supplement the attenuation ('move it'). As an example the attenuation volume for a house in precinct 4 could be reduced by around 30% if permeable paving systems are used and by around 55% if a grey water re-use system is used.

APPENDIX  
OSD CALCULATIONS

<b>STORMWATER ON-SITE DETENTION TANK (OSD) DESIGN</b> <span style="float: right;">23-Mar-15</span> <b>100 YEAR ARI STORM with 10 YEAR ARI STORM OUTLET</b> <b>1062m2 Lot with 40% site coverage.</b>		<b>NOTE:</b> Only fill in the blue (unprotected) cells																																																																																																																																																																																																																
<b>ADDRESS</b> <span style="border: 1px solid black; padding: 2px;">Waikanae North Project - Parata Block</span> <b>Calcs By</b> <span style="border: 1px solid black; padding: 2px;">DJM</span> <b>NAME</b> <span style="border: 1px solid black; display: inline-block; width: 100px; height: 15px;"></span> <b>Date</b> <span style="border: 1px solid black; padding: 2px;">23-Mar-15</span> <b>PHONE</b> <span style="border: 1px solid black; display: inline-block; width: 100px; height: 15px;"></span>																																																																																																																																																																																																																		
<b>DATA</b> Depth of Tank <span style="border: 1px solid black; padding: 2px; margin-left: 20px;">1.5</span> m 10 Year Isoheyt Value <span style="border: 1px solid black; padding: 2px; margin-left: 20px;">115</span> mm 100 Year Isoheyt Value <span style="border: 1px solid black; padding: 2px; margin-left: 20px;">171.8</span> mm Time of Concentration <span style="border: 1px solid black; padding: 2px; margin-left: 20px;">10</span> min. (10, 15, 20, 30, 60)		<b>NOTE</b> A "#DIV/0!" message appearing in a cell means that data has been entered incorrectly																																																																																																																																																																																																																
<table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 15%; text-align: center;">Area (m<sup>2</sup>)</th> <th style="width: 10%; text-align: center;">'C'</th> <th style="width: 15%; text-align: center;">CA (m<sup>3</sup>)</th> </tr> </thead> <tbody> <tr> <td><b>Site Area</b></td> <td style="border: 1px solid black; text-align: center;">1062</td> <td></td> <td></td> </tr> <tr> <td><b>1. EXISTING SITE COVERAGE</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Existing Roof</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="text-align: center;">0.9</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>Existing Paved</td> <td style="border: 1px solid black; text-align: center;">25</td> <td style="text-align: center;">0.85</td> <td style="text-align: center;">21.3</td> </tr> <tr> <td>Existing Garden</td> <td style="border: 1px solid black; text-align: center;">1037</td> <td style="text-align: center;">0.35</td> <td style="text-align: center;">363.0</td> </tr> <tr> <td><b>TOTAL Existing Area</b></td> <td style="border: 1px solid black; text-align: center;"><b>1062</b></td> <td></td> <td style="text-align: center;"><b>384.2</b></td> </tr> <tr> <td><b>2. PROPOSED DEVELOPMENT</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Additional/Reduced Roof</td> <td style="border: 1px solid black; text-align: center;">424.8</td> <td style="text-align: center;">0.9</td> <td style="text-align: center;">382.3</td> </tr> <tr> <td>Additional/Reduced Paved</td> <td style="border: 1px solid black; text-align: center;">-</td> <td style="text-align: center;">0.85</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>Additional/Reduced Lawn/Garden</td> <td style="border: 1px solid black; text-align: center;">-424.8</td> <td style="text-align: center;">0.35</td> <td style="text-align: center;">-148.7</td> </tr> <tr> <td><b>TOTAL Addition Area</b> (should be zero)</td> <td style="border: 1px solid black; text-align: center;"><b>0</b></td> <td></td> <td style="text-align: center;"><b>233.6</b></td> </tr> <tr> <td><b>3. REMAINING UNDRAINED AREA</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4" style="text-align: center; font-size: small;">(Not routed thru detention tank after development)</td> </tr> <tr> <td>Undrained Roof Area (Normally Zero)</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="text-align: center;">0.9</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>Undrained Paved Area (Normally Zero)</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="text-align: center;">0.85</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>Undrained Lawn/Garden Area</td> <td style="border: 1px solid black; text-align: center;">612.2</td> <td style="text-align: center;">0.35</td> <td style="text-align: center;">214.3</td> </tr> <tr> <td><b>TOTAL Extg Not to Tank Area</b></td> <td style="border: 1px solid black; text-align: center;"><b>612.2</b></td> <td></td> <td style="text-align: center;"><b>214.3</b></td> </tr> </tbody> </table>			Area (m <sup>2</sup> )	'C'	CA (m <sup>3</sup> )	<b>Site Area</b>	1062			<b>1. EXISTING SITE COVERAGE</b>				Existing Roof	0	0.9	0.0	Existing Paved	25	0.85	21.3	Existing Garden	1037	0.35	363.0	<b>TOTAL Existing Area</b>	<b>1062</b>		<b>384.2</b>	<b>2. PROPOSED DEVELOPMENT</b>				Additional/Reduced Roof	424.8	0.9	382.3	Additional/Reduced Paved	-	0.85	0.0	Additional/Reduced Lawn/Garden	-424.8	0.35	-148.7	<b>TOTAL Addition Area</b> (should be zero)	<b>0</b>		<b>233.6</b>	<b>3. REMAINING UNDRAINED AREA</b>				(Not routed thru detention tank after development)				Undrained Roof Area (Normally Zero)	0	0.9	0.0	Undrained Paved Area (Normally Zero)	0	0.85	0.0	Undrained Lawn/Garden Area	612.2	0.35	214.3	<b>TOTAL Extg Not to Tank Area</b>	<b>612.2</b>		<b>214.3</b>	<b>NOTE</b> The sum of the existing areas must equal the 'Site Area'  * NOTE If pre-development lawn areas are reduced a negative number is required to be entered.																																																																																																																																								
	Area (m <sup>2</sup> )	'C'	CA (m <sup>3</sup> )																																																																																																																																																																																																															
<b>Site Area</b>	1062																																																																																																																																																																																																																	
<b>1. EXISTING SITE COVERAGE</b>																																																																																																																																																																																																																		
Existing Roof	0	0.9	0.0																																																																																																																																																																																																															
Existing Paved	25	0.85	21.3																																																																																																																																																																																																															
Existing Garden	1037	0.35	363.0																																																																																																																																																																																																															
<b>TOTAL Existing Area</b>	<b>1062</b>		<b>384.2</b>																																																																																																																																																																																																															
<b>2. PROPOSED DEVELOPMENT</b>																																																																																																																																																																																																																		
Additional/Reduced Roof	424.8	0.9	382.3																																																																																																																																																																																																															
Additional/Reduced Paved	-	0.85	0.0																																																																																																																																																																																																															
Additional/Reduced Lawn/Garden	-424.8	0.35	-148.7																																																																																																																																																																																																															
<b>TOTAL Addition Area</b> (should be zero)	<b>0</b>		<b>233.6</b>																																																																																																																																																																																																															
<b>3. REMAINING UNDRAINED AREA</b>																																																																																																																																																																																																																		
(Not routed thru detention tank after development)																																																																																																																																																																																																																		
Undrained Roof Area (Normally Zero)	0	0.9	0.0																																																																																																																																																																																																															
Undrained Paved Area (Normally Zero)	0	0.85	0.0																																																																																																																																																																																																															
Undrained Lawn/Garden Area	612.2	0.35	214.3																																																																																																																																																																																																															
<b>TOTAL Extg Not to Tank Area</b>	<b>612.2</b>		<b>214.3</b>																																																																																																																																																																																																															
<b>CONTROL DATA</b> Existing 'C' <span style="margin-left: 20px;">0.36</span> ( <i>'CA'extg/Site Area</i> ) Developed 'CA' to OSD tank <span style="margin-left: 20px;">404 (m<sup>2</sup>)</span> ( <i>'CA'extg+'CA'adds-'CA'undr</i> ) Additional Area <span style="margin-left: 20px;">0 (m<sup>2</sup>)</span> ( <i>'A'add</i> )																																																																																																																																																																																																																		
<table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 20%; text-align: center;">for 10 year</th> <th style="width: 20%; text-align: center;">for 100 year</th> <th style="width: 30%;"></th> </tr> </thead> <tbody> <tr> <td><b>RUNOFF DATA</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Intensity I</td> <td style="text-align: center;">75.9 mm/hr</td> <td style="text-align: center;">113.4 mm/hr</td> <td></td> </tr> <tr> <td>Allowable Qmax whole site</td> <td style="text-align: center;">8.11</td> <td style="text-align: center;">12.11</td> <td></td> </tr> <tr> <td>Lost Flows</td> <td style="text-align: center;">4.52</td> <td style="text-align: center;">6.75</td> <td></td> </tr> <tr> <td>Allowable Qmax from tanks =</td> <td style="text-align: center;">3.6 l/s</td> <td style="text-align: center;">5.36 l/s</td> <td></td> </tr> <tr> <td>Allowable Qave from tanks =</td> <td style="text-align: center;">2.3 l/s</td> <td style="text-align: center;">3.5 l/s (Qmax * 0.65)</td> <td></td> </tr> </tbody> </table>			for 10 year	for 100 year		<b>RUNOFF DATA</b>				Intensity I	75.9 mm/hr	113.4 mm/hr		Allowable Qmax whole site	8.11	12.11		Lost Flows	4.52	6.75		Allowable Qmax from tanks =	3.6 l/s	5.36 l/s		Allowable Qave from tanks =	2.3 l/s	3.5 l/s (Qmax * 0.65)		<table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: left; font-size: small;">Rainfall Intensities (mm)</th> </tr> <tr> <th style="width: 10%;">MIN</th> <th style="width: 20%;">Normalised 10 Yr(mm/hr)</th> <th style="width: 20%;">100 Yr(mm/hr)</th> <th style="width: 50%;"></th> </tr> </thead> <tbody> <tr><td>10</td><td>0.11</td><td>75.9</td><td>113.4</td></tr> <tr><td>15</td><td>0.14</td><td>64.4</td><td>96.2</td></tr> <tr><td>20</td><td>0.16</td><td>55.2</td><td>82.5</td></tr> <tr><td>30</td><td>0.19</td><td>43.7</td><td>65.3</td></tr> <tr><td>60</td><td>0.26</td><td>29.9</td><td>44.7</td></tr> <tr><td>120</td><td>0.36</td><td>20.4</td><td>30.1</td></tr> <tr><td>180</td><td>0.46</td><td>17.6</td><td>26.3</td></tr> <tr><td>240</td><td>0.51</td><td>14.7</td><td>21.9</td></tr> <tr><td>300</td><td>0.56</td><td>12.9</td><td>19.2</td></tr> <tr><td>360</td><td>0.60</td><td>11.6</td><td>17.2</td></tr> <tr><td>420</td><td>0.64</td><td>10.5</td><td>15.7</td></tr> <tr><td>480</td><td>0.68</td><td>9.8</td><td>14.6</td></tr> <tr><td>540</td><td>0.71</td><td>9.1</td><td>13.6</td></tr> <tr><td>600</td><td>0.75</td><td>8.6</td><td>12.9</td></tr> <tr><td>660</td><td>0.78</td><td>8.2</td><td>12.2</td></tr> <tr><td>720</td><td>0.81</td><td>7.8</td><td>11.6</td></tr> </tbody> </table>	Rainfall Intensities (mm)				MIN	Normalised 10 Yr(mm/hr)	100 Yr(mm/hr)		10	0.11	75.9	113.4	15	0.14	64.4	96.2	20	0.16	55.2	82.5	30	0.19	43.7	65.3	60	0.26	29.9	44.7	120	0.36	20.4	30.1	180	0.46	17.6	26.3	240	0.51	14.7	21.9	300	0.56	12.9	19.2	360	0.60	11.6	17.2	420	0.64	10.5	15.7	480	0.68	9.8	14.6	540	0.71	9.1	13.6	600	0.75	8.6	12.9	660	0.78	8.2	12.2	720	0.81	7.8	11.6																																																																																																												
	for 10 year	for 100 year																																																																																																																																																																																																																
<b>RUNOFF DATA</b>																																																																																																																																																																																																																		
Intensity I	75.9 mm/hr	113.4 mm/hr																																																																																																																																																																																																																
Allowable Qmax whole site	8.11	12.11																																																																																																																																																																																																																
Lost Flows	4.52	6.75																																																																																																																																																																																																																
Allowable Qmax from tanks =	3.6 l/s	5.36 l/s																																																																																																																																																																																																																
Allowable Qave from tanks =	2.3 l/s	3.5 l/s (Qmax * 0.65)																																																																																																																																																																																																																
Rainfall Intensities (mm)																																																																																																																																																																																																																		
MIN	Normalised 10 Yr(mm/hr)	100 Yr(mm/hr)																																																																																																																																																																																																																
10	0.11	75.9	113.4																																																																																																																																																																																																															
15	0.14	64.4	96.2																																																																																																																																																																																																															
20	0.16	55.2	82.5																																																																																																																																																																																																															
30	0.19	43.7	65.3																																																																																																																																																																																																															
60	0.26	29.9	44.7																																																																																																																																																																																																															
120	0.36	20.4	30.1																																																																																																																																																																																																															
180	0.46	17.6	26.3																																																																																																																																																																																																															
240	0.51	14.7	21.9																																																																																																																																																																																																															
300	0.56	12.9	19.2																																																																																																																																																																																																															
360	0.60	11.6	17.2																																																																																																																																																																																																															
420	0.64	10.5	15.7																																																																																																																																																																																																															
480	0.68	9.8	14.6																																																																																																																																																																																																															
540	0.71	9.1	13.6																																																																																																																																																																																																															
600	0.75	8.6	12.9																																																																																																																																																																																																															
660	0.78	8.2	12.2																																																																																																																																																																																																															
720	0.81	7.8	11.6																																																																																																																																																																																																															
<b>Orifice Calculation - PROTECTED DO NOT ENTER ANY FIGURES</b> d= <span style="margin-left: 20px;">41.8 mm</span> Q100 outflow= <span style="margin-left: 20px;">4.6</span> for h= <span style="margin-left: 20px;">1.5</span> Q100ave <span style="margin-left: 20px;">3.0</span>  Q= <span style="margin-left: 20px;">3.6</span> for h in Q10 <span style="margin-left: 20px;">0.8963519</span> Qave <span style="margin-left: 20px;">2.3</span> Q10																																																																																																																																																																																																																		
<table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5" style="text-align: left; font-size: small;">STORAGE (10 year)</th> <th colspan="5" style="text-align: left; font-size: small;">STORAGE (100 year)</th> </tr> <tr> <th style="width: 10%;">time (min)</th> <th style="width: 10%;">depth (mm)</th> <th style="width: 10%;">inflow (l)</th> <th style="width: 10%;">outflow (l)</th> <th style="width: 10%;">storage (l)</th> <th style="width: 10%;"></th> <th style="width: 10%;">time (min)</th> <th style="width: 10%;">depth (mm)</th> <th style="width: 10%;">inflow (l)</th> <th style="width: 10%;">outflow (l)</th> <th style="width: 10%;">Storage (100 yr) (l)</th> </tr> </thead> <tbody> <tr><td>10</td><td>12.7</td><td>5105</td><td>1399</td><td>3707</td><td style="font-size: x-small;"><i>inflow='CA'dev*depth</i></td><td>10</td><td>18.9</td><td>7627</td><td>1809</td><td>5817</td></tr> <tr><td>15</td><td>16.1</td><td>6497</td><td>2098</td><td>4400</td><td style="font-size: x-small;"><i>outflow=Qave*time</i></td><td>15</td><td>24.1</td><td>9707</td><td>2714</td><td>6993</td></tr> <tr><td>20</td><td>18.4</td><td>7426</td><td>2797</td><td>4626</td><td style="font-size: x-small;"><i>diff=inflow-outflow</i></td><td>20</td><td>27.5</td><td>11093</td><td>3619</td><td>7475</td></tr> <tr><td>30</td><td>21.9</td><td>8818</td><td>4196</td><td>4622</td><td></td><td>30</td><td>32.6</td><td>13173</td><td>5428</td><td>7745</td></tr> <tr><td>60</td><td>29.9</td><td>12067</td><td>8392</td><td>3675</td><td></td><td>60</td><td>44.7</td><td>18027</td><td>10856</td><td>7171</td></tr> <tr><td>120</td><td>40.3</td><td>16244</td><td>16784</td><td>0</td><td></td><td>120</td><td>60.1</td><td>24267</td><td>21712</td><td>2555</td></tr> <tr><td>180</td><td>52.9</td><td>21349</td><td>26176</td><td>0</td><td></td><td>180</td><td>79.0</td><td>31893</td><td>32568</td><td>0</td></tr> <tr><td>240</td><td>58.7</td><td>23669</td><td>33567</td><td>0</td><td></td><td>240</td><td>87.6</td><td>35360</td><td>43423</td><td>0</td></tr> <tr><td>300</td><td>64.4</td><td>25990</td><td>41959</td><td>0</td><td></td><td>300</td><td>96.2</td><td>38827</td><td>54279</td><td>0</td></tr> <tr><td>360</td><td>69.0</td><td>27846</td><td>50351</td><td>0</td><td></td><td>360</td><td>103.1</td><td>41600</td><td>65135</td><td>0</td></tr> <tr><td>420</td><td>73.6</td><td>29703</td><td>58743</td><td>0</td><td></td><td>420</td><td>110.0</td><td>44373</td><td>75991</td><td>0</td></tr> <tr><td>480</td><td>78.2</td><td>31559</td><td>67135</td><td>0</td><td></td><td>480</td><td>116.8</td><td>47147</td><td>86847</td><td>0</td></tr> <tr><td>540</td><td>81.7</td><td>32951</td><td>75527</td><td>0</td><td></td><td>540</td><td>122.0</td><td>49227</td><td>97703</td><td>0</td></tr> <tr><td>600</td><td>86.3</td><td>34808</td><td>83919</td><td>0</td><td></td><td>600</td><td>128.9</td><td>52000</td><td>108559</td><td>0</td></tr> <tr><td>660</td><td>89.7</td><td>36200</td><td>92310</td><td>0</td><td></td><td>660</td><td>134.0</td><td>54080</td><td>119415</td><td>0</td></tr> <tr><td>720</td><td>93.2</td><td>37593</td><td>100682</td><td>0</td><td></td><td>720</td><td>139.2</td><td>56160</td><td>130270</td><td>0</td></tr> <tr><td></td><td></td><td></td><td style="text-align: right;">Max=</td><td style="text-align: center;">4628</td><td></td><td></td><td></td><td></td><td style="text-align: right;">Max=</td><td style="text-align: center;">7745</td></tr> </tbody> </table>		STORAGE (10 year)					STORAGE (100 year)					time (min)	depth (mm)	inflow (l)	outflow (l)	storage (l)		time (min)	depth (mm)	inflow (l)	outflow (l)	Storage (100 yr) (l)	10	12.7	5105	1399	3707	<i>inflow='CA'dev*depth</i>	10	18.9	7627	1809	5817	15	16.1	6497	2098	4400	<i>outflow=Qave*time</i>	15	24.1	9707	2714	6993	20	18.4	7426	2797	4626	<i>diff=inflow-outflow</i>	20	27.5	11093	3619	7475	30	21.9	8818	4196	4622		30	32.6	13173	5428	7745	60	29.9	12067	8392	3675		60	44.7	18027	10856	7171	120	40.3	16244	16784	0		120	60.1	24267	21712	2555	180	52.9	21349	26176	0		180	79.0	31893	32568	0	240	58.7	23669	33567	0		240	87.6	35360	43423	0	300	64.4	25990	41959	0		300	96.2	38827	54279	0	360	69.0	27846	50351	0		360	103.1	41600	65135	0	420	73.6	29703	58743	0		420	110.0	44373	75991	0	480	78.2	31559	67135	0		480	116.8	47147	86847	0	540	81.7	32951	75527	0		540	122.0	49227	97703	0	600	86.3	34808	83919	0		600	128.9	52000	108559	0	660	89.7	36200	92310	0		660	134.0	54080	119415	0	720	93.2	37593	100682	0		720	139.2	56160	130270	0				Max=	4628					Max=	7745	
STORAGE (10 year)					STORAGE (100 year)																																																																																																																																																																																																													
time (min)	depth (mm)	inflow (l)	outflow (l)	storage (l)		time (min)	depth (mm)	inflow (l)	outflow (l)	Storage (100 yr) (l)																																																																																																																																																																																																								
10	12.7	5105	1399	3707	<i>inflow='CA'dev*depth</i>	10	18.9	7627	1809	5817																																																																																																																																																																																																								
15	16.1	6497	2098	4400	<i>outflow=Qave*time</i>	15	24.1	9707	2714	6993																																																																																																																																																																																																								
20	18.4	7426	2797	4626	<i>diff=inflow-outflow</i>	20	27.5	11093	3619	7475																																																																																																																																																																																																								
30	21.9	8818	4196	4622		30	32.6	13173	5428	7745																																																																																																																																																																																																								
60	29.9	12067	8392	3675		60	44.7	18027	10856	7171																																																																																																																																																																																																								
120	40.3	16244	16784	0		120	60.1	24267	21712	2555																																																																																																																																																																																																								
180	52.9	21349	26176	0		180	79.0	31893	32568	0																																																																																																																																																																																																								
240	58.7	23669	33567	0		240	87.6	35360	43423	0																																																																																																																																																																																																								
300	64.4	25990	41959	0		300	96.2	38827	54279	0																																																																																																																																																																																																								
360	69.0	27846	50351	0		360	103.1	41600	65135	0																																																																																																																																																																																																								
420	73.6	29703	58743	0		420	110.0	44373	75991	0																																																																																																																																																																																																								
480	78.2	31559	67135	0		480	116.8	47147	86847	0																																																																																																																																																																																																								
540	81.7	32951	75527	0		540	122.0	49227	97703	0																																																																																																																																																																																																								
600	86.3	34808	83919	0		600	128.9	52000	108559	0																																																																																																																																																																																																								
660	89.7	36200	92310	0		660	134.0	54080	119415	0																																																																																																																																																																																																								
720	93.2	37593	100682	0		720	139.2	56160	130270	0																																																																																																																																																																																																								
			Max=	4628					Max=	7745																																																																																																																																																																																																								
<b>SUMMARY</b>  Tank Volume <span style="margin-left: 20px;">7750.0 litres</span> 100 Year Max Discharge <span style="margin-left: 20px;">4.6 l/s</span> 10 Year Max Discharge <span style="margin-left: 20px;">3.6 l/s</span> Orifice Diameter <span style="margin-left: 20px;">42 mm</span>																																																																																																																																																																																																																		

**STORMWATER ON-SITE DETENTION TANK (OSD) DESIGN** 23-Mar-15  
**100 YEAR ARI STORM with 10 YEAR ARI STORM OUTLET**  
**1062m2 Lot with 70% impermeable cover (design guide maximum).**

ADDRESS: Walkanae North Project - Parata Block  
 NAME: [Redacted]  
 PHONE: [Redacted]  
 Calcs By: DJM  
 Date: 23-Mar-15

**NOTE:**  
 Only fill in the blue (unprotected) cells

**DATA**

Depth of Tank	1.5 m
10 Year Isoheyt Value	115 mm
100 Year Isoheyt Value	171.8 mm
Time of Concentration	10 min. (10, 15, 20, 30, 60)

Area (m <sup>2</sup> )	'C'	CA (m <sup>2</sup> )
Site Area		1062
<b>1. EXISTING SITE COVERAGE</b>		
Existing Roof	0	0.0
Existing Paved	25	21.3
Existing Garden	1037	363.0
<b>TOTAL Existing Area</b>		<b>384.2</b>
<b>2. PROPOSED DEVELOPMENT</b>		
Additional/Reduced Roof	424.8	382.3
Additional/Reduced Paved	81.2	69.0
Additional/Reduced Lawn/Garden	-506	-177.1
<b>TOTAL Addition Area (should be zero)</b>		<b>274.2</b>
<b>3. REMAINING UNDRAINED AREA</b> (Not routed thru detention tank after development)		
Undrained Roof Area (Normally Zero)	0	0.0
Undrained Paved Area (Normally Zero)	0	0.0
Undrained Lawn/Garden Area	531	185.9
<b>TOTAL Extg Not to Tank Area</b>		<b>185.9</b>

**NOTE** A "#DIV/0!" message appearing in a cell means that data has been entered incorrectly

**NOTE** The sum of the existing areas must equal the 'Site Area'

\* **NOTE** If pre-development lawn areas are reduced a negative number is required to be entered.

**CONTROL DATA**

Existing 'C'	0.36	('CA'extg/Site Area)
Developed 'CA' to OSD tank	473 (m <sup>2</sup> )	('CA'extg*'CA'adds-'CA'undr)
Additional Area	0 (m <sup>2</sup> )	('A'ada)

**RUNOFF DATA**

	for 10 year	for 100 year
Intensity I	75.9 mm/hr	113.4 mm/hr
Allowable Qmax whole site	8.11	12.11
Lost Flows	3.92	5.86
Allowable Qmax from tanks =	4.2 l/s	6.25 l/s
Allowable Qave from tanks =	2.7 l/s	4.1 l/s (Qmax * 0.65)

**Rainfall Intensities (mm)**

MIN	Normalised	10 Yr(mm/hr)	100 Yr(mm/hr)
10	0.11	75.9	113.4
15	0.14	64.4	96.2
20	0.16	55.2	82.5
30	0.19	43.7	65.3
60	0.26	29.9	44.7
120	0.35	20.1	30.1
180	0.46	17.6	26.3
240	0.51	14.7	21.9
300	0.56	12.9	19.2
360	0.60	11.5	17.2
420	0.64	10.6	15.7
480	0.68	9.8	14.6
540	0.71	9.1	13.6
600	0.75	8.6	12.9
660	0.78	8.2	12.2
720	0.81	7.8	11.6

**Orifice Calculation - PROTECTED DO NOT ENTER ANY FIGURES**

q=	45.1 mm
Q100 outflow=	5.4 for h= 1.5
Q100ave	3.5
Q=	4.2 for h in Q10 0.8961456
Qave	2.7 Q10

**STORAGE (10 year)**

time (min)	depth (mm)	inflow (l)	outflow (l)	storage (l)
10	12.7	5978	1633	4346
15	16.1	7609	2449	5160
20	18.4	8696	3265	5431
30	21.9	10326	4898	5428
60	29.9	14130	9795	4335
120	40.3	19022	19591	0
180	52.9	25000	29386	0
240	58.7	27717	39181	0
300	64.4	30435	48977	0
360	69.0	32609	58772	0
420	73.6	34783	68568	0
480	78.2	36957	78363	0
540	81.7	38587	88158	0
600	86.3	40761	97954	0
660	89.7	42391	107749	0
720	93.2	44022	117521	0
			Max=	5431

**STORAGE (100 year)**

time (min)	depth (mm)	inflow 100 yr (l)	outflow 100 yr (l)	Storage (100 yr) (l)
10	18.9	8931	2112	6819
15	24.1	11367	3168	8199
20	27.5	12991	4224	8766
30	32.6	15426	6336	9090
60	44.7	21110	12673	8437
120	60.1	28417	25346	3071
180	79.0	37348	38019	0
240	87.8	41407	50692	0
300	96.2	45467	63365	0
360	103.1	48715	76038	0
420	110.0	51962	88710	0
480	116.8	55210	101383	0
540	122.0	57646	114056	0
600	128.9	60893	126729	0
660	134.0	63329	139402	0
720	139.2	65765	152075	0
			Max=	9090

**SUMMARY**

Tank Volume	9090.0 litres
100 Year Max Discharge	5.4 l/s
10 Year Max Discharge	4.2 l/s
Orifice Diameter	45 mm

**STORMWATER ON-SITE DETENTION TANK (OSD) DESIGN** 23-Mar-16  
**100 YEAR ARI STORM with 10 YEAR ARI STORM OUTLET**

601m2 Lot with 50% site coverage.

ADDRESS Waikanae North Project - Parata Block Calcs By DJM  
 NAME  
 PHONE  Date 23-Mar-16

**NOTE:**  
 Only fill in the blue  
 (unprotected) cells

DATA	Area (m <sup>2</sup> )	'C'	CA (m <sup>2</sup> )
Depth of Tank	1.5	m	
10 Year Isoheyt Value	115	mm	
100 Year Isoheyt Value	171.8	mm	
Time of Concentration	10	min. (10,15,20,30,60)	
<b>1. EXISTING SITE COVERAGE</b>			
Existing Roof	0	0.9	0.0
Existing Paved	25	0.85	21.3
Existing Garden	576	0.35	201.6
<b>TOTAL Existing Area</b>	<b>601</b>		<b>222.9</b>
<b>2. PROPOSED DEVELOPMENT</b>			
Additional/Reduced Roof	300.5	0.9	270.5
Additional/Reduced Paved		0.85	0.0
Additional/Reduced Lawn/Garden	-300.5	0.35	-105.2
<b>TOTAL Addition Area (should be zero)</b>	<b>0</b>		<b>165.3</b>
<b>3. REMAINING UNDRAINED AREA</b>			
Undrained Roof Area (Normally Zero)	0	0.9	0.0
Undrained Paved Area (Normally Zero)	0	0.85	0.0
Undrained Lawn/Garden Area	275.5	0.35	96.4
<b>TOTAL Extg Not to Tank Area</b>	<b>275.5</b>		<b>96.4</b>

**NOTE** A "#DIV/0!" message appearing in a cell means that data has been entered incorrectly

**NOTE** The sum of the existing areas must equal the 'Site Area'

\* NOTE If pre-development lawn areas are reduced a negative number is required to be entered.

CONTROL DATA			
Existing 'C'	0.37	(CA'extg/Site Area)	
Developed 'CA' to OSD tank	292 (m <sup>2</sup> )	(CA'extg+CA'adds'-CA'undr)	
Additional Area	0 (m <sup>2</sup> )	(A'add)	

RUNOFF DATA	for 10 year	for 100 year
Intensity I	75.9 mm/hr	113.4 mm/hr
Allowable Qmax whole site	4.70	7.02
Lost Flows	2.03	3.04
Allowable Qmax from tanks =	2.7 l/s	3.99 l/s
Allowable Qave from tanks =	1.7 l/s	2.6 l/s (Qmax * 0.65)

Rainfall Intensities (mm)			
MIN	Normalised	10 Yr(mm/hr)	100 Yr(mm/hr)
10	0.11	75.9	113.4
15	0.14	64.4	96.2
20	0.16	55.2	82.6
30	0.19	43.7	65.3
60	0.26	29.9	44.7
120	0.35	20.1	30.1
180	0.46	17.6	26.3
240	0.61	14.7	21.9
300	0.56	12.9	19.2
360	0.60	11.5	17.2
420	0.64	10.5	15.7
480	0.68	9.8	14.6
540	0.71	9.1	13.6
600	0.75	8.6	12.9
660	0.78	8.2	12.2
720	0.81	7.8	11.6

Orifice Calculation - PROTECTED DO NOT ENTER ANY FIGURES			
d=	36.0 mm		
Q100 outflow=	3.4 for h=	1.5	
Q100ave	2.2		
Q=	2.7 for h in Q10	0.8982418	
Qave	1.7 Q10		

STORAGE (10 year)					
time (min)	depth (mm)	inflow (l)	outflow (l)	storage (l)	
10	12.7	3690	1041	2649	inflow=CA'dev*depth
15	16.1	4696	1561	3136	outflow=Qave*time
20	18.4	5367	2081	3286	diff=inflow-outflow
30	21.9	6374	3122	3252	
60	29.9	8722	6243	2478	
120	40.3	11741	12487	0	
180	52.9	15431	18730	0	
240	58.7	17108	24974	0	
300	64.4	18785	31217	0	
360	69.0	20127	37460	0	
420	73.6	21469	43704	0	
480	78.2	22811	49947	0	
540	81.7	23817	56191	0	
600	86.3	25169	62434	0	
660	89.7	26165	68677	0	
720	93.2	27172	74906	0	
			Max=	3286	

STORAGE (100 year)					
time (min)	depth (mm)	inflow 100 yr (l)	outflow (l)	Storage (100 yr) (l)	
10	18.9	5513	1345	4168	
15	24.1	7016	2017	4999	
20	27.5	8018	2689	5329	
30	32.8	9522	4034	5488	
60	44.7	13030	8068	4962	
120	60.1	17540	16136	1404	
180	79.0	23052	24204	0	
240	87.6	25558	32272	0	
300	96.2	28064	40340	0	
360	103.1	30068	48408	0	
420	110.0	32073	56477	0	
480	116.8	34078	64545	0	
540	122.0	35581	72613	0	
600	128.9	37586	80681	0	
660	134.0	39089	88749	0	
720	139.2	40592	96817	0	
			Max=	5488	

**SUMMARY**

Tank Volume	5490.0 litres
100 Year Max Discharge	3.4 l/s
10 Year Max Discharge	2.7 l/s
Orifice Diameter	36 mm

**STORMWATER ON-SITE DETENTION TANK (OSD) DESIGN** 23-Mar-15  
**100 YEAR ARI STORM with 10 YEAR ARI STORM OUTLET**

601m2 Lot with 70% Impermeable cover (design guide maximum).

ADDRESS: Waikanae North Project - Parata Block  
 NAME: [ ]  
 PHONE: [ ]  
 Calcs By: DJM  
 Date: 23-Mar-15

**NOTE:**  
 Only fill in the blue (unprotected) cells

**DATA**

Depth of Tank: 1.5 m  
 10 Year Isoheyt Value: 115 mm  
 100 Year Isoheyt Value: 171.8 mm  
 Time of Concentration: 10 min. (10, 15, 20, 30, 60)

Area (m <sup>2</sup> )	'C'	CA (m <sup>2</sup> )
<b>Site Area</b>		
<b>1. EXISTING SITE COVERAGE</b>		
Existing Roof	0	0.0
Existing Paved	25	21.3
Existing Garden	578	201.6
<b>TOTAL Existing Area</b>	<b>601</b>	<b>222.9</b>
<b>2. PROPOSED DEVELOPMENT</b>		
Additional/Reduced Roof	300.5	270.5
Additional/Reduced Paved	95.2	80.9
Additional/Reduced Lawn/Garden	-395.7	-138.5
<b>TOTAL Addition Area</b> (should be zero)	<b>0</b>	<b>212.9</b>
<b>3. REMAINING UNDRAINED AREA</b> (Not routed thru detention tank after development)		
Undrained Roof Area (Normally Zero)	0	0.0
Undrained Paved Area (Normally Zero)	0	0.0
Undrained Lawn/Garden Area	180.3	63.1
<b>TOTAL Extg Not to Tank Area</b>	<b>180.3</b>	<b>63.1</b>

**NOTE** A "DIV/0!" message appearing in a cell means that data has been entered incorrectly

**NOTE** The sum of the existing areas must equal the 'Site Area'

**\* NOTE** If pre-development lawn areas are reduced a negative number is required to be entered.

**CONTROL DATA**

Existing 'C': 0.37 ('CA'extg/Site Area)  
 Developed 'CA' to OSD tank: 373 (m<sup>2</sup>) ('CA'extg+'CA'adds-'CA'undr)  
 Additional Area: 0 (m<sup>2</sup>) ('A'add)

**RUNOFF DATA**

	for 10 year	for 100 year
Intensity I	75.9 mm/hr	113.4 mm/hr
Allowable Qmax whole site	4.70	7.02
Lost Flows	1.33	1.99
Allowable Qmax from tanks =	3.4 l/s	5.04 l/s
Allowable Qave from tanks =	2.2 l/s	3.3 l/s (Qmax * 0.65)

**Rainfall Intensities (mm)**

MIN	Normalised 10 Yr(mm/hr)	100 Yr(mm/hr)
10	0.11	75.9
15	0.14	64.4
20	0.18	55.2
30	0.19	43.7
60	0.28	29.9
120	0.35	20.1
180	0.46	17.6
240	0.51	14.7
300	0.56	12.9
380	0.60	11.5
420	0.64	10.5
480	0.68	9.8
540	0.71	9.1
600	0.75	8.6
680	0.78	8.2
720	0.81	7.8

**Orifice Calculation - PROTECTED DO NOT ENTER ANY FIGURES**

d= 40.5 mm  
 Q100 outflow= 4.4 for h= 1.5  
 Q100ave= 2.8  
 Q= 3.4 for h in Q10 0.8975187  
 Qave= 2.2 Q10

**STORAGE (10 year)**

time (min)	depth (mm)	inflow (l)	outflow (l)	storage (l)
10	12.7	4714	1315	3399
15	16.1	5969	1972	4027
20	18.4	6856	2530	4227
30	21.9	8142	3944	4197
60	29.9	11141	7889	3252
120	40.3	14998	15778	0
180	52.9	19712	23667	0
240	58.7	21854	31556	0
300	64.4	23997	39444	0
360	69.0	25711	47333	0
420	73.6	27425	55222	0
480	78.2	29139	63111	0
540	81.7	30424	71000	0
600	86.3	32138	78889	0
660	89.7	33424	86778	0
720	93.2	34710	94668	0
			Max=	4227

**STORAGE (100 year)**

time (min)	depth (mm)	inflow 100 yr (l)	outflow 100 yr (l)	Storage (100 yr) (l)
10	18.9	7042	1700	5342
15	24.1	8962	2550	6413
20	27.5	10243	3400	6843
30	32.6	12153	5099	7064
60	44.7	16544	10199	6446
120	60.1	22406	20397	2008
180	79.0	29447	30596	0
240	87.8	32648	40794	0
300	96.2	35849	50993	0
360	103.1	38410	61191	0
420	110.0	40970	71390	0
480	116.8	43531	81589	0
540	122.0	45451	91787	0
600	128.9	48012	101986	0
660	134.0	49933	112184	0
720	139.2	51853	122383	0
			Max=	7064

**SUMMARY**

Tank Volume: 7070.0 litres  
 100 Year Max Discharge: 4.4 l/s  
 10 Year Max Discharge: 3.4 l/s  
 Orifice Diameter: 40 mm



**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

Parafa Street

Maria Lane



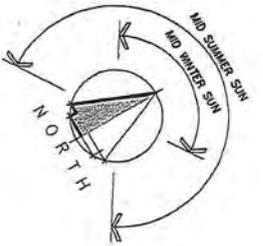
BC161030

00002

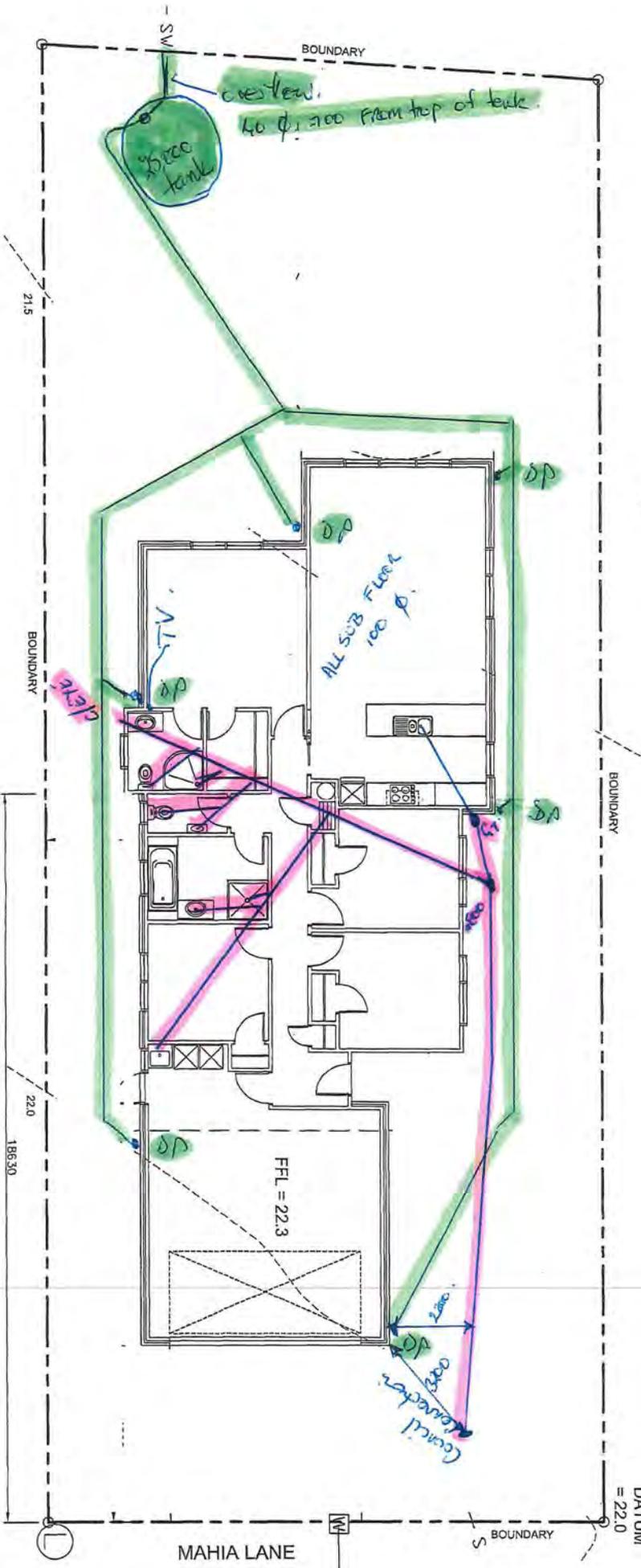
LOT 16  
DP - 476550

21 DEC 2016

A CERTIFYING PLUMBER/DRAINLAYER TO FILL OUT ATTACHED  
PRODUCER STATEMENT FORMS AND RETURN TO  
COUNCIL. ALSO PROVIDE NEAT ASBUILT DRAINAGE  
PLAN SHOWING SEWER, STORMWATER AND WATER.



CORNER  
PEG IS  
DATUM  
= 22.0



# SITE PLAN

SCALE 1:100

All work shall be in accordance with the New Zealand Building Code and the relevant provisions of the Resource Management Act 1991. The drawings are prepared on the basis of information provided by the client and are not to be used for any other purpose without the written consent of Coastal Architects Ltd.

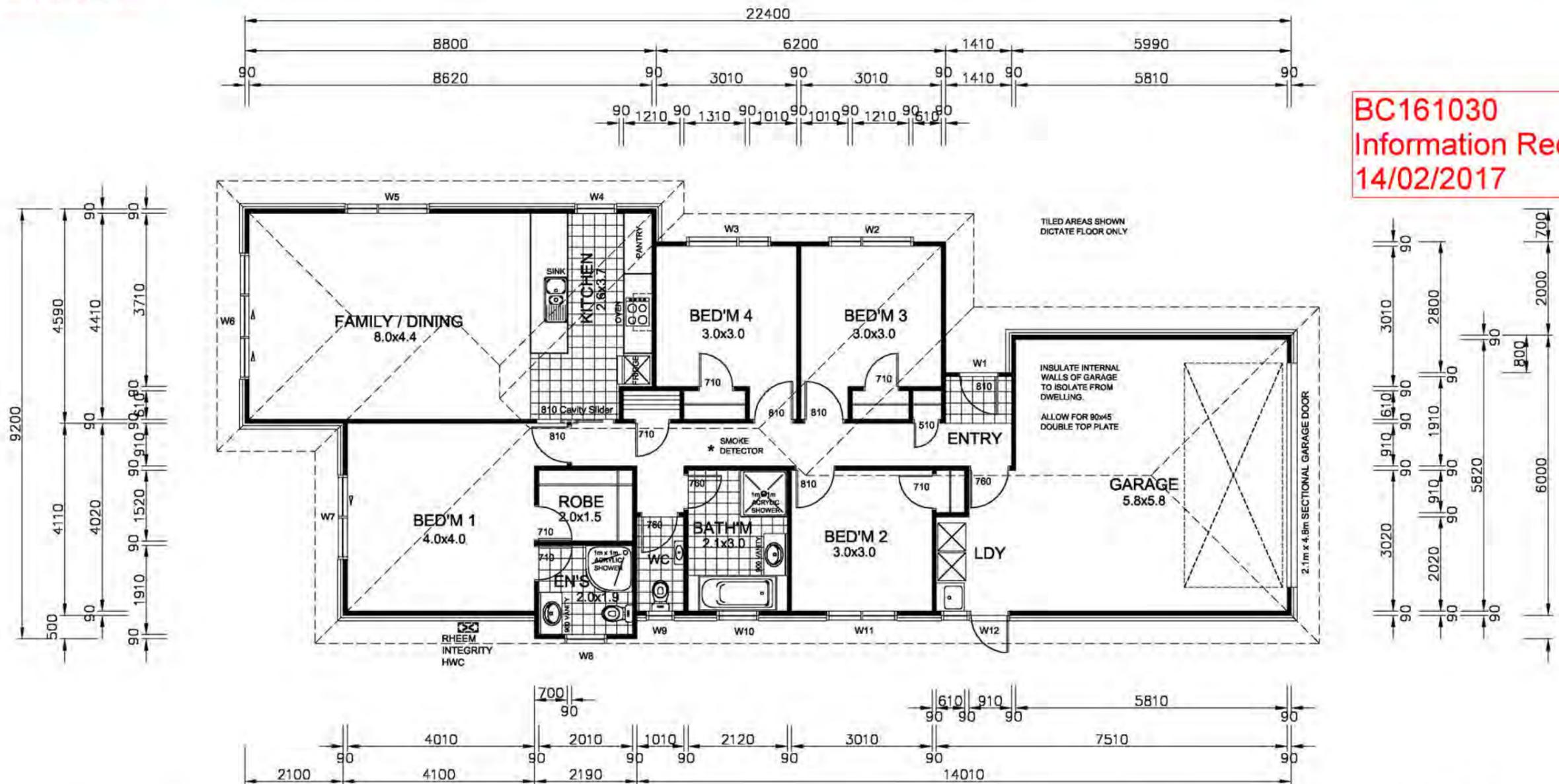
Revised: NOVEMBER 2016	rev A	Project: NEW DWELLING	Drawing Title: KC HOMES LTD LOT 16, 7 MAHIA LANE, WAIKANAE	Drawing Title: SITE PLAN	Designer: <b>COASTAL</b> ARCHITECTS LTD 11 Kedar Place New Zealand Tel: 04 296 1246 e-mail: billfrancis@coastalarch.co.nz	Drawn by: Bill Francis	Scale: as shown	Pages of: 175 1	Spec: A
---------------------------	-------	--------------------------	--	-----------------------------	---	---------------------------	--------------------	--------------------	------------



Hot water pipework from the HWC is to be insulated in accordance with NZBC H1.

All frost prone pipes are to be lagged with a suitable type of insulation

BC161030  
Information Received  
14/02/2017



**NOTES:**

**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 at least 5% of their floor area as opening windows or approved alternative to achieve ventilation requirements
- All habitable rooms have windows providing at least 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.
- Prenail 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 balconys 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)

**FRAMING**

- Exterior Walls & Internal Load Bearing Walls:
- Up to 2.4m - 90x45 SGB at 600 crs H1.2
- Interior Non Load Bearing Walls:
- Up to 2.4m - 90x45 SGB at 600 crs H1.2

**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

- Top Plate Fixing**  
The fixing of top plates supporting roof trusses to wall studs or lintels shall be in accordance with figure 8.14, 8.15 & 8.18 NZS 3604:2011  
Joints in top plates to comply with clause 8.7.3 NZS 3604:2011
- Bottom Plate Fixing**  
10mm Ø cast in @ max 900 crs  
12mm Ø cast in @ max 1400 crs  
Approved anchors (fixed to manufacturers specific instructions)
- Holes in plates to comply with clause 8.5.1.6 & figure 8.4, NZS 3604:2011
- Refer to Bracing Plan and Manufacturers specifications for additional framing fixings.

**BENCHTOPS & VANITIES**

- To be selected at owners discretion. To be continuously smooth and easily maintained in a hygienic condition e.g. stainless steel, high pressure laminate, acrylic, granite, or engineered stone surface. Must be sealed to adjoining impervious, easily cleaned walls e.g. aquaenamel paint, tiles, or glass

**FLOOR PLAN**

SCALE 1:100

AREA = 162m<sup>2</sup> (168m<sup>2</sup> OVER CLADDING)

Revisions: NOVEMBER 2016 rev A FEBRUARY 2017 rev B	Project: <b>NEW DWELLING</b>	Drawing Title: KC HOMES LTD  LOT 16, 7 MAHIA LANE, WAIKANAE	Drawing Title: <b>FLOOR PLAN</b>	Designer: <b>COASTAL ARCHITECTURE LTD.</b>  11 Kodex Place Paraparaumu New Zealand Tel: 04 296 1248 e-mail : billfrancis@paradise.net.nz	Design: Bill Francis	Drawn: bf Scale: as shown	Job: 175 Page of: 2 Rev: B	

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 Coastal Architecture Ltd. The recipient of this document is prohibited from disclosing its content for any purpose without the prior written consent of Coastal Architecture Ltd