

P/1207/4787/1

Application for PLUMBING - DRAINAGE PERMIT

ENTERED

To the COUNTY ENGINEER,
TAURANGA COUNTY COUNCIL,
Private Bag,
TAURANGA.

No: 7221

I hereby apply for a permit to carry out Sanitary Plumbing and/or Drainage Work described below:—

✓ tick

OWNERS NAME <u>Sally Hammond</u>	Phone No. <u>27 302</u>
Postal Address <u>36 OMOKOROA RD.</u>	
PLUMBER <u>Clive Williams</u>	Phone No. _____
Postal Address _____	
DRAINLAYER _____	Phone No. _____
Postal Address _____	

PERMIT FEES PAYABLE BY

2 JOB LOCATION

Address PS 125006.

Lot No. _____ DP(s) No. _____

Val. No. (Rate Demand) 6881/511

3 DESCRIPTION OF WORK

✓ tick

☐
☐

Sanitary Plumbing and/or Drainage of new dwelling

Sanitary Plumbing and/or Drainage for alterations

or (describe)

INSTALL RANGE & VISION FIRE.

4 ESTIMATED COST of

PLUMBING

X \$ 300-00

DRAINAGE

\$

OFFICE USE ONLY

FEES \$ <u>18</u> \$ <u>18</u>	PERMIT Nos. <u>3802</u> <u>R.28119</u>
APPLICATION APPROVED Inspector <u>[Signature]</u> Date <u>24/7/80</u>	WORK INSPECTED APPROVED Inspector _____ Date _____

Applicants Signature [Signature]

Date

22-7-80

D. Kale Print

CALCULATIONS AND PRODUCT LITERATURE,

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

M & C MAC DONALD

36 OMOKOROA ROAD

OMOKOROA

- **GCG Design MOD**
- **Risk Matrix Calculations**
- **Bracing Calculations**
- **Gib Bracing Literature**
- **Design IT Producer Statement**
- **Design Navigator H1 Calculations**
- **SaniPlus Literature**
- **Ardex X3000 Literature**
- **Ardex WPM300 Hydrepoxy Literature**

Job Number: **GCG 2118**
Date: 29th October 2018

GCG DESIGN LTD
79B BEACH ROAD
MATUA
TAURANGA 3110
Ph 07 5701386
Email gcgdesign@xtra.co.nz

Memorandum from licensed building practitioner: Memorandum of Design 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: 36 Omokoroa Road	
Suburb:	
Town/City: Omokoroa	Postcode: 3114

THE OWNER(S)	
Name(s): M & C MacDonald	
Mailing address: 36 Omokoroa Road	
Suburb:	PO Box/Private Bag:
Town/City: Omokoroa	Postcode: 3114
Phone number: 0274 555024	Email address: Malcolm.Macdonald@mercury.co.nz

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK

I, Gary Gardner carried out/supervised the following design work that is restricted building work

PRIMARY STRUCTURE

Design work that is restricted building work	Description of restricted building work	Carried out or supervised	Reference to plans and specifications
Tick ☒	If appropriate, provide details of the restricted building work	Tick ☒ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Foundations and subfloor framing ☒	footings, floor details. Retaining foundations by engineer	☒ Carried out ☒ Supervised	Sheets 4 and 5
Walls ☒	wall framing to NZS3604	☒ Carried out ☐ Supervised	Sheets 5-7
Roof ☒	Roof Beam using Design IT	☒ Carried out ☐ Supervised	Sheet 8
Columns and beams ☒	To NZS3604 and Design IT Block Lintel by Arnold & Johnstone Engineers Ltd	☒ Carried out ☐ Supervised	Sheets 4,5,7 and 8
Bracing ☒	To First floor to NZS3604	☒ Carried out ☐ Supervised	Sheet 5
Other ☐		☐ Carried out ☐ Supervised	

EXTERNAL MOISTURE MANAGEMENT SYSTEMS			
Design work that is restricted building work	Description of restricted building work	Carried out or supervised	Reference to plans and specifications
Tick ☒	If appropriate, provide details of the restricted building work	Tick ☒ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Damp proofing ☒	Vapour barriers and Concrete wall waterproofing	☒ Carried out ☐ Supervised	Sheet 4
Roof cladding or roof cladding system ☐		☐ Carried out ☐ Supervised	
Ventilation system (for example, subfloor or cavity) ☒	Wall cladding	☒ Carried out ☐ Supervised	Sheets 10-12
Wall cladding or wall cladding system ☒	Wall cladding details	☒ Carried out ☐ Supervised	Sheets 10-12
Waterproofing ☒	Retaining Wall waterproofing	☒ Carried out ☐ Supervised	Sheet 4
Other ☐		☐ Carried out ☐ Supervised	

FIRE SAFETY SYSTEMS			
Design work that is restricted building work	Description of restricted building work	Carried out or supervised	Reference to plans and specifications
Tick ☒ if appropriate	If appropriate, provide details of the restricted building work	Tick ☒ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Emergency warning systems ☒ Evacuation and fire-service operation systems Suppression or control systems Other	Smoke Alarms	☒ Carried out ☐ Supervised	Sheets 3,5 and 6
Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011			

WAIVERS AND MODIFICATIONS

Waivers or modifications of the Building Code are required. ☐ Yes ☒ No

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

Clause	Waiver/modification required
List relevant clause numbers of building code	Specify nature of waiver or modification of building code required

ISSUED BY

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

Name: **Gary Gardner**

LBP or Registration number: **BP109167**

The practitioner is a: ☒ Design LBP ☐ Registered architect ☐ Chartered professional engineer

Mailing address (if different from below) :

Street address/Registered office: **79b Beach Road**

Suburb: **Matua**

Town/City: **Tauranga**

PO Box/Private Bag:

Postcode: **3110**

Phone number: **07 5701386**

Mobile: **027 2997800**

After hours:

Fax:

Email address: **gogdesign@xtra.co.nz**

Website:

DECLARATION

I Gary Gardner state that the design work that is restricted building work identified on this form:

- 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: 29th October 2018

BUILDING RISK ASSESSMENT

G.C.G
Design

Job Details

Name	M & C MacDonald
Street and Number	36 Omokoroa Road, Omokoroa
City/Town/District	Western Bay District
Number of storeys	2
Cladding Type:	
Ground Floor	7.5mm Hardiflex on 20mm Cavity Battens
First Floor	ex 200x25 Horizontal Rusticated Weatherboard n 20mm Cavity Battens
	Existing Direct Fix Hardiflex

A: Wind zone:

As described by NZS3604

RISK	NORTH WEST	SOUTH EAST
Low or Medium (0)		
High (1)	1	1
Very High (2)		

B: Number of Storeys:

Single level (1 storey)

Two storeys in part

Two storeys

More than Two storeys

Low (0)	0		
Medium (1)	1		
High (2)			
Very High (4)			

C: Roof / Wall intersection design:

Hip and gable roof with eaves

Hip and gable roof: **NO** eaves

Parapets or Eaves above 90°

Roof elements finishing within boundaries formed by walls, eg lower ends of aprons or chimneys

Low (0)	0	0	
Medium (1)			
High (3)			
Very High (5)			

D: Eaves width:

Greater than 600 mm for single storey

451 - 600 at GL, over 600 at second level

101 - 450 at GL, 451 - 600 at second level

0 - 100 at GL, 0 - 450 at second level

or less than 600mm above 2 stories

Low (0)			
Medium (1)			
High (2)		2	
Very High (5)	5		

E: Envelope complexity:

Single cladding, Box L or T shape

Max 2 Claddings , angular/curved shapes

Multiple cladding, complex shapes

all others, Box windows, pergolas etc

Low (0)			
Medium (1)	1	1	
High (3)			
Very High (6)			

F: Deck Design:

No Deck, Timber slat deck at GL or porch

Fully covered in plan by roof, or at first floor

Enclosed deck exposed or cant first flr

Enclosed deck exposed or cantilevered at second floor level or above

Low (0)	0	0	
Medium (2)			
High (4)			
Very High (6)			

TOTAL POINTS

8	4	0	0
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Requirements	Ground Floor	7.5mm Hardiflex on 20mm Cavity Battens
	First Floor	ex 200x25 Horizontal Rusticated Weatherboard n 20mm Cavity Battens
		Existing Direct Fix Hardiflex

WALL BRACING CALCULATION SHEET A

M & K MACDONALD

G.C.G
Design

Job Details

Name	M & K MACDONALD		
Street and Number	36 Omokoroa Road, Omokoroa		
Lot and DP Number	Lot 12, DPS 4749		
City/Town/District	Western Bay District		
Location of Storey:	First Floor		
Building Height to apex	4.7 m	Roof weight	light
Roof height above eaves	1.4 m	Cladding Weight	light
Stud height	2.4 m	Room in roof space	no
Average roof pitch	12.5 degrees		
Building length	BL= 3.6 m	Gross Building	
Building width	BW= 7.9 m	Plan Area	GPA= 28.44 m2

NOTE: When the average roof pitch is over 25 degrees, use the eaves length and width to determine BL and BW.

NOTE: For heavy roofs use the roof plan at eaves level to determine GPA

Wind Zone

Region:	A
Hill Height/formation	Hill
Gradient	Mild
Topography	Outer
Exposure	Exposed
Topography Class	T2
Wind Zone:	High

Earthquake Zone

From figure EQ1 select Earthquake Zone:	1
---	---

BUs required for Wind

From Table W1A/W1B	
W along =	55 BUs/m
W across=	50 BUs/m
Total wind load	
W ALONG	
W along x BW =	434.5 BUs
W ACROSS	
W across x BL =	180 BUs

BUs required for Earthquake

From Table EQ1	
E =	5.5 BUs/m2
Soil class type D(15x.5)	
NOTE: For a room in the roof space use E + 1	
Total earthquake load, EQ ALONG and EQ ACROSS	
E x GPA BUs =	156.42 BUs

WALL BRACING CALCULATION SHEET B

For M & K MACDONALD

G.C.G
Design

Along

Wall or Bracing Elements Provided				
Bracing Line				
1	2	3	4	5
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L
A	100	A1	BL1-H	1.4
B	100	B1	GS1-N	0.8
		B2	GS1-N	1.4
C	100	C1	BL1-H	0.8
		C2	BL1-H	0.7

Totals Achieved

From Sheet A	Totals Required
Wreq/Ereq =	2.78

Across

Wall or Bracing Elements Provided				
Bracing Line				
1	2	3	4	5
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L
M	100	M1	GS1-N	1.8
N	100	N1	GS1-N	1.7
O	100	O1	GS1-N	3.7

Totals Achieved

From Sheet A	Totals Required
Wreq/Ereq =	1.15

Wind

6W	7W
Rating BUs/m W	BUs Achieved (BU/m x L) W
120	168
70	56
70	98
90	72
90	63

W	457
---	-----

W	434.5
---	-------

Earthquake

6E	7E
Rating BUs/m E	BUs Achieved (BU/m x L) E
105	147
60	48
60	84
100	80
100	70

E	429
---	-----

E	156.42
---	--------

W	504
W	180

E	432
E	156.42



EzyBrace[®] Systems

Specification and installation manual



CBI 5113

AUGUST 2016

NATIONAL SUPPORT

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Auckland 1061, New Zealand

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Auckland, New Zealand

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Free Fax: 0800 229 222

EMAIL: info@gib.co.nz

WEB: gib.co.nz

GIB® HELPLINE

0800 100 442

Based on learnings derived from the 2011 Canterbury earthquakes GIB EzyBrace® Systems have been updated to offer improved design flexibility and further simplification of the bracing design and build process.

NEW GIB EZYBRACE® 2016 DESIGN SOFTWARE

- Improved user interface with simplified bracing design process.
- Increased functionality including exterior line check function, easy insert/deletion of bracing elements and built in software help function.
- Includes the new GIB® Bracing element GS2- NOM
- Allows the GIBFix® Framing System to be used in GIB EzyBrace® designs.

NEW GIB® BRACING ELEMENT GS2-NOM

- Allows internal walls lined with GIB® plasterboard on both sides and fastened off as per the standard fixing requirements of the current GIB® Site Guide to contribute to bracing resistance.
- Potentially reduces the amount of fasteners¹
- Encourages more even bracing distribution throughout the building.

¹ Actual savings dependent on building and bracing design

UPDATE TO OPENINGS IN BRACING ELEMENTS AND CEILING DIAPHRAGMS

- Large hole specification updated to use a more conservative methodology.
- Guidance included for fireplace flues and range hoods.

NEW — GIBFIX® FRAMING SYSTEM

- Reduced potential for fastener pop and joint cracking as a result of timber frame movement.
- Reduced potential for on-site call backs.
- Improved thermal performance.
- Reinforced plasterboard junctions.



BRANZ Appraised
Appraisal No.928 [2016]

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GIB EzyBrace® Systems — August 2016

Winstone Wallboards Ltd accepts no liability if GIB EzyBrace® Systems are not designed and installed in strict accordance with instructions contained in this publication.

USE ONLY THE CURRENT SPECIFICATION

This publication may be superseded by a new publication at any time. Winstone Wallboards accepts no liability for reliance upon publications that have been superseded. Check for the current publication at gib.co.nz/library before using this publication. If you are unsure whether this is the current publication, call the GIB® Helpline on 0800 100 442.

GIB EzyBrace® 2011 software and specification literature remains valid until further notice.

PATENTS

GIBFix® Framing System and GIB EzyBrace® Systems, including componentry and design method, have patents pending (NZ Patent Number 596691, NZ Patent 709159 pending) and design and other IP rights reserved.

Beware of substitution

The performance of GIB® Systems are very sensitive to design detailing and construction practices. All GIB® Systems have been developed specifically for New Zealand conditions and independently tested or assessed to ensure the required level of performance. It is important to use only GIB® branded components where specified and to closely follow the specified design details and construction practices, to be confident that the required level of performance and quality is achieved on site.

For further information call our GIB® Helpline on 0800 100 442.

GIB EzyBrace® Systems have been designed and tested using only the products specified. When additional GIB® plasterboard properties are required the table below provides acceptable alternative options.

	Acceptable alternative GIB® plasterboards								
Specified GIB® plasterboard	GIB® Standard	GIB Ultraliner®	GIB Braceline/ Noiseline®	GIB Aqualiner®	GIB Toughliner®	GIB Fyreliner®			
						10mm	13mm	16mm	19mm
GIB® Standard		OK	OK	OK	OK	Note 1 and 3			
GIB Braceline®	X	X		Note 2	OK	X	Notes 1, 2 and 3		

Note 1 The fastener type and length must be as required for the relevant FRR system using the perimeter fixing pattern illustrated for the relevant bracing specification.

Note 2 The element must be 900mm or longer. Decrease perimeter fastener centres to 100mm. The bracing corner fastening pattern, as illustrated for the relevant specification applies to all four corners of the element. Panel hold-down fixings are required.

Note 3 Specify traditional wall framing layout (see figure 1) where a Fire Resistance Rating (FRR) is required.

Scope of use

This document is a guide to wall bracing of light timber frame (LTF) buildings constructed in accordance with NZS3604:2011 Timber Framed Buildings and presents a simple and efficient method for calculating and incorporating bracing resistance. This information draws on recent experiences from seismic activity in New Zealand and seeks to minimise earthquake damage to plasterboard linings in LTF buildings.

This document outlines the main principles of bracing design and construction using GIB® plasterboard products and systems. Further detailed information can be found in the GIB® Bracing Supplement by visiting gib.co.nz/library. This 'live' on-line document is updated continuously in response to market feedback and Winstone Wallboards' development initiatives.

Finish quality — framing and substrates

Home owners are increasingly demanding a high quality of interior finish. Finish quality is heavily influenced by the substrate to which linings are fixed. Detailed information on 'Levels of Finish' is given in AS/NZS 2589 and the latest version of the GIB® Site Guide.

New GIBFix® Framing System

With increased NZ Building Code requirements and growing customer demand for thermal efficiency and high quality interior finishes, traditional framing practices present problems such as multiple framing members at wall intersections creating thermal 'bridges' and cavities where insulation cannot be installed effectively.

Figure 1 shows a traditional wall framing layout. Figure 2 shows the alternative GIBFix® Framing System layout.

Multiple timber framing members also take longer to dry resulting in an increased risk of fastener pops and blemishes resulting from timber frame movement.

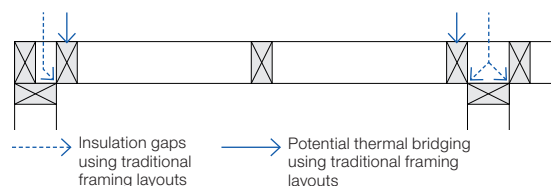
The GIBFix® Framing System offers better thermal efficiencies and minimises potential joint imperfections resulting from interior linings being fixed to multiple timber framing members.

The GIBFix® Framing System can be used in conjunction with GIB EzyBrace® Systems.

Bracing resistance is not affected by the GIBFix® Framing System if the use of this alternative timber framing layout is preferred. Refer to the GIBFix® Framing System literature for more information.

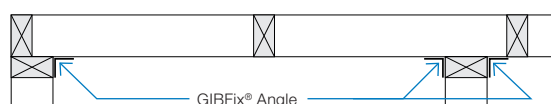
Bracing ratings apply whether fixing is directly into timber or into the metal components, provided correct construction details, fastener types and centres are applied.

FIGURE 1: TRADITIONAL WALL FRAMING LAYOUT



GFS004

FIGURE 2: GIBFix® FRAMING SYSTEM (ALTERNATIVE LAYOUT)



GFS005

NEW GS2-NOM Bracing Element

The new GS2-NOM bracing element allows most homes to be braced with a single lining type and less fixings so that a high quality finish is maintained throughout.

GS2-NOM permits the contribution of 'nominally fixed' internal walls. Higher performance elements are commonly specified on external walls and where limited wall area is available or adjacent to significant openings.

Winstone Wallboards recommends the use of the GIBFix® Framing System in conjunction with GS2-NOM elements. Key benefits of this approach include:

- Reduced potential for fastener pop and joint cracking of plasterboard linings.
- Enhanced thermal performance.
- Allows internal walls lined with GIB® plasterboard on both sides and fastened off as per the standard fixing requirements of the current GIB® Site Guide to contribute bracing resistance.
- Potentially reduces the amount of fasteners!
- Encourages more even bracing distribution throughout the building.

1. Actual savings dependent on building and bracing design.

Compliance with the NZ Building Code

NZBC CLAUSE B1 — STRUCTURE

The design and material specification for steel and timber framing used in conjunction with this literature must be in accordance with the performance requirements of NZBC Clause B1. GIB EzyBrace® Systems comply with the requirements of NZS 3604:2011, when designed and installed in accordance with this publication and relevant technical literature. NZS 3604:2011 is an acceptable solution to NZBC Clause B1.

NZBC CLAUSE B2 — DURABILITY

Under normal conditions of dry internal use GIB EzyBrace® Systems have a service life in excess of 50 years and satisfy the requirements of NZBC Clause B2. When in conditions of dry internal use, the components specified in this literature satisfy the requirements of NZBC Clause B2.

GIB® EzyBrace® Systems must not be specified in areas where 15 year durability applies and where linings are subject to direct water pressure, e.g. shower cubicle or shower over bath situations.

NZBC CLAUSE F2 — HAZARDOUS BUILDING MATERIALS

Under normal conditions of use, during handling, installation or serviceable life, the products detailed in GIB EzyBrace® Systems do not constitute a health hazard and meet the provisions of the NZBC Clause F2.

NZBC CLAUSE H1 — ENERGY EFFICIENCY

Buildings must be constructed to achieve an adequate degree of energy efficiency and the building envelope must provide adequate thermal resistance. The required thermal resistance (R-value) of timber framed external walls depends on climate zone but is commonly in the range from R 1.9 to R 2.0.

CAD design details

Where applicable drawings related to GIB EzyBrace® Systems have been produced for CAD design. These are identified by a unique number in the bottom corner of each detail box. CAD design details can be found at gib.co.nz/library.

Appraisal

GIB EzyBrace® Systems 2016 have been appraised by the Building Research Association of New Zealand (BRANZ), Appraisal No. 928 (2016) GIB EzyBrace® Systems, 2016.

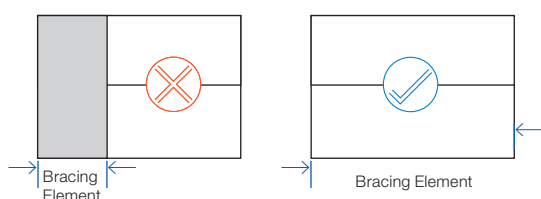
It is of prime importance to comply with the details of design, construction and workmanship in this document.

Bracing resistance

WALL BRACING LAYOUT

When designing the bracing layout, carefully consider the final finished appearance and utilise full wall lengths where possible, avoiding unnecessary fastenings in the centre of a clear wall. Using the available wall length provides additional bracing and achieves improved aesthetics.

FIGURE 3: WALL BRACING LAYOUT



BRACING DISTRIBUTION

Distribute bracing by drawing a grid pattern of bracing lines along and across the building. Bracing lines must coincide as much as possible with the wall bracing elements. Pairs of elements may be counted on a single line provided they are no more than 2 metres apart and parallel. See figure 4.

Locate bracing evenly throughout the building and as close as practical to corners of external walls.

Space bracing lines no more than:

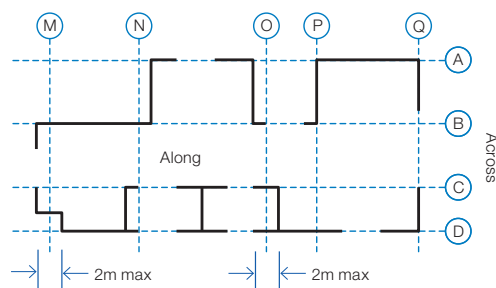
- 6 metres for standard construction with any GIB® plasterboard ceiling, or
- 7.5 metres where dragon ties in accordance with NZS3604:2011 have been installed, or
- 12 metres with a GIB® plasterboard ceiling diaphragm.

The construction of ceiling diaphragms is described in detail on p.18–20.

NZS3604:2011 requires that no bracing line shall have a capacity less than the greater of:

- 100 Bracing Units (BUs), or
- 15 x the external wall length (BUs) for bracing lines coinciding with external walls, or
- 50% of the total demand (D) divided by the number of lines (n) in the direction being considered (BUs).

FIGURE 4: BRACING GRID LAYOUT



The NZS3604 'rules' are merely minimum guidelines and compliance with them does not in itself ensure even distribution. The designer is responsible for checking distribution. Poor distribution can cause torsional effects and localised or more significant damage in an earthquake event.

GIB EZYBRACE® SYSTEMS

The GIB EzyBrace® Specification Numbering System (and sub-components thereof) is protected by copyright and makes specification and identification of GIB EzyBrace® Systems transparent.

- 'GS' stands for GIB® Standard.
- 'BL' for GIB Braceline®.
- 'P' for plywood.
- '1' and '2' for linings one or both sides.
- 'N' stands for 'no specific panel hold-down fixings'.
- 'H' stands for 'specific panel hold-down fixing' required.
- 'NOM' stands for 'nominal plasterboard fixing'. This refers to the standard fixing method used to install plasterboard as shown in the current GIB® Site Guide.

Where specific hold-down fixings are specified, refer to p.15–16. GIB HandiBrac® is fully contained within the framing cavity and does not interfere with lining installation and quality of finish.

Where no specific hold-down fixings are required, the minimum NZS3604:2011 bottom plate fixings apply.

Full bracing element construction details are provided in this technical literature.

Further general design and construction information can also be found in our GIB® Bracing Supplement by visiting gib.co.nz/library.

Specifying GIB EzyBrace® elements (minimum wall length 400mm)

Inside lining external walls.	Nominate available lengths of wall as GS1-N elements. Use BL1-H if higher ratings are required. If the other side of the frame is lined with plywood consider GSP-H or BLP-H elements or use alternative proprietary bracing systems.
Internal walls (only one side available for bracing).	Nominate available lengths of wall as GS1-N elements. Use BL1-H if higher ratings are required.
Internal walls (both sides available for bracing).	Nominate available length of wall as GS2-NOM elements. Change to GS1-N if higher ratings are required. Change to GS2-N if higher ratings are required. Change to BLG-H for even higher ratings. Consider GSP-H or BLP-H if the opposite side is lined with plywood.

Bracing demand

GIB EZYBRACE® CALCULATOR

The GIB EzyBrace® calculator is a software tool to determine the wind and earthquake bracing demand and to design the bracing resistance for light timber-framed buildings constructed in accordance with NZS 3604:2011.

The updated GIB EzyBrace® calculator combines an up-to-date user-friendly interface with the latest knowledge relating to the performance of GIB® plasterboard in light timber-framed structures when subjected to high winds or earthquakes. The calculator can be down-loaded free of charge by visiting gib.co.nz/ezybrace and can be installed on either Microsoft® or Apple® Mac environments.

DEMAND

Wind and Earthquake 'Demand' calculates the forces a structure must be able to resist during its 'design life'. The GIB EzyBrace® calculator's Demand sheet determines the number of Bracing Units required depending on building location, building dimensions and materials used. The Demand sheet closely follows the familiar format of our Excel based GIB EzyBrace® calculator, and includes additional features such as a pop-up help facility explaining required input.

Bracing resistance sheets ('tabs') are added depending on the building specification entered. For example, subfloor bracing resistance tabs only show when a 'subfloor' foundation type has been selected.

The Demand sheet gives the designer the option to select a longer earthquake return period which represents a higher earthquake design force. The default for buildings constructed in accordance with NZS3604:2011 is an earthquake that has a 10% chance of being exceeded within the assumed 50 year 'design life' of a light timber framed residential structure, a 'return period' of 500 years.

Many commercial and public buildings are designed for the more stringent requirement of a 10% probability of exceedance in a 100 or 250 year life expectancy.

A screen shot of the GIB EzyBrace® 2016 Demand Sheet and Help Facility is shown in figure 5.

FIGURE 5: GIB EZYBRACE® 2016 – DEMAND CALCULATION SHEET AND ‘POP UP’ HELP FACILITY

GIB EzyBrace-B PLUS
GIB

File
Home

GIB EzyBrace® Bracing Software

Job Details

Name:	A Job
Street and Number:	100 Job Street
Lot and DP Number:	Lot 321, DP 455
City/Town/District:	Jobtown
Designer:	AR Chitact
Company:	Jobs Limited
Date:	1/08/15

Building Specification

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

Single

Cladding Weight:	Light
Roof Weight:	Light
Rosen in Roof Space:	No
Roof Pitch:	25
Roof Height above Eaves (m):	1.5
Building Height to Apex (m):	4.5
Ground to Lower Floor (m):	0.2
Brst Height (m):	2.4
Building Length (m):	10
Building Width (m):	10
Building Area (m2):	100

Building Location

Wind Zone - Low	Earthquake Zone:	1
Wind Zone at Consent Authority: Not Avail.	Site Type:	D & E (Deep to Very Soft)
Wind Region:	Annual Prob. of Exceedance:	1 in 500 (NZS3904:2011 Default)
Lee Zone:		
Ground Roughness:		
Site Exposure:		
Topography Class:		

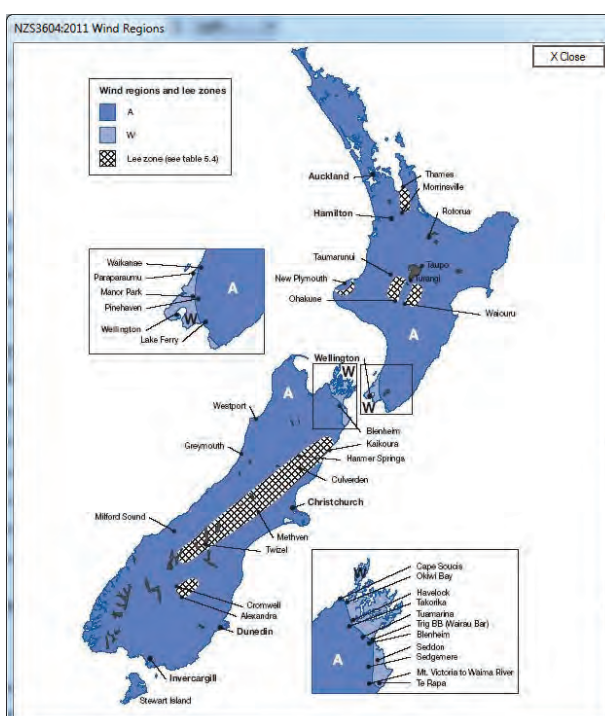
Bracing Units required for Wind

	Along	Across
Single Level	258	222

Bracing Units required for Earthquake

	Along and Across
Single	264

Demand
Single Along
Single Across
Custom



 Download GIB EzyBrace® 2016 design software
from gib.co.nz/ezybrace

Software functionality

Innovations adopted in the GIB EzyBrace® 2016 bracing 'resistance' calculation sheets include the ability to easily add and delete lines and elements during calculations.

The software compares bracing resistance achieved with demand and for wall bracing lines incorporating external walls, the external wall length can now be entered to check minimum

bracing units required on that line. The NZS 3604:2011 rules and associated software output are not the only check. Designers must additionally check the building layout to ensure adequate bracing distribution.

Figures 6 and 7 show screen shots of the Wall and Subfloor Resistance Sheets respectively.

FIGURE 6: GIB EZYBRACE® 2016 — WALL BRACING RESISTANCE CALCULATION SHEET

Line	Ext. Len. (m)	Element	Length (m)	Angle (degrees)	Stud Ht. (m)	Type	Supplier	Wind (BU)	Earthquake (BU)	Resistance
a	11.25	1	0.5		2.44	GS1-H	GIB®	63	59	1499 220%
		2	1.1		2.44	GS1-N	GIB®	72	65	
		3	0.6		2.44	GS1-H	GIB®	67	73	
b	6.41	1	1.2		2.44	GS1-N	GIB®	81	71	193 OK
		2	0.6		2.44	GS1-N	GIB®	34	35	
		3	4		2.44	GS2-NOM	GIB®	197	197	
c		1	3.2		2.44	GS2-NOM	GIB®	157	157	312 OK
d		1	7.9		2.44	GS2-NOM	GIB®	389	389	157 OK
e	17.9	1	0.6		2.44	BL1-H	GIB®	58	60	389 OK
		2	0.6		2.44	BL1-H	GIB®	58	60	
		3	0.8		2.44	GS1-N	GIB®	48	45	
		4	2.1		2.44	GS1-N	GIB®	143	124	
		5	1.2		2.44	EP1-1.2	CHH	142	159	
									449 OK	449 OK

FIGURE 7: GIB EZYBRACE® 2016 — SUBFLOOR BRACING RESISTANCE CALCULATION SHEET

Download GIB EzyBrace® 2016 design software from gib.co.nz/ezybrace

Line	Ext. Len. (m)	Element	Length (m)	Angle (degrees)	Type	Supplier	Wind (BU)	Earthquake (BU)	Resistance
A		1	1		Braced Piles	NZS3604	160	120	1100 258%
		2	1		Anchor Pile	NZS3604	160	120	
		3	1		Braced Piles	NZS3604	160	120	
B		1	1		Braced Piles	NZS3604	160	120	480 OK
		2	1		Can'tilever Pile	NZS3604	70	30	
		3	1		Can'tilever Pile	NZS3604	70	30	
C		1	1		Anchor Pile	NZS3604	160	120	300 OK
		2	1		Anchor Pile	NZS3604	160	120	
									320 OK

Software functionality

Custom elements can be entered by accessing the 'custom' tab as shown in figure 8.

FIGURE 8: GIB EZYBRACE® 2016 — CUSTOM ELEMENTS SHEET

Supplier	System	Min. Length (m)	Wind Bluff	EQ Bluff	Element Height Dependant	Element Foundation Dependant
Custom1	CU1-0.4	0.4	80	95	☒	☒
Custom1	CU1-0.5	0.5	95	105	☒	☒
Custom1	CU1-1.2	1.2	120	135	☒	☒
Custom2	CU2-0.4	0.4	90	98	☒	☒
Custom2	CU2-0.5	0.5	127	136	☒	☒
Custom2	CU2-1.2	1.2	164	135	☒	☒
Engineer	Portal	1	300	300	☒	☒

Note: Values and systems shown in Custom Elements Sheets are for illustrative purposes only.

Help can be accessed by pressing the ? symbol which displays a window with further information.

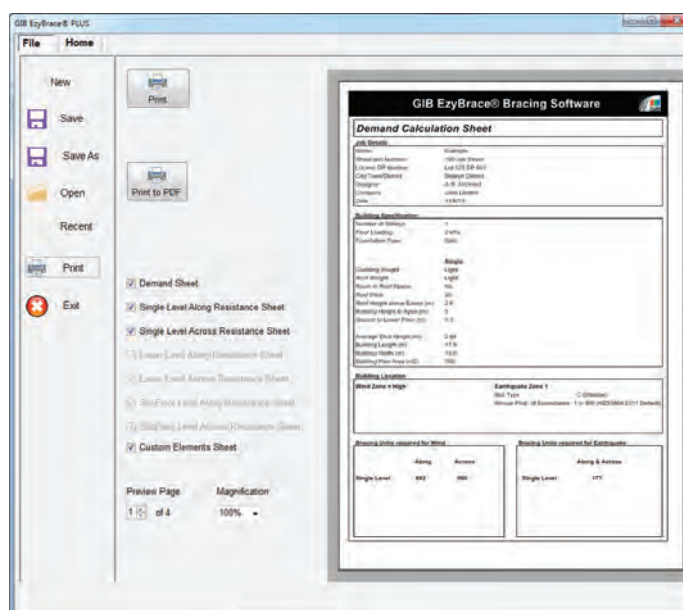
The GIB EzyBrace® 2016 software has a number of options that can be accessed via the File tab at the top left hand corner of the window. The options include: New, Save, Save As, Open, Recent and Print.

- The New option closes any opened job ready for the input of a new job.
- The Save option saves the currently opened job to the same filename and the Save As option saves the job to a new filename.

- The Open option prompts for the name of an existing job.
- The Recent option displays a list of the ten latest jobs and allows for the selection of one of these jobs to be opened.
- The Print option displays the print screen. In this screen, a print preview is displayed. The print preview can be copied to the clipboard by clicking the right-hand mouse button. Also on the print screen is the option to choose which pages are to be printed and the option to print the output to a portable data format, PDF, file.
- The Print Screen View is shown in figure 9.

FIGURE 9: GIB EZYBRACE® 2016 — PRINT SCREEN VIEW

Download GIB EzyBrace® 2016 design software from gib.co.nz/ezybrace



GIB® plasterboard linings

When fixing part sheets of GIB® plasterboard, a minimum sheet width of 300mm applies for bracing elements. Horizontal fixing is recommended. If fixing vertically, full height sheets shall be used where possible. Where sheet end butt joints are unavoidable they must be formed over nogs or over the studs and fastened at 200mm centres. Alternatively, and preferably, sheet end butt joints may be back-blocked.

When a GIB® Bracing element has been designated for a section of wall, BU ratings cannot be increased by incorporating additional proprietary bracing elements within that same section of wall.

LIMITATIONS

- GIB® plasterboard must be stacked flat and protected from the weather.
- GIB® plasterboard must be handled as a finishing material.
- GIB® plasterboard in use must not be exposed to liquid water or be installed in situations where extended exposure to humidities above 90% RH can reasonably be expected.
- GIB EzyBrace® Systems must not be used in showers or behind baths.
- It is highly recommended not to install GIB® plasterboard in any situation where external claddings are not in place or the property is not adequately protected from the elements.
- If GIB® plasterboard is installed under these conditions, the risk of surface defects such as joint peaking or cracking is greatly increased.

GIB EzyBrace® Systems in water-splash areas

When GIB® plasterboard is installed in locations likely to be frequently exposed to liquid water it must have an impervious finish. Examples are adhesive fixed acrylic shower linings or ceramic tiles over an approved waterproof membrane over GIB Aqualine®. The NZBC requires 15 years durability in these situations. Bracing elements are required to have a durability of 50 years. Bracing elements are not to be located in shower cubicles or behind baths because of durability requirements, the likelihood of renovation, and practical issues associated with fixing bracing elements to perimeter framing members. Otherwise GIB EzyBrace® Systems can be used in water-splash areas as defined by NZBC Clause E3, provided these are maintained impervious for the life of the building.

For further design details refer to the current GIB Aqualine® Wet Area Systems literature.

Renovation

When relining walls during the process of renovation, ensure that bracing elements are reinstated (check the building plans).

Openings in bracing elements

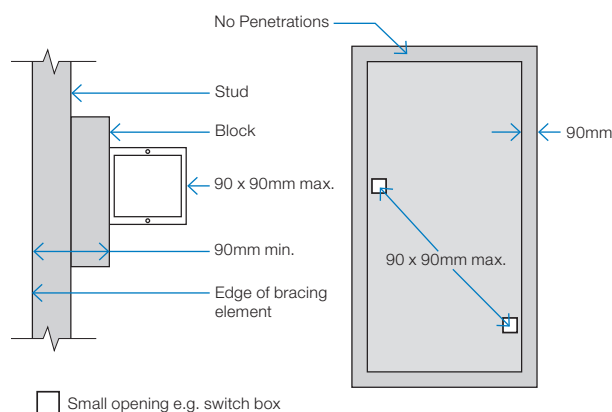
SMALL OPENINGS

Small openings (e.g. power outlets) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the braced element. A block may need to be provided alongside the perimeter stud as shown below.

LARGE OPENINGS

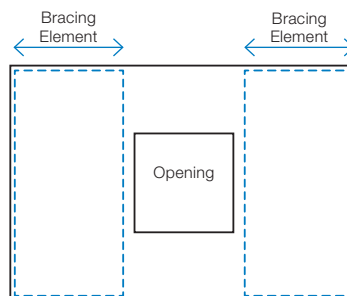
Openings above 90 x 90mm such as switch boards, recessed cabinets and TV's etc. should be placed outside of the bracing element or locate bracing on the other side of the wall framing.

FIGURE 10: SMALL OPENINGS IN BRACING ELEMENTS



GEB001

FIGURE 11: LARGE OPENINGS AND BRACING ELEMENTS



Timber framing

General framing requirements such as grade, spacings and installation shall comply with the provisions of NZS 3604:2011. To achieve the published bracing performance the minimum actual framing dimensions are 90 x 45mm for external walls and 70 x 45mm for internal walls.

As a minimum the use of Kiln Dried Stress Graded timber for all wall, roof and mid-floor framing members is recommended.

GIBFix® Framing System (alternative layout)

Practices recommended as part of the GIBFix® Framing System aim to increase timber framing efficiencies, reduce reliance on unnecessary framing at wall junctions and minimise surface imperfections that commonly arise from constructing plasterboard junctions over multiple timber members. GIBFix® Angles fixed to a single timber framing member are introduced to tie together plasterboard junctions, improving seismic resilience and decrease the risk of future defects due to timber movement. The GIBFix® Framing System can be used in conjunction with the GIB EzyBrace® System.

Note: GIBFix® Angles and 32mm x 7g GIB® Grabber® Dual Thread Screws may also be used in traditional wall framing layouts and in GIB EzyBrace® Systems.

When the GIBFix® Framing System is used a minimum of 2 equally spaced nogs for walls between 2.4m and 3m in height are required at corners and wall junctions.

When used in GIB EzyBrace® systems GIBFix® Angles must run from top to bottom on all applicable studs. If 2 GIBFix® Angles are required on a stud they must be overlapped by a minimum of 300mm with 2/32mm 7g GIB® Grabber® Dual Thread Screws penetrating through both GIBFix® Angles.

For full specification details refer to GIBFix® Framing System literature available at gib.co.nz/gibfix.

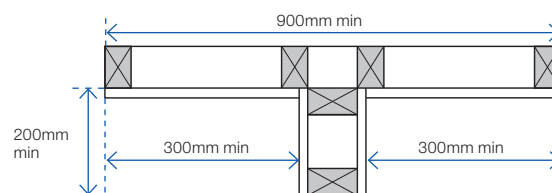
Guidelines for intersection walls

GIB® Bracing Elements may have intersecting walls with a minimum length of 200mm. Fasteners are required around the perimeter of the bracing element. Vertical joints at T-junctions shall be fixed and jointed as specified for intermediate sheet joints. The bracing element length must be no less than 900mm.

Where a Wall Bracing Element is interrupted by a T-junction the element is deemed to be continuous for the whole length (900mm minimum in the example illustrated).

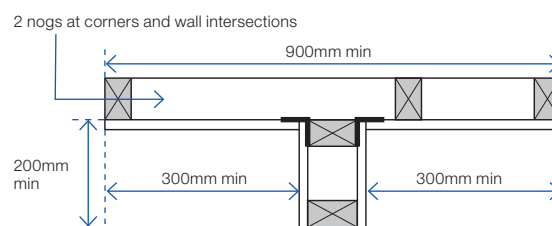
When fixing part sheets of GIB® plasterboard to the side of a T-junction, a minimum width of 300mm applies for bracing elements. See figures 12 and 13.

FIGURE 12: WALL INTERSECTION (TRADITIONAL WALL FRAMING)



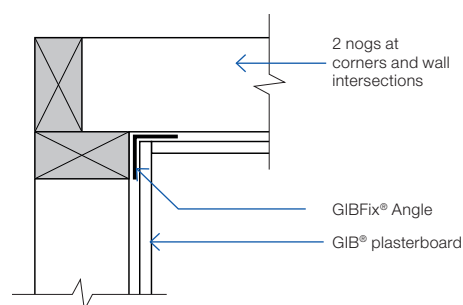
GEB002

FIGURE 13: WALL INTERSECTION (GIBFix® FRAMING SYSTEM)



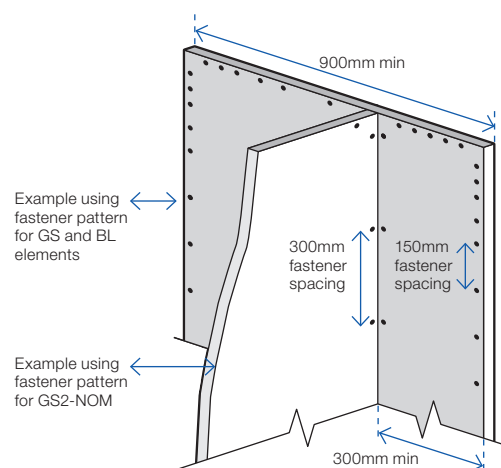
GEB003

FIGURE 14: CORNER INTERSECTION (GIBFix® FRAMING SYSTEM)



GFS001

FIGURE 15: WALL INTERSECTION FASTENER PLACEMENT



Junction

Min 32mm x 6g GIB® Grabber® High Thread or 32mm x 7g GIB® Grabber® Dual Thread Screws @ 300mm ctrs each side.

Top plate connections

For top plate connections refer to NZS3604:2011 section 8.7.3.

Parapets and gable end walls

Bracing elements must be fixed from top plate to bottom plate. Fixing to a row of nogs is not acceptable unless either:

A continuous member such as an ex 90 x 45mm ribbon plate is fixed across the studs just above a row of nogs at the ceiling line, as shown in figure 16.

or

GIBFix® Angle as shown in figure 17. The angle is fixed to a row of nogs with 30 x 2.5mm galv flat head nails or 32mm x 7g GIB® Grabber® Dual Thread Screws at 300mm centres.

Bottom plate fixing

TIMBER FLOOR

For elements with an 'N' specification use 2/100 x 3.75mm hand or 3/90 x 3.15mm power-driven nails at 600mm centres.

In addition, for elements with an 'H' specification, use GIB HandiBrac® panel hold-down fixings at each end of the bracing element, see p.16.

CONCRETE FLOOR – EXTERNAL WALL BRACING ELEMENTS

For bracing elements with an 'N' specification fix external wall plates in accordance with NZS 3604:2011.

Use GIB HandiBrac® panel hold-down fixings at each end of bracing elements with an 'H' specification and minimum intermediate fixings as required by NZS 3604:2011.

CONCRETE FLOOR – INTERNAL WALL BRACING ELEMENTS

For bracing elements with an 'N' specification fix plates in accordance with NZS 3604:2011 or use 75 x 3.8mm shot-fired fasteners with 16mm discs spaced at 150 and 300mm from end-studs and 600mm centres thereafter.

For bracing elements with an 'H' specification use GIB HandiBrac® panel hold-down fixings at each end of the element and minimum intermediate fixings as required by NZS 3604:2011.

FIGURE 16: PARAPETS AND GABLE ENDS WITH RIBBON PLATE

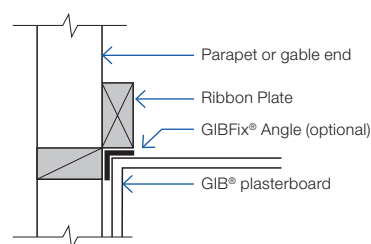
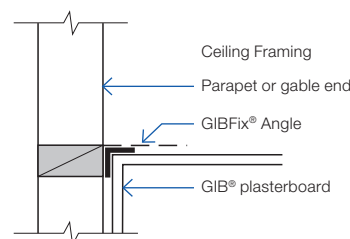


FIGURE 17: PARAPETS AND GABLE ENDS WITH GIBFIX® ANGLE



GFS003

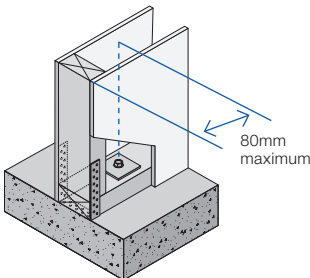
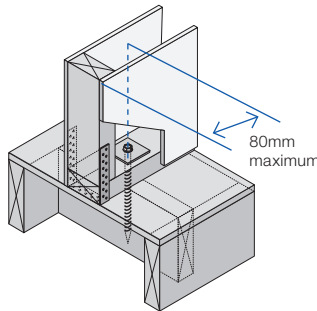
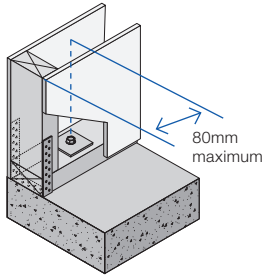
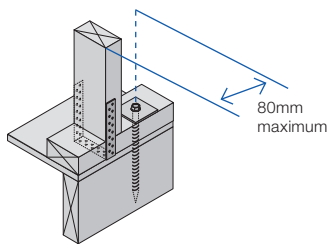
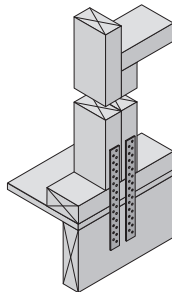
BOTTOM PLATE FIXINGS FOR GIB® BRACING ELEMENTS

Brace type	Concrete slabs		Timber floors
	External wall	Internal wall	External and Internal walls
GS1-N	As per NZS 3604:2011. No specific additional fastening required.	As per NZS 3604:2011. Alternatively use 75 x 3.8mm shot-fired fasteners with 16mm discs, 150mm and 300mm from each end of the bracing element and at 600mm thereafter.	Pairs of 100 x 3.75mm flat head hand driven nails or 3/90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011.
GS2-N	Not applicable.		
GS2-NOM			
GSP-H BL1-H BLP-H	Intermediate fastenings to comply with NZS 3604:2011 In addition: GIB HandiBrac® fixings or metal wrap-around strap fixings and bolt as illustrated on p.15 and 16.		Pairs of 100 x 3.75mm flat head hand driven nails or 3/90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011. In addition: GIB HandiBrac® fixings or metal wrap-around strap fixings and bolt as illustrated on p.15 and 16.
BLG-H	Not applicable	As for GSP-H, BL1-H, BLP-H on concrete slab as illustrated on p.15 and 16.	

Bracing strap installation

Care needs to be taken with the installation of the bracing strap. It should be checked in to be flush with the face of the stud providing a flat substrate for the plasterboard and

positioned in such a way that the corner fastenings of the bracing element are not affected by it. Keeping the strap to the edge of the end stud as shown will allow the corner fastenings to be installed without having to penetrate the bracing strap.

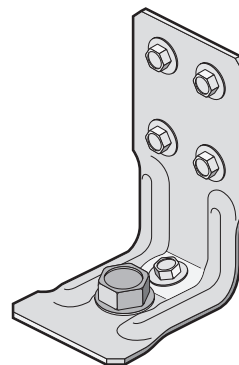
Concrete floor		Timber floor	
400 x 25 x 0.9mm galvanised strap to pass under the plate and up the other side of the stud. Six 30 x 2.5mm flat head galvanised nails to each side of the stud. Three 30 x 2.5mm flat head galvanised nails to each side of the plate. Hold down bolt with 50 x 50 x 3mm washer to be fitted within 80mm of the end of the element.			
Internal wall			
			
GEB004		GEB005	
External wall			
			
GEB006		GEB007	
Note: Where applicable drawings have been produced for CAD design. These are identified by a unique number in the bottom corner of each detail box that can be found at gib.co.nz/library .		2/300 x 25 x 0.9mm galvanised straps with six 30 x 2.5mm flat head galvanised nails to each stud and into the floor joist and three nails to the plate. Block to nog fixed with 3/100 x 3.75mm nails to stud.	
			
		GEB008	
Hold-down fastener requirements			
Concrete floor		Timber floor	
A mechanical fastening with a minimum characteristic uplift capacity of 15kN fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element.		12 x 150mm galvanised coach screw fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element	

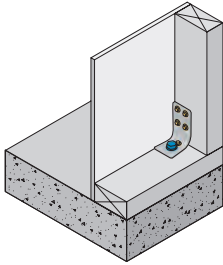
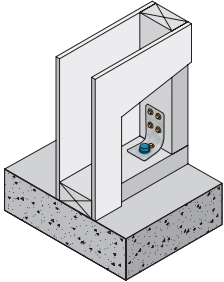
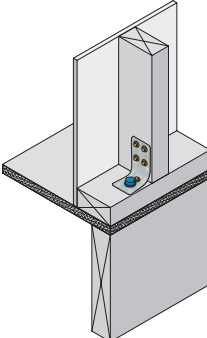
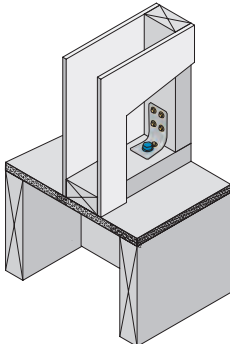
GIB HandiBrac® installation

Developed in conjunction with MiTek™, the GIB HandiBrac® has been designed and tested by Winstone Wallboards for use in GIB EzyBrace® elements that require hold-downs. The GIB HandiBrac® is a substitute for bottom plate hold-down straps.

- Quick and easy to fit.
- May be fitted at any stage before lining.
- Framing face is clear to allow flush lining.
- Easily inspected.

The GIB HandiBrac® with BOWMAC® blue head screw bolt is suitable for timber and concrete floors constructed in accordance with NZS 3604:2011.



Concrete floor		Timber floor	
External walls	Internal walls	External walls	Internal walls
 GEB009 Position GIB HandiBrac® as close as practicable to the internal edge of the bottom plate.	 GEB010 Position GIB HandiBrac® at the stud/plate junction and at mid-width of plate.	 GEB011 Position GIB HandiBrac® flush with the outside stud face, as close as practicable to the centre of the boundary joist.	 GEB012 Position GIB HandiBrac® in the centre of floor joist or full depth solid block.
Hold-down fastener requirements			
A mechanical fastening with a minimum characteristic uplift capacity of 15kN or use supplied BT10/140 screwbolt in GIB HandiBrac® pack.		12 x 150mm galvanised coach screw or use supplied BT10/140 screwbolt in GIB HandiBrac® pack.	

GIB HandiBrac® placement with GIBFix® Framing System for concrete floors

Figure 18 shows the preferred positioning of the GIB HandiBrac® panel hold-down brackets within the GIBFix® Framing System layout and where they are required by bracing systems with an 'H' in the specification code.

Note that, in corners and at wall junctions, a single GIB HandiBrac® can serve 'H' type bracing elements in both directions, but additional intermediate concrete anchors may need to be installed to meet the minimum requirements of NZS 3604:2011 for bottom plate fixing.

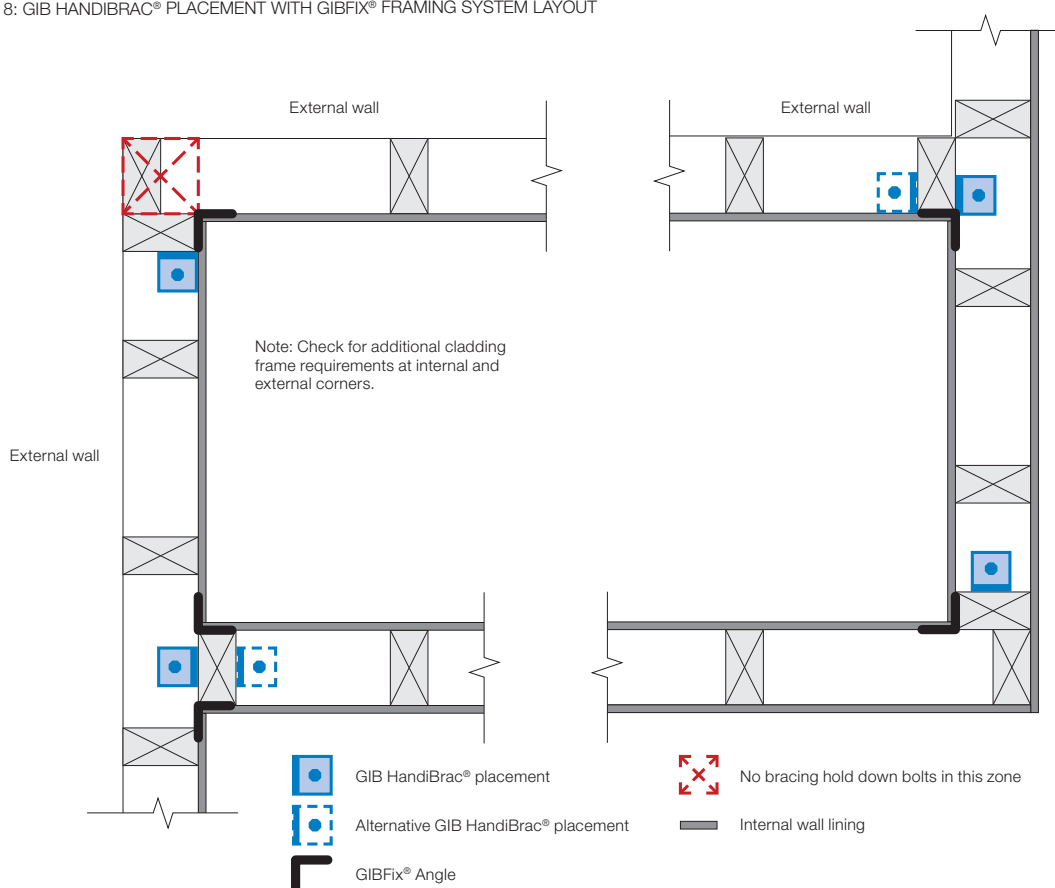
The GIB HandiBrac® is fixed to the stud which has the GIBFix® Angle.

For bracing elements with sheet material both sides of the wall connect corner studs using 8/90mm gun nails as shown in figure 19.

TIMBER FLOORS

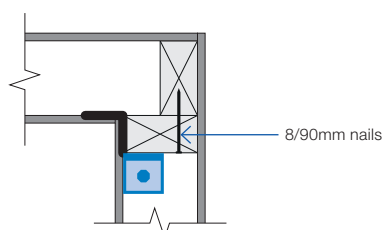
For timber floors bolt fixing in to solid joist or block is required, as shown on p 15.

FIGURE 18: GIB HANDIBRAC® PLACEMENT WITH GIBFIX® FRAMING SYSTEM LAYOUT



GEB013

FIGURE 19: STUD CONNECTION FOR 'H' TYPE BRACING ELEMENTS WITH SHEET MATERIAL BOTH SIDES



GEB014

Ceiling diaphragms

GIB® plasterboard ceiling diaphragms are stiff and strong horizontal elements which effectively transfer loads to bracing walls. They themselves do not have a bracing unit rating but are used when bracing lines exceed 6m separation. The basic shape of a ceiling diaphragm is square or rectangular. Protrusions are permitted but cut-outs are not. The length of a ceiling diaphragm shall not exceed twice its width. Dimensions are measured between supporting bracing lines. Supporting bracing lines shall have a bracing capacity no less than the greater of 100 bracing units or 15 bracing units per metre of diaphragm dimension, measured at right angles to the line being considered, see figure 21.

Limitations for GIB® plasterboard ceiling diaphragms

Ceiling diaphragms may be constructed using any GIB® plasterboard provided perimeter fixing is at:

150mm centres for: Diaphragms up to 7.5m in length, no steeper than 15°.

100mm centres for: Diaphragms up to 7.5m in length, no steeper than 45°. Diaphragms up to 12m in length, no steeper than 25°.

Diaphragms outside these parameters must be specifically designed.

General fixing requirements for GIB® Ceiling Diaphragms:

- Linings must be installed over the entire area of the diaphragm.
- Fastening must be no less than 12mm from sheet edges and not less than 18mm from sheet ends.
- Sheets must be supported by framing members (e.g., ceiling battens) spaced at no more than 500mm centres for 10mm GIB® plasterboard and at no more than 600mm centres for 13mm GIB® plasterboard.
- Sheets within the diaphragm area may be fastened and finished conventionally in accordance with the publication entitled, “GIB® Site Guide”. All joints shall be GIB® Joint Tape reinforced and stopped. It is recommended that sheet butt joints are formed off framing and back-blocked (see “GIB® Site Guide”).
- Use full width sheets where possible. At least 900mm wide sheets with a length not less than 1800mm shall be used. Sheets less than 900mm wide but no less than 600mm may be used provided all joints with adjacent sheets are back-blocked (see “GIB® Site Guide” and figure 22).
- Fasteners are placed at the specified centres around the ceiling diaphragm with the corners fastened using the GIB EzvBrace® fastener pattern.

FIGURE 20: PROTRUSIONS AND CUTOUTS

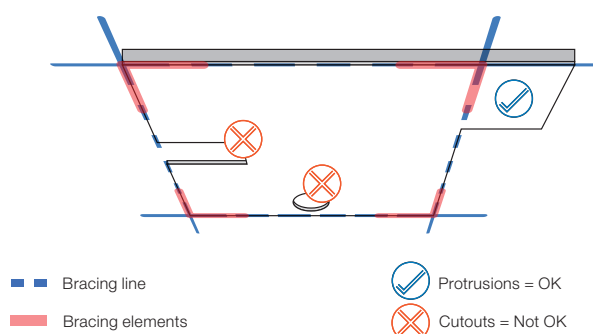


FIGURE 21: DIAPHRAGM BRACING LINING SPACINGS

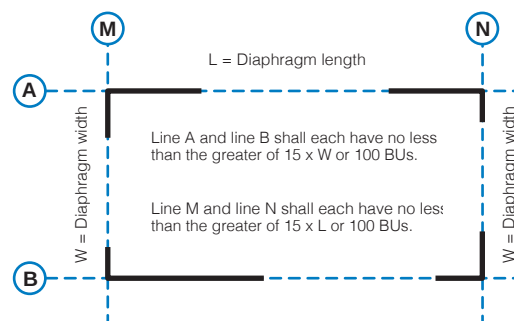
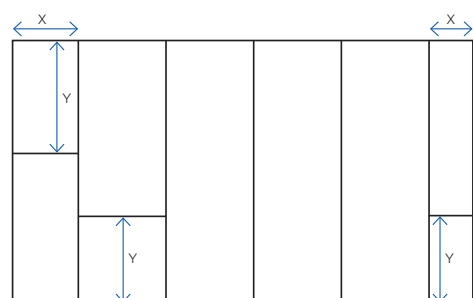
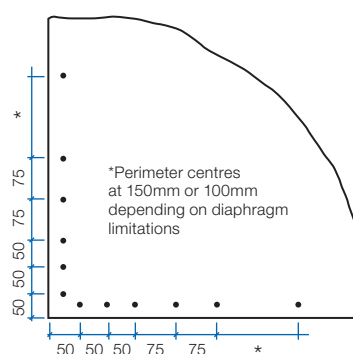


FIGURE 22: GIB® CEILING DIAPHRAGM SHEET WIDTHS AND LENGTHS



X = 900mm min or 600–900mm min provided all adjacent joints are back-blocked. Y = 1800mm min sheet lengths at ends of ceiling diaphragms.

FIGURE 23: GIB EZYBRACE® FASTENER PATTERN



Unless stated all fastener spacings are maximums.

Ceiling battens in ceiling diaphragms

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

Battens shall be spaced at a maximum of:

- 500mm for 10mm GIB® plasterboard.
- 600mm for 13mm GIB® plasterboard.

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

Metal battens shall be GIB® Rondo® battens with two external flanges of 8mm to allow direct screw fixing to roof framing.

GIB® Rondo® metal battens shall be fixed with 2/32mm x 8g GIB® Grabber® Wafer Head Self Tapping screws to supporting framing.

GIB® Rondo® metal battens must be fixed directly to the roof framing. If a clip system has been used, a timber block (min 300mm) or a continuous timber member can be fixed alongside the bottom chord to permit a direct connection to the batten, see figure 26.

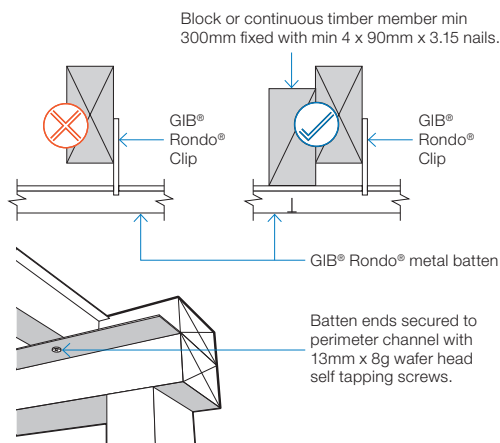
For GIB® Rondo® metal battens, a GIB® Rondo® metal channel or metal angle is required at the perimeter of the diaphragm. The perimeter channel shall be fastened to the top plate with 32mm x 8g GIB® Grabber® Wafer Head Self Tapping screws or 32mm x 7g GIB® Grabber® Dual Thread screw at 300mm centres maximum.

Linings are fastened to metal using 25mm x 6g GIB® Grabber® Self Tapping screws and to timber framing using 32mm x 6g GIB® Grabber® High Thread screws. Alternatively 32mm x 7g GIB® Grabber® Dual Thread screws can be used in both cases. Fastener centres are specified on p.18.

Coved ceiling diaphragms can be achieved by using nominally 32 x 32 x 0.55mm proprietary galvanised metal angles ("back-flashing") at the changes in direction. These angles shall be:

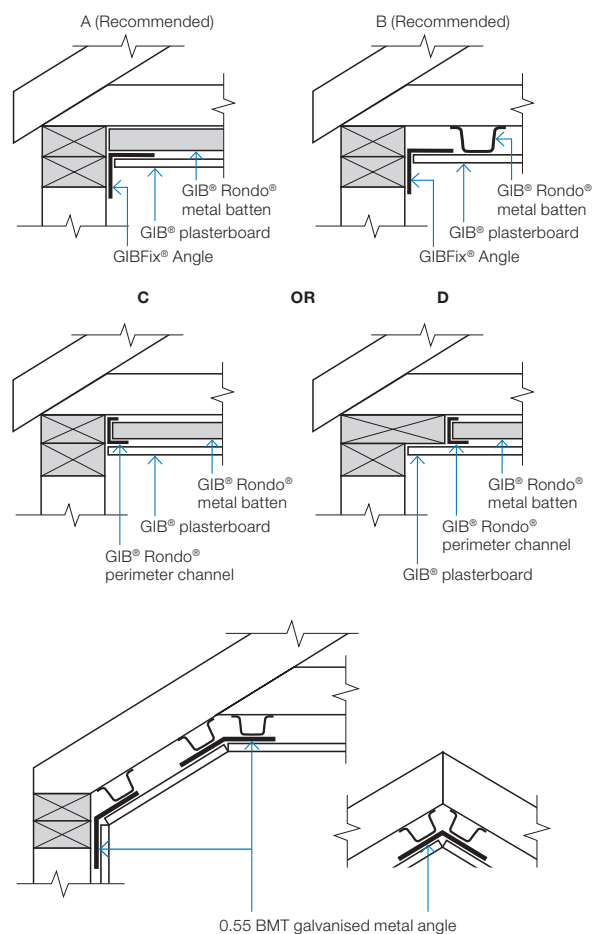
- Fastened at 300mm on each edge to metal battens using 32mm x 8g GIB® Grabber® Wafer Head Self Tapping screws or 32mm x 7g GIB® Grabber® Dual Thread screws.
- Fastened to timber framing using 32mm x 7g GIB® Grabber® Dual Thread screws when linings are installed.

FIGURE 26: GIB® RONDO® METAL CEILING BATTEN INSTALLATION



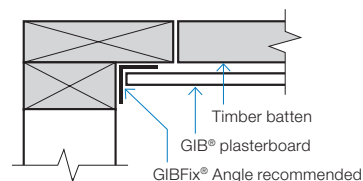
GEB016

FIGURE 27: GIB® RONDO® METAL CEILING BATTENS WITH CORNER ANGLES



GEB017

FIGURE 28: TIMBER CEILING BATTENS*



GEB018

Openings in ceiling diaphragms

SMALL OPENINGS

Small opening (e.g. down lights) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the ceiling diaphragm.

LARGE OPENINGS

Openings are allowed within the middle third of the diaphragms length and width. Fixing of sheet material to opening trimmers shall be at 150mm centres. Neither opening dimension shall exceed a third of the diaphragm width. Larger openings or openings in other locations require specific engineering design.

Where fireplace flue or range hood openings are required in a ceiling diaphragm use a galvanised metal backing plate as shown in figure 25, with a maximum hole diameter of 350mm.

Figure 25 can also be used for range hood openings in walls.

For information on openings in ceiling diaphragms contact the GIB® Helpline on 0800 100 442.

FIGURE 24: LARGE OPENINGS IN CEILING DIAPHRAGMS

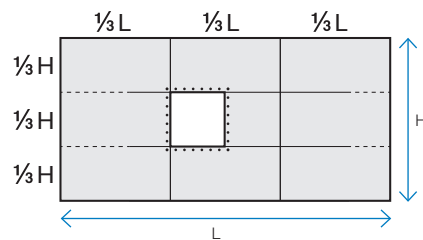
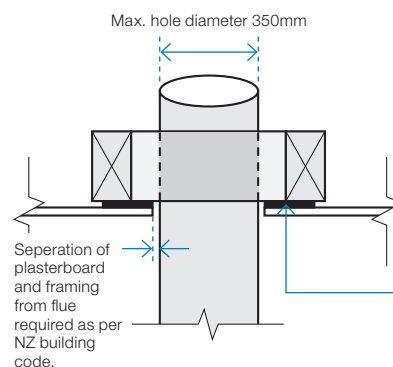


FIGURE 25: FIREPLACE FLUES AND RANGE HOOD OPENINGS

Section view

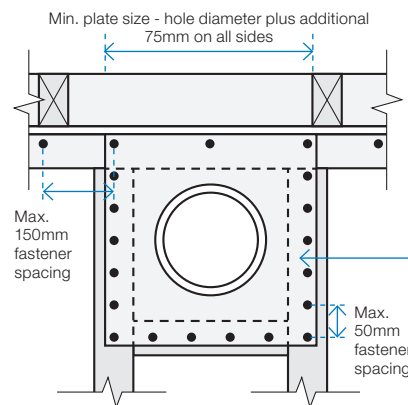


Steel plate
0.55 BMT
Galvanised sheet
Max. opening
350mm diameter.
Installed prior to
GIB® plasterboard.

Framing
90 x 45mm framing
trimmed to provide
extra fixing.

GIB® plasterboard ceiling
Installed over the
steel plate and into
framing using a
minimum of 32mm
x 6g GIB® Grabber
High Thread or
32mm x 7g GIB®
Grabber Dual Thread
screws at 50mm
max centre spacing.

Plan view



Plasterboard ceiling not shown in plan view

Length of GIB EzyBrace® elements ('N' Type)

The length of GIB EzyBrace® elements with an 'N' extension (requiring standard NZS3604:2011 plate connections) can be taken as the full frame length measured from the outside of the end-stud to the opening face as illustrated in figures 29-32.

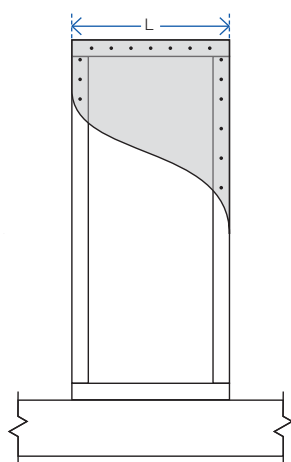
'N' type GIB EzyBrace® elements are identified by GIB® specification numbers GS1-N, GS2-N and GS2-NOM

The dimension 'L' shall not be less than 400mm.

Perimeter bracing fixing for linings of both 'H' and 'N' type elements is along the top and bottom plates, end stud, and doubling stud immediately adjacent to the opening.

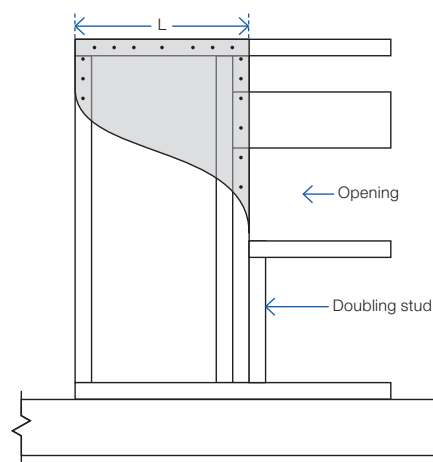
Fastener spacings and diagram scales shown in Figures 29-32 are indicative only. Refer to p.23-30 for construction details.

FIGURE 29: GS BRACING ELEMENTS (OPTION A)



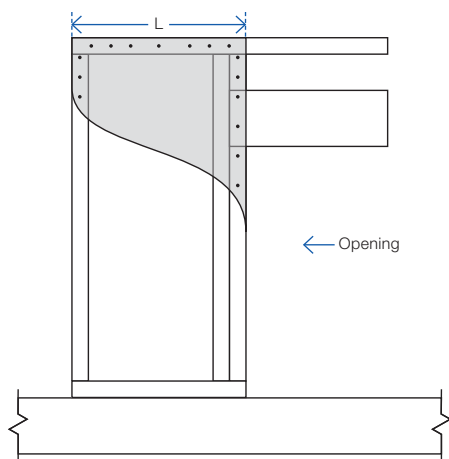
GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 30: GS BRACING ELEMENTS (OPTION B)



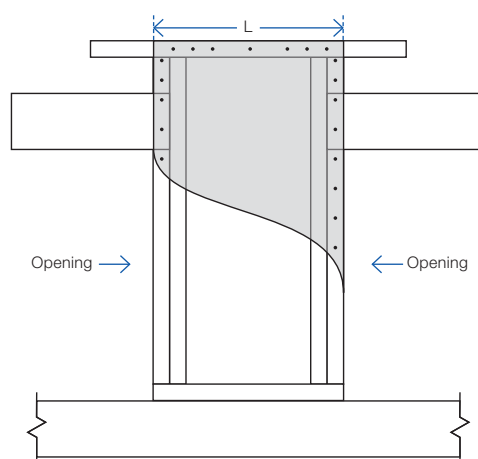
GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 31: GS BRACING ELEMENTS (OPTION C)



GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 32: GS BRACING ELEMENTS (OPTION D)



GS1-N, GS2-N elements
'L' indicates the length of the bracing element

Length of GIB EzyBrace® elements ('H' Type)

GIB EzyBrace® elements with an 'H' extension (requiring special panel hold-down fixings) can be used when the dimension 'L' as illustrated in figures 33–36 is 400mm or more.

'H' type GIB EzyBrace® elements are identified by GIB® specification numbers GSP-H, BL1-H, BLG-H and BLP-H.

The length of an 'H' type element is not only determined by the sheet material, but also by the placement of the hold-down fixings.

Hold-down fixings cannot be placed closer together than what is shown for the standard panel in figure 33.

Hold-down fixings can be placed under windows provided sill trimming studs beneath the opening are connected to the bracing element using 8/90mm gun nails, as illustrated in figure 34.

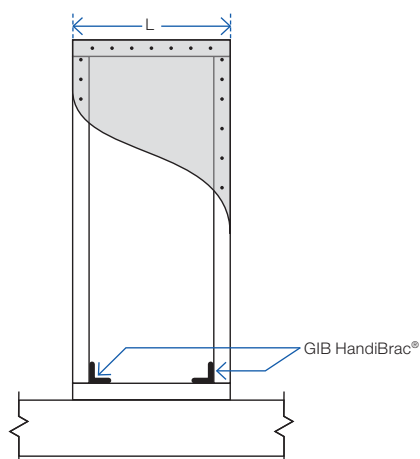
Spike doubling stud to trimming stud using a minimum of 2/90mm gun nails at 600mm centres. Lintel straps (where required for wind uplift) should be checked in and be located away from the bracing element fasteners.

Perimeter bracing fixing for linings of both 'H' and 'N' type elements is along the top and bottom plates, end stud, and doubling stud immediately adjacent to the opening as indicated in figures 34–36.

When using bracing straps, installed in accordance with p.17, fix the strap to the same framing member as shown for the GIB Handibrac® below, and install the adjacent anchor bolt in the same position as the GIB Handibrac® bolt.

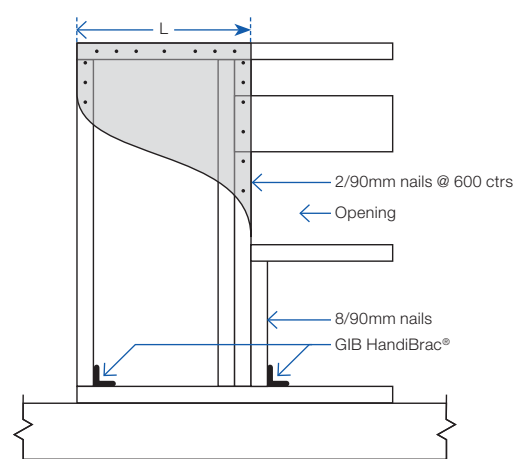
Fastener spacings and diagram scales shown in figures 33–36 are indicative only. Refer to p.23–30 for construction details.

FIGURE 33: BL BRACING ELEMENTS (OPTION A)



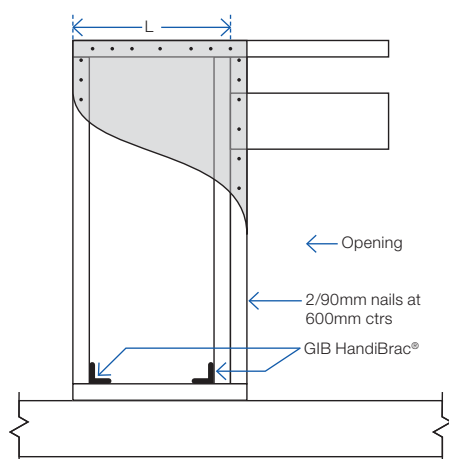
'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 34: BL BRACING ELEMENTS (OPTION B)



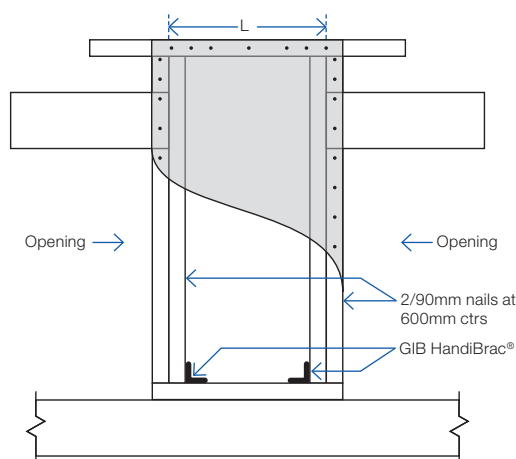
'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 35: BL BRACING ELEMENTS (OPTION C)



'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 36: BL BRACING ELEMENTS (OPTION D)



'H' type elements with specific hold downs
'L' indicates the length of the bracing element

GIB EzyBrace® Systems specification GS1-N

Specification code	Minimum length (m)	Lining requirement
GS1-N	0.4	Any 10mm or 13mm GIB® Standard plasterboard to one side only

WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber floor

Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or three power driven 90 x 3.15mm nails at 600mm centres.

Concrete floor

Internal Wall Bracing Lines: In accordance with the requirements of NZS 3604:2011 for internal wall plate fixing or 75 x 3.8mm shot fired fasteners with 16mm discs spaced at 150mm and 300mm from end studs and 600mm centres thereafter.

External Wall Bracing Lines: In accordance with the requirements of NZS 3604:2011 for external wall bottom plate fixing.

WALL LINING

- Any 10mm or 13mm GIB® plasterboard lining.
- Sheets can be fixed vertically or horizontally.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

FASTENING THE LINING

Fasteners

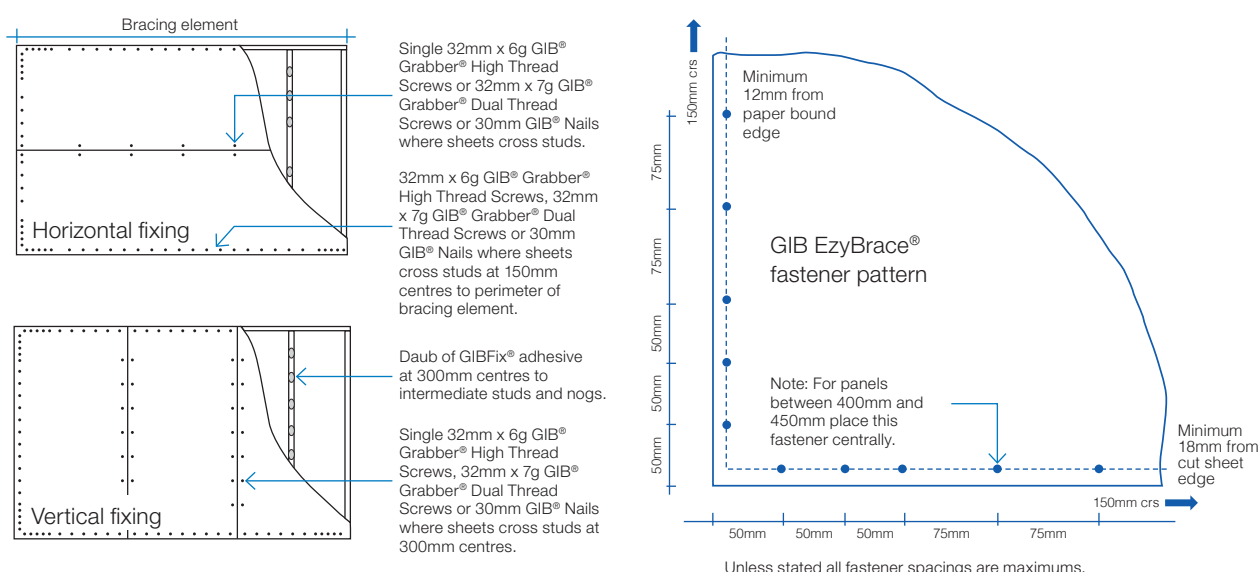
32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

Fastener centres

50,100,150, 225, 300mm maximum from each corner and 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm maximum centres to intermediate sheet joints. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm maximum centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems

GIB EzyBrace® Systems specification GS2-NOM

Specification code	Minimum length (m)	Lining requirement
GS2-NOM	0.4	Any 10mm or 13mm GIB® Standard plasterboard fixed to each side of the wall framing

WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber floor

Pairs of hand driven 100mm x 3.75mm nails at 600mm centres; or three power driven 90mm x 3.15mm nails at 600mm centres.

Concrete floor

Internal Wall Bracing Lines: In accordance with the requirements of NZS 3604:2011 for internal wall plate fixing or 75mm x 3.8mm shot fired fasteners with 16mm discs spaced at 150mm and 300mm from end studs and then 600mm centres thereafter.

WALL LINING

- A layer of 10mm or 13mm GIB® plasterboard to each side of the wall.
- Sheets can be fixed vertically or horizontally.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

FASTENING THE LINING

Fasteners

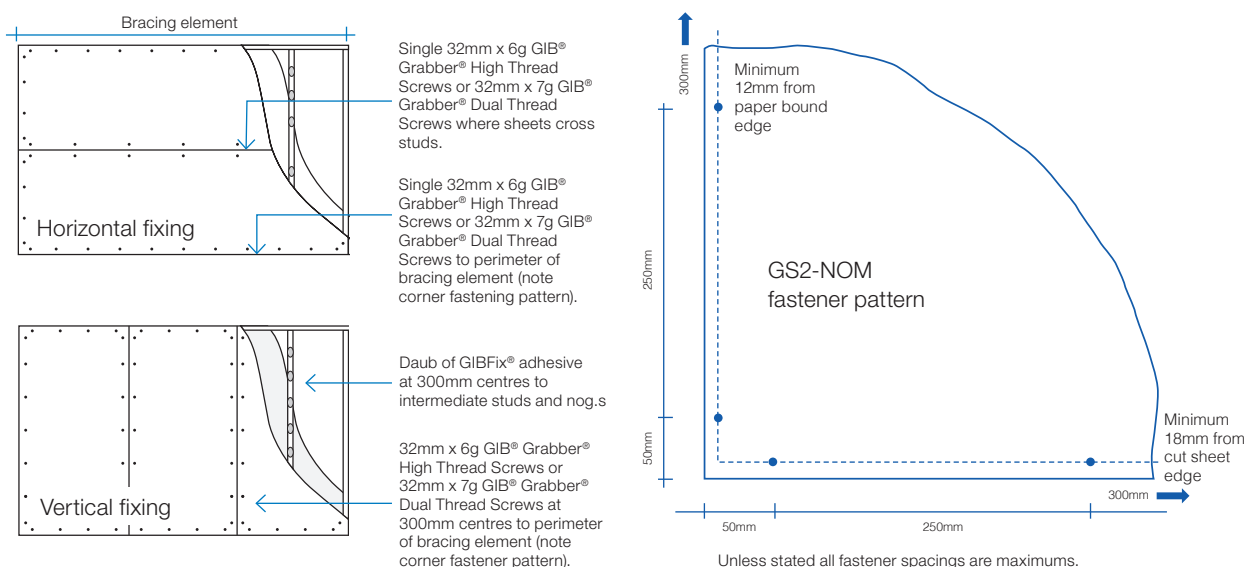
32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. If using the GIBFix® Angle use 32mm x 7g GIB® Grabber® Dual Thread Screws.

Fastener centres

50, 300mm from each corner and 300mm maximum thereafter around the perimeter of the bracing element. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm maximum centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems

GS2-NOM ADHESIVE FIXING OPTION AT DOOR JAMBS

As an alternative to using screw fixings, a continuous 6-10mm bead of solvent based GIBFix® All-Bond can be applied along the full height studs immediately adjacent to an internal door opening and at the door lintel or head trimmer. The lining is then bedded into the adhesive and installed into the rebated jamb, as shown in figure 38.

This solvent based adhesive option may only be used with GS2-NOM specification and is designed to reduce popping of fasteners around door openings on internal walls.

FIGURE 37: SCREW FIX FOR OPENINGS

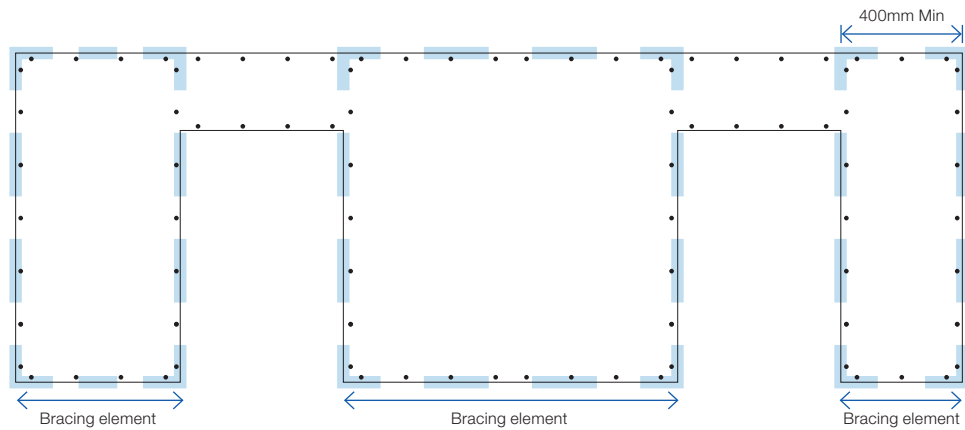
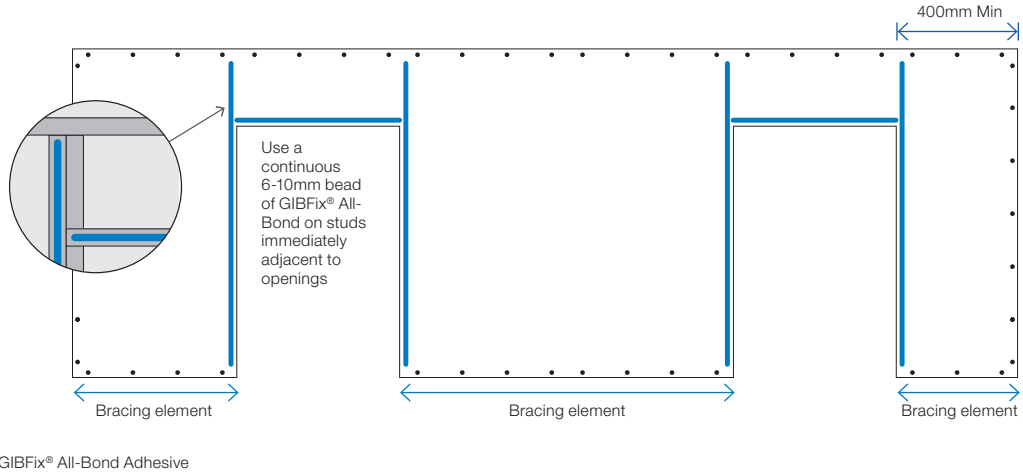
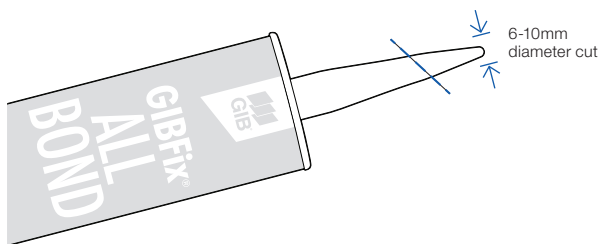


FIGURE 38: SCREW AND ADHESIVE FIX FOR OPENINGS



ADHESIVE NOZZLE APERTURE



GIB EzyBrace® Systems specification GS2-N

Specification code	Minimum length (m)	Lining requirement
GS2-N	0.4	Any 10mm or 13mm GIB® Standard plasterboard fixed to each side of the wall framing

WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber Floor

Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or three power driven 90 x 3.15mm nails at 600mm centres.

Concrete floor

Internal Wall Bracing Lines: In accordance with the requirements of NZS 3604:2011 for internal wall plate fixing or 75 x 3.8mm shot fired fasteners with 16mm discs spaced at 150mm and 300mm from end studs and then 600mm centres thereafter.

WALL LINING

- A layer of 10mm or 13mm GIB® plasterboard to each side of the wall.
- Sheets can be fixed vertically or horizontally.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

FASTENING THE LINING

Fasteners

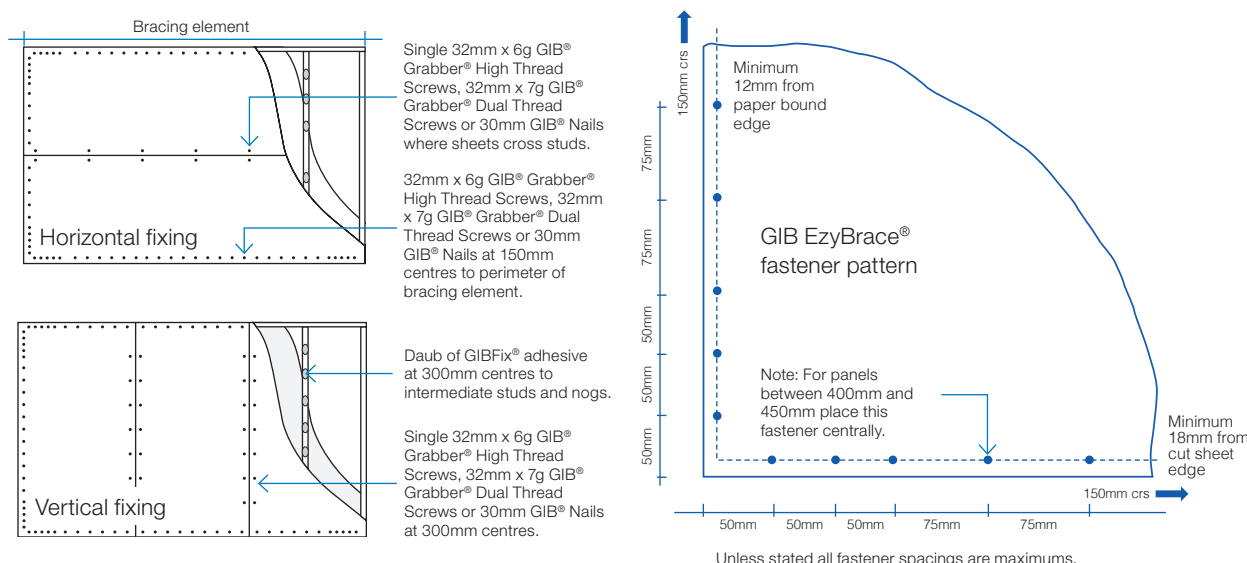
32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

Fastener centres

50,100,150, 225, 300mm maximum from each corner and 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm maximum centres to intermediate sheet joints. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm maximum centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems

GIB EzyBrace® Systems specification GSP-H

Specification Code	Minimum length (m)	Lining requirement	Other requirements
GSP-H	0.4	Any 10mm or 13mm GIB® plasterboard lining to one side of framing and minimum 7mm structural plywood manufactured to AS/NZ 2269.0 :2012 to the other side	Hold downs

WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber floor

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide.

Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or Three power driven 90 x 3.15mm nails at 600mm centres.

Concrete floor

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of NZS 3604:2011.

WALL LINING

- A layer of 10mm or 13mm GIB® plasterboard to one side of the wall plus minimum 7mm structural plywood manufactured to AS/NZ 2269.0 :2012 to the other side.
- Sheets can be fixed vertically or horizontally, with edges supported.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

FASTENING THE LINING

Fasteners

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

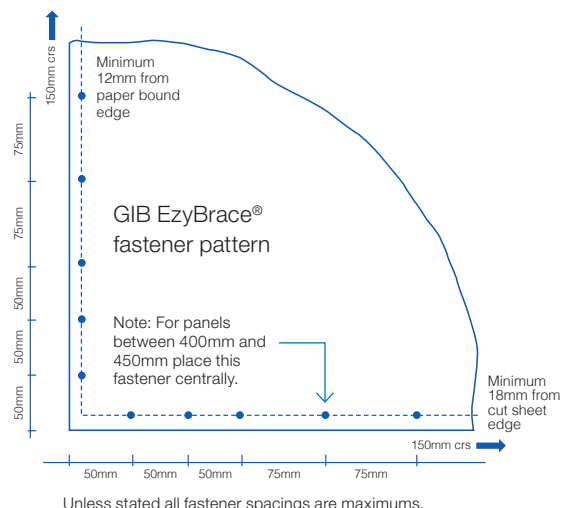
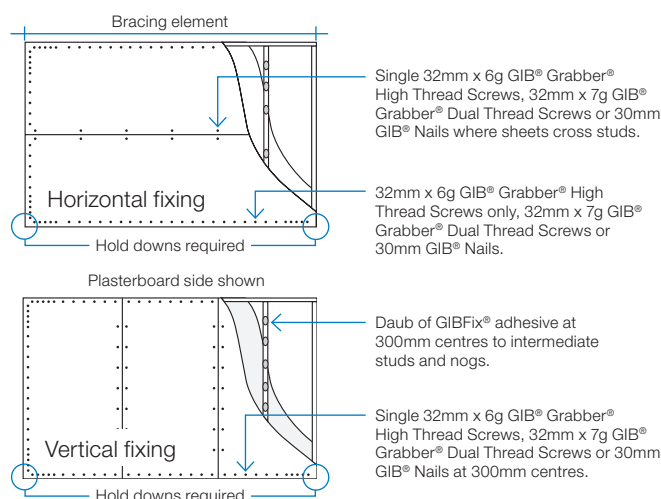
If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws. Plywood: 50 x 2.8mm Galv or Stainless steel annular grooved FH nails.

Fastener centres

GIB® plasterboard side: 50,100,150, 225, 300mm maximum from each corner and 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm maximum centres to the intermediate sheet joints. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm maximum centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge. Plywood side: 150mm centres to the perimeter of each sheet. GIB® corner fastener pattern does not apply to the plywood side. 300mm centres to intermediate studs.

JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems

GIB EzyBrace® Systems specification BL1-H

Specification code	Minimum length (m)	Lining requirement	Other requirements
BL1-H	0.4	10mm or 13mm GIB Braceline® to one side only	Hold downs

WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber floor

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide.

Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or
Three power driven 90 x 3.15mm nails at 600mm centres.

Concrete floor

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of NZS 3604:2011.

WALL LINING

- A layer of 10mm or 13mm GIB Braceline®
- Sheets can be fixed vertically or horizontally.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

FASTENING THE LINING

Fasteners

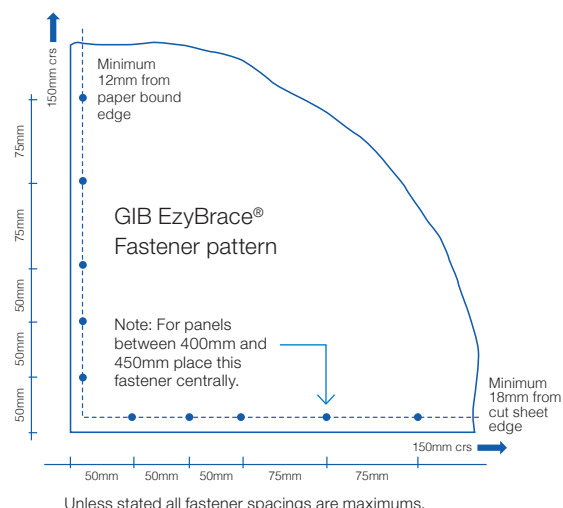
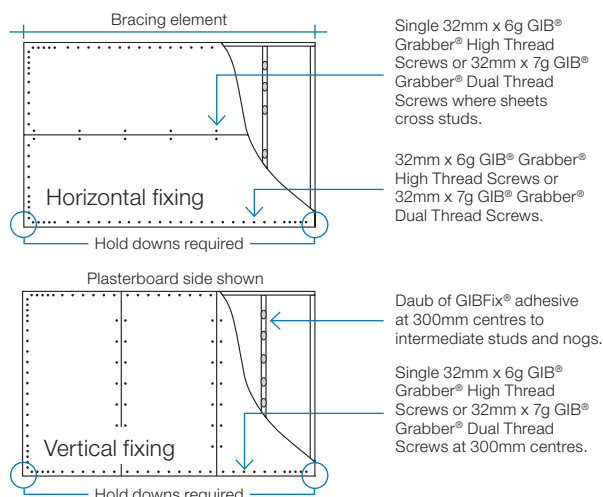
32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

Fastener centres

50,100,150, 225, 300mm from maximum each corner and 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm maximum centres to the sheet joint. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm maximum centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems

GIB EzyBrace® Systems specification BLG-H

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

WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber floor

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide. Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or Three power driven 90 x 3.15mm nails at 600mm centres.

Concrete floor

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems 2011 or GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of NZS 3604:2011.

WALL LINING

- A layer of 10mm or 13mm GIB Braceline® to one side of the wall plus any 10mm or 13mm GIB® plasterboard lining to the other side.
- Sheets can be fixed vertically or horizontally.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

FASTENING THE LINING

Fasteners

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

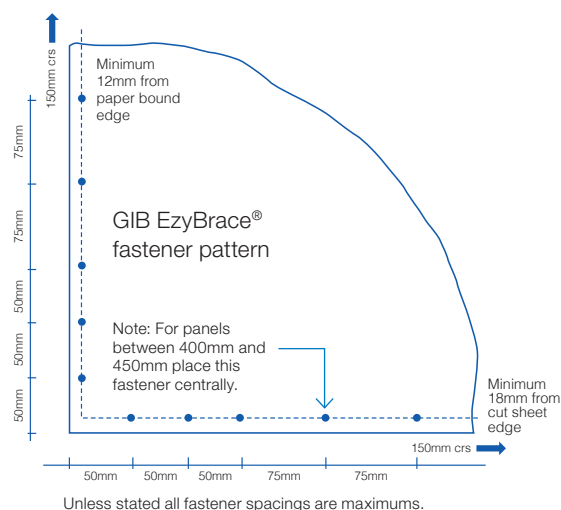
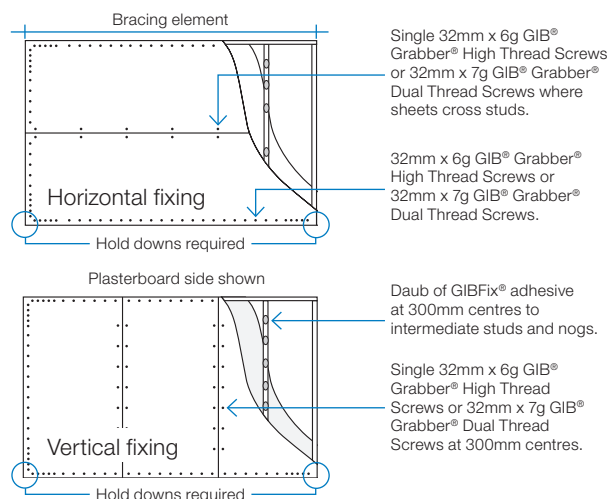
If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

Fastener centres

50,100,150, 225, 300mm maximum from each corner and then 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm maximum centres to the intermediate sheet joints. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm maximum centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems

GIB EzyBrace® Systems specification BLP-H

Specification code	Minimum length (m)	Lining requirement	Other requirements
BLP-H	0.4	10mm or 13mm GIB Braceline® to one side of the frame plus minimum 7mm structural plywood manufactured to AS/NZ 2269.0 :2012 to the other side	Hold downs

WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure; B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber floor

Use panel hold downs at each end of the bracing element. The GIB® HandiBrac is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide.

Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or Three power driven 90 x 3.15mm nails at 600mm centres.

Concrete floor

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of AS/NZ 2269/0 :2012.

WALL LINING

- A layer of 10mm or 13mm GIB Braceline® to one side of the wall plus minimum 7mm structural plywood manufactured to AS/NZS 2269.0 :2012 to the other side.
- Sheets can be fixed vertically or horizontally.
- Plywood is to be fixed vertically with edges supported.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

FASTENING THE LINING

Fasteners

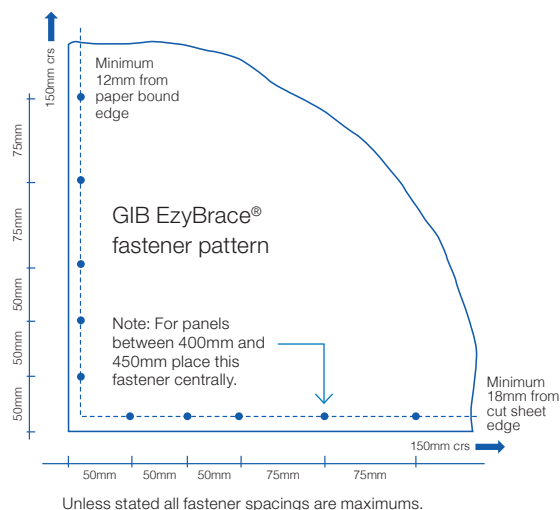
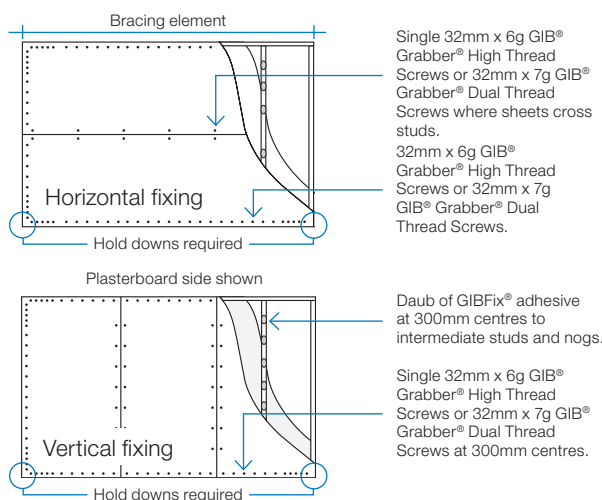
GIB Braceline® side: 32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. Plywood: 50 x 2.8mm Galv or Stainless steel annular grooved FH nails. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

Fastener centres

GIB® Plasterboard side: 50,100,150, 225, 300mm from each corner and then 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm centres to the intermediate sheet joints. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge. Plywood side: 150mm centres to the perimeter of each sheet. GIB® corner fastener pattern does not apply to the plywood side. 300mm centres to intermediate studs.

JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems



Winstone Wallboards is committed to protecting the environment. Environmental matters are integrated into all business activities:

- Our operations strive to exceed all environmental regulatory requirements at all times.
- Protection of the environment is a day to day responsibility that we all must accept.
- We allocate appropriate management time and resources to address relevant environmental issues and continuously improve our activities in that area.
- We will achieve our standards of performance through positive action, employee involvement and constant communication with our neighbours, local authorities and customers.

Minimise on-site waste when designing and/or installing GIB® Systems. For larger projects give consideration to our cut-to-length service to reduce waste. GIB® plasterboard off-cuts, if separated from other waste building materials, can be readily recycled.

For larger projects waste can be diverted to compost manufacturers who grind up the GIB® plasterboard and use it in compost. For smaller projects, the GIB® plasterboard can be ground up and spread around the building site.

GLOBAL GREENTAG^{CERT}™

The Global GreenTag^{Cert}™ certified eco-label acknowledges product as meeting the GreenRate Standard set by Global GreenTag^{Cert}™

GIB® plasterboard has a Level B green rating.

DECLARE CERTIFICATION

Declare is a database of non-toxic, sustainably sourced building products.

Many GIB® plasterboard products including GIB® Standard, GIB Braceline®, GIB Noiseline® and GIB Aqualine® have achieved Red List Free status in Declare certification.

For more information on Winstone Wallboards sustainability commitments visit gib.co.nz.

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Winstone Wallboards asserts its moral rights and reserves all other intellectual property rights in the materials contained in this brochure and related to GIBFix® Framing System and GIB EzyBrace® Systems.

TRADEMARKS

The names GIB®, GIB Fyrelime®, GIB Ultraline®, GIB Braceline®, GIB Toughline®, GIB Noiseline®, GIB Aqualine®, GIB Nail®, GIB Tradeset®, GIB Plus 4®, GIB-Cove®, GIB Lite Blue®, GIBFix®, the colour mauve for GIB Toughline®, GIB HandiBrac®, GIB EzyBrace®, the colour blue for GIB Braceline®, the colour pink for GIB Fyrelime®, the colour green for GIB Aqualine®, and the shield device are registered trademarks of Fletcher Building Holdings Limited.

PATENTS

GIBFix® Framing System and GIB EzyBrace® Systems, including componentry and design method, have patents pending (NZ Patent Number 596691, NZ Patent 709159 pending) and design and other IP rights.



FOR MORE INFORMATION VISIT

gib.co.nz

OR CALL THE GIB® HELPLINE

0800 100 442

DESIGN CERTIFICATE

Technical basis for structural design methodology contained in designIT for houses - New Zealand.

designIT for houses, New Zealand has been developed by experienced timber engineers to assist designers in selecting appropriate sizes of structural laminated veneer lumber products manufactured by Carter Holt Harvey (including hySPAN, hy90, hyONE and hyJOIST) and other generic stress grades of timber, to be used as structural elements for the construction of buildings that fall within the scope of NZS 3604.

The design methodology used for the software complies with the loading and general design requirements contained within AS/NZS 1170 and with timber structural design in accordance with NZS 3603:1993 including Amendment 4 (Verification method B1/VM1, 6.1).

designIT relies on the accurate input of span and loading information by the user. Where accurate inputs are submitted the product and/or stress grade and the size given will comply with the structural requirements of the New Zealand Building Code (NZBC), provided the installation is in accordance with the installation requirements provided by designIT and/or in product literature and/or NZS 3604, or specific engineering design, as appropriate.

Futurebuild LVL and Laserframe components, when used and treated to the required treatment levels prescribed in NZS 3602 and NZS 3604, as modified by Acceptable Solution B2/AS1, will comply with the requirements of the NZBC (Acceptable Solution B2/AS1, 3.2).

References:

NZS 3603:1993 Timber Structures Standard.

NZS 3604:2011 Timber-framed buildings.

AS 1720.1:2010 Timber structures. Part 1: Design methods.

AS 1720.3:2016 Timber structures. Part 3: Design criteria for timber-framed residential buildings

AS/NZS 1170:2002 Structural design actions, Parts 0 and 1.

AS/NZS 1170:2011 Structural design actions, Part 2: Wind actions.

AS/NZS 1170:2003 Structural design actions, Part 3: Snow and ice actions.

This Design Certificate, and any associated warranty/certification, is void where there has been substitution of alternate products not detailed within the Member Specification.

Version date: 3 May 2017

For further information or advice contact:

Carter Holt Harvey LVL Ltd,
173 Captain Springs Road, Onehunga. Auckland
Telephone: 0800 808 131
Facsimilie: 0800 808 132
Email: designit@chhwoodproducts.co.nz
Web: <http://www.chhwoodproducts.co.nz>

Specifier details:

Specifier:	Gary Gardner
Business name:	GCG Design Ltd
Address:	79b Beach Road Otumotai Tauranga 3110
Email:	gcgdesign@xtra.co.nz

Project & site details:

Project:	MacDonald Alterations
Reference:	GCG 2118
Site address:	36 Omokoroa Road Omokoroa
For (owner/s):	M & K MacDonald
Design wind zone	High
Snow loading	Design snow zone: N0

MEMBER DESIGN DETAILS

Member 1

1) Member code and description	SB1- Master Bedroom Ceiling Beam - Strutting beams - Supporting underpurlins and ceiling joists
2) Date prepared	15 August 2018
3) Serviceability criteria	AS 1720.1: 2010 and AS 1720.3: 2016
4) Design inputs	
Span	3.6 m
Ceiling load width 'CLW'	3.0 m
Roof area supported	5.4 m ²
Roof type and mass	Light roof and ceiling - 40 kg/m ²

5) Member specification

Size, stress grade/product
Material type

Use 2/240 x 45 hySPAN
Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \Psi_L Q^*$	12.0 mm	4.5 mm (long term)	2.7
Live load - $\Psi_S Q$	12.0 mm	1.0 mm	12.5

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

		Limit States Design Reaction ^{2,3}
Load case	k_1 ¹	End kN ⁴
1.35G	0.60	-3.1
1.2G + 1.5Q	0.80	-5.2
1.2G + W_u + $\Psi_c Q$	1.00	-5.4
0.9G + W_u	1.00	2.1

8) Installation requirements

- Provide at least 30 mm bearing at end supports
- Chamfer allowed - see Detail H7
- Vertical lamination in accordance with Detail H1.

Notes for interpretation of serviceability data

1. 'average deflection' is an engineering concept based upon a notional estimated load, notional member rigidity and, in some cases, an approximate model of material response to environmental conditions. These parameters are, 'standardised' in AS 1170 and AS 1720. Deflections calculated using this methodology cannot therefore be usefully compared with deflections calculated using other methods, eg GLTAA design methodology.
2. Deflection is the flexural response to load 'out-of-level' measurements of installations are not necessarily deflections and can incorporate 'initial out-of-straightness', whether intended or not. Furthermore, loads can be higher/lower than the notional estimate and in any comparison with measured levels, material variability needs to also be considered. AS 1720 gives the following basis for estimation of upper bound deflections for various materials.

No 1 Framing – visually graded to NZS 3631	Average + 100%
SG grades - mechanically graded to AS/NZS 1748	Average + 43%
GL grades for glulam to AS 1328	Average + 33%
LVL to AS/NZS 4357 (includes hySPAN and hyJOIST)	Average +18%

As can be seen, comparison of the 'average deflection' for different materials, even if calculated on the same basis, does not give the whole picture!

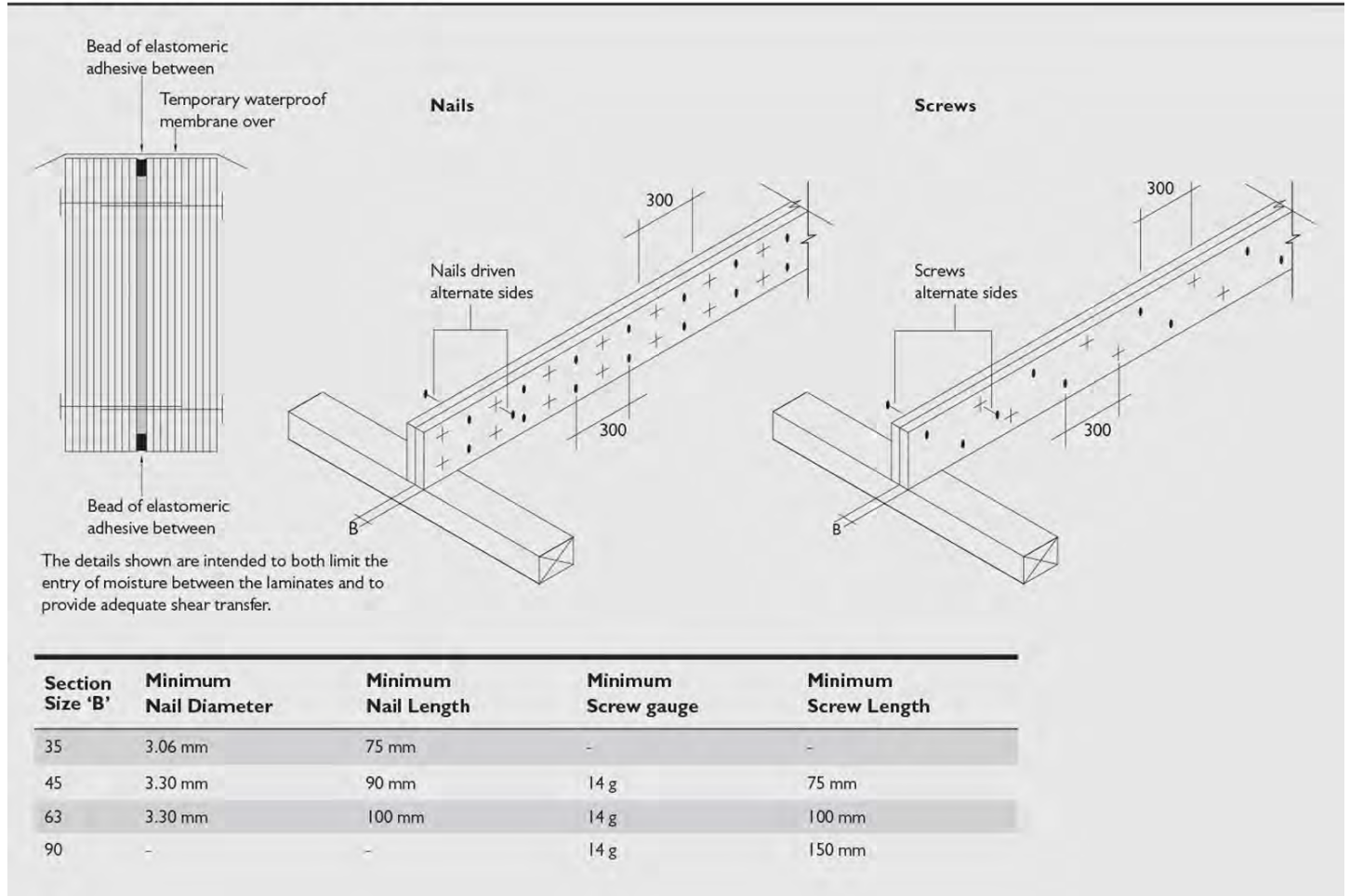
3. The limits referred are those specified in AS 1720.3 for the stated load case.

4. 'Rigidity ratio' expresses the rigidity of the specified beam relative to the rigidity of a notional beam just meeting the serviceability requirements of AS 1720.3

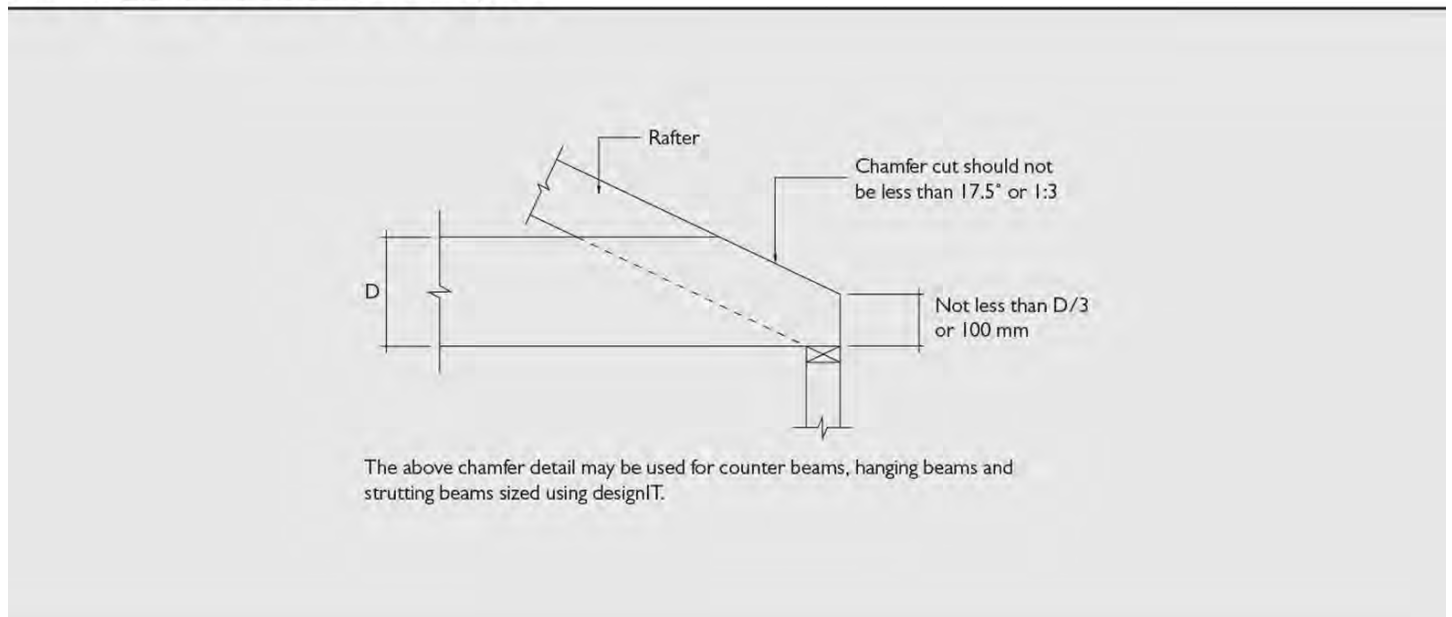
Notes for interpretation of reaction data

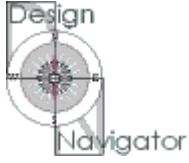
1. Duration of load factor ' k_1 ' for strength as per NZ 3603:1993
2. Negative (-) reactions relate to the 'gravity' or 'downwards' force on the support
3. Positive reactions relate to the 'upwards' forces or 'tie-down' requirement on the support
4. End reaction includes allowance for overhang/cantilever where one has been designed

Detail H1: Vertical Lamination - Two Pieces



Detail H7: Chamfer of Futurebuild® LVL at Supports





Design Navigator H1 Compliance Report

Project Summary

H1 Report created by:	GCG Design Ltd
Project Name:	MacDonald
Client:	M & C MacDonald
Lot No:	36 Omokoroa Road
Comment:	
Project Id:	117431
Report Date:	29/10/2018

Compliance Result

This report shows compliance of the design with Clause H1 Fourth edition Amendment 3 from January 2017 and the R-value targets of Clause E3 Second edition Amendment 6 from January 2017.

This building complies with H1 via the following methods:

- the Calculation Method in NZS4218:2009

H1 Compliance Details

NZS4218:2009 Calculation Method Compliance

The use of the Calculation Method is permitted .

In order to comply the Actual Heat Loss must be the same or smaller than the Reference Heat Loss AND all component R-values must be the same or larger than 50% of the R-values in the '50% Rule' table below. This design **complies** with the NZS4218:2009 Calculation Method.

HeatLoss:

Reference building	Proposed building
139	104

Minimum R-values ("50% rule"):

	Permitted Minimum	Proposed Minimum	
Floor:	0.65	1.03	✓
Non-solid Walls:	0.95	1.96	✓
Roof:	1.45	3.65	✓

The Reference building has the following areas and R-values.

		Non-solid	Solid Timber	Other Solid
		100.0	0.0%	0.0%
Floor:	Area: 34 m ² R-values:	1.3	1.3	1.5
Walls excl. glazing:	Area: 46.3 m ² R-values:	1.9	1.2	1
Glazing (up to 30%):	Area: 19.9 m ² R-values:	0.26	0.26	0.26
Glazing (surplus of 30%):	Area: 0 m ² R-values:	0.4	0.34	0.31
Roof:	Area: 34.3 m ² R-values:	2.9	3.5	3.5
Heat Loss:		139	151	155

For mixed constructions the heat loss of the reference building is calculated as the sum of the heat losses for each type of wall construction multiplied by the fraction of the wall area of each type. This approach is based on clause 4.2.6 of NZS4218:2009. There are no skylights in the reference building. The reference building roof area is the sum of the proposed building roof and skylight areas.

Compliance with Clause E3

This building complies with the R-value targets in NZBC Clause E3 .

Component	Minimum R-value	Project R-value
Framed wall constructions with cavities	1.5	
Single skin masonry wall without a cavity	0.6	
Solid timber wall no less than 60 mm thick	0.6	
Roof or ceilings	1.5	

Design Details

Building Dimensions

Floor Area	34	m ²
Gross Wall Area	66.2	m ²
Net Wall Area	60.4	m ²
Wall (North) Area	20.5	m ²
Wall (East, South and West) Area	39.9	m ²
Gross Roof Area	34.3	m ²
Net Roof Area	34.3	m ²
Glazing Area	5.8	m ²
Window (North) Area	1	m ²
Window (East, South and West) Area	4.8	m ²
Skylight Area	0	m ²

Glazing Areas

Total Vertical Glazing Percentage	8.8	%
East, South and West Window Percentage	10.7	%
Total over 30%	no	
East, South and West over 30%	no	
Total over 50%	no	
max. Skylight Area for Schedule Method	1.5	m ²
Skylights over Schedule Method Limit	no	
Decorative Glazing	5.4	m ²
Decorative Glazing over 3m ²	yes	

Information required for BPI calculation

Living Floor Area	34	m ² Note: This includes also internal floors.
Average Room Height	2.4	m
Thermal Mass Level	Medium weight	<u>Slab floor with some carpeting or direct glued timber, timber framed walls.</u>

Climate

Location	Tauranga
Climate Zone	2

Heat Loss Details

	ID	Orient.	Width	Height	Gross Area	Net Area	R-value*	Heat Loss	Shad. Coeff.**	Solid Wall***
<u>Floors</u>										
Floor 1	Rumpus and En				34.0	34.0	1.03	33.0		
<u>Walls</u>										
Wall 1	Ensuite	N	2.6	1.2	3.1	2.8	3.30	0.8		C
Window 1-1	W22		0.6	0.6		0.4	0.26	1.4	0.00	
Wall 2	Ensuite	W	2.4	1.2	2.9	2.9	3.30	0.9		C
Wall 3	Ensuite	S	2.6	1.2	3.1	3.1	3.30	0.9		C
Wall 4	Ensuite Blk	N	2.6	1.5	3.9	3.9	1.96	2.0		C
Wall 5	Ensuite Blk	W	2.4	1.5	3.6	3.6	1.96	1.8		C
Wall 6	Ensuite Blk	S	2.6	1.5	3.9	3.9	1.96	2.0		C
Wall 7	Garage/Rumpu	S	5.8	2.5	14.4	14.4	1.96	7.3		C
Wall 8	Rumpus	E	4.7	2.5	11.8	7.0	1.96	3.6		C
Window 8-1	D03		2.4	2.0		4.8	0.17	28.2	0.00	
Wall 9	Rumpus	N	5.8	2.5	14.4	13.8	1.96	7.0		C
Window 9-1	W23		1.0	0.6		0.6	0.17	3.5	0.00	
Wall 10	Rumpus	W	2.0	2.5	5.0	5.0	1.96	2.6		C
<u>Roofs</u>										
Roof 1	Ensuite				6.3	6.3	3.92	1.6		
Roof 2	Rumpus				28.0	28.0	3.65	7.7		
<u>Total Heat Loss</u>								104.4		

* Any concrete slab-on-ground floor regardless of its dimensions can be assumed to have an R-value of at least R-1.3 (H1/AS1 2.1.5).

** The Shading Coefficient is only required for BPI calculations.

*** C: Cavity Construction (any construction that is not solid), T: Solid Timber, S: Other Solid Construction (Note that the use of solid timber and other solid construction types is discretionary, i.e. solid timber walls and other solid walls can be treated as if they are non-solid (NZS4218:2009 section 4.1.3.).)

Floor Construction Details

Name:	Grr Floor Concrete Floor	1.03 m ² °C/W
Type: 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 ²]:	34	
Perimeter length [m]:	26	
External wall thickness [mm]:	190	
Soil conductivity [W/m °C]	1.2	
Underslab insulation:	none ▼	Insulation :
Piles Footings: Number:		Penetration Diameter [mm]:
Slab edge insulation:	none ▼	Insulation :

Wall Construction Details

Name:	Timber Framed walls to Grd Floor	3.30 m ² °C/W
Type: Wall: Timber Frame with vented Cavity		
external surface 0.03		
Cladding : Fibre cement board 1470 7.5mm ▼		
R-value: 0.03		
Air Barrier : Building paper ▼		
R-value: 0.01		
Timber Frame & Cavity : 190mm, studs @ 600mm, dwangs @ 800mm ▼		
Wall Frame Area: 14.4%		Cavity Area: 85.6%
15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08	15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08	
Framing : R-value: 1.56	Earthwool glasswool Wall 580mm 3.6	
still Airgap: none ▼ R-value: 0.00		
Wall Lining : Gypsum plasterboard 10mm ▼		
R-value: 0.04		
internal surface 0.09		

Name:

Strapped and lined Block Walls

1.96
m²°C/W

Type: Wall: Solid Wall (concrete, masonry or other) without vented Cavity, with internal Insulation

external surface 0.03	
Cladding : None (facing outside air) ▼ R-value: 0.00	
Solid Masonry : Standard Blocks, 200mm, all cells filled ▼ R-value: 0.14	
Strapping : Timber batten, 75mm deep, 45mm wide @ 600mm centers ▼ Strapping Area: 11.0% Cavity Area: 89.0%	
Thermal Break : none ▼ R-value: 0.00	Black Pearl 2.09 2.09
Strapping : R-value: 0.62	still Airgap: none ▼ R-value: 0.00
Wall Lining : Gypsum plasterboard 10mm ▼ R-value: 0.04	
internal surface 0.09	

Roof Construction Details**Name:**

Ensuite Ceiling

3.92
m²°C/W

Type: Roof: Any Roof with Insulation on suspended Grid (no thermal Bridging)

external surface 0.03		
Roofing : none (facing an unconditioned internal space - still air) ▼ R-value: 0.06		
Air gap and framing 0.08		
Earthwool glasswool Ceiling Section 430mm 3.6		
Roof Lining : Gypsum plasterboard 13mm ▼ R-value: 0.06		
internal surface 0.09		
Non-IC-rated recessed downlights		
Ceiling Area [m ²]:	Number of downlights:	Clearance from lamp holder side [m]: 1 

Name:

Ceiling below Deck

3.65
m²°C/W

Type: Roof: Concrete Beams without Roof Space

external surface 0.03	
Roofing : Concrete panels (150mm) ▼ R-value: 0.09	
Concrete Joists & Cavity : no exposed joists, i.e. complete layer of insulation ▼ Floor Frame Area: 0.0% Cavity Area: 100.0%	
Framing : R-value: 0.00	Black Pearl 3.38 3.38
Thermal Break : none ▼ R-value: 0.00	
Roof Lining : Gypsum plasterboard 13mm ▼ R-value: 0.06	
internal surface 0.09	

SFA



SANIPLUS®

FR NOTICE D'INSTALLATION

UK INSTALLATION INSTRUCTIONS

DE INSTALLATIONSHINWEISE

IT STRUZIONI PER L'INSTALLAZIONE

ES MANUAL DE INSTALACIÓN

PT MANUAL DE INSTALAÇÃO

NL INSTALLATIE VOORSCHRIFTEN

SE INSTALLATIONSANVISNING

DK INSTALLATIONSVEJLEDNING

NO INSTALLASJONSANVISING

FI ASENNUSOHJEET

HU FELSZERELÉSI ÉS KEZELÉSI ÚTMUTATÓ

PL INSTRUKCJA INSTALACJI

RU ИНСТРУКЦИЯ ПО МОНТАЖУ И ЭКСПЛУАТАЦИИ

RO MANUAL DE INSTALARE

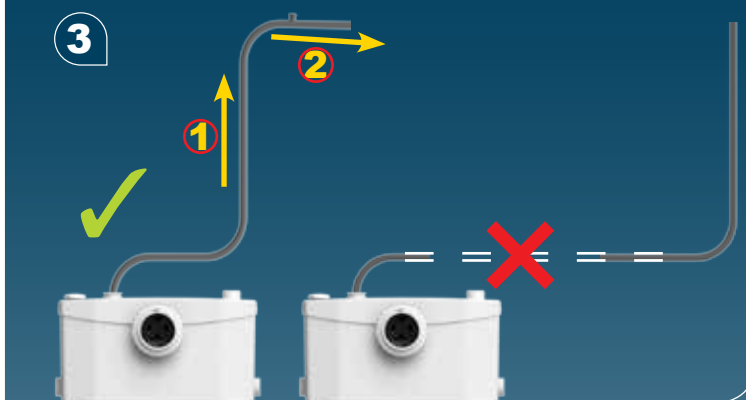
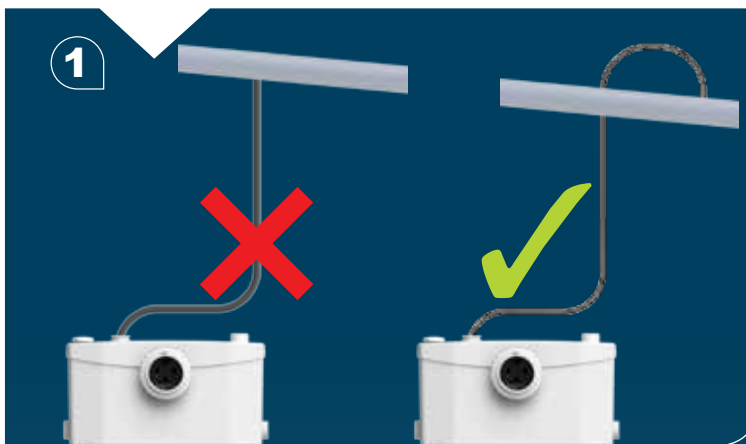
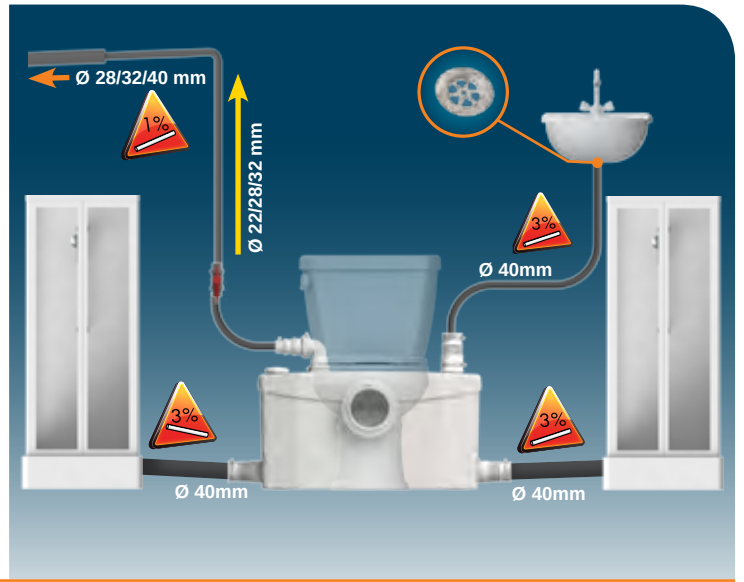
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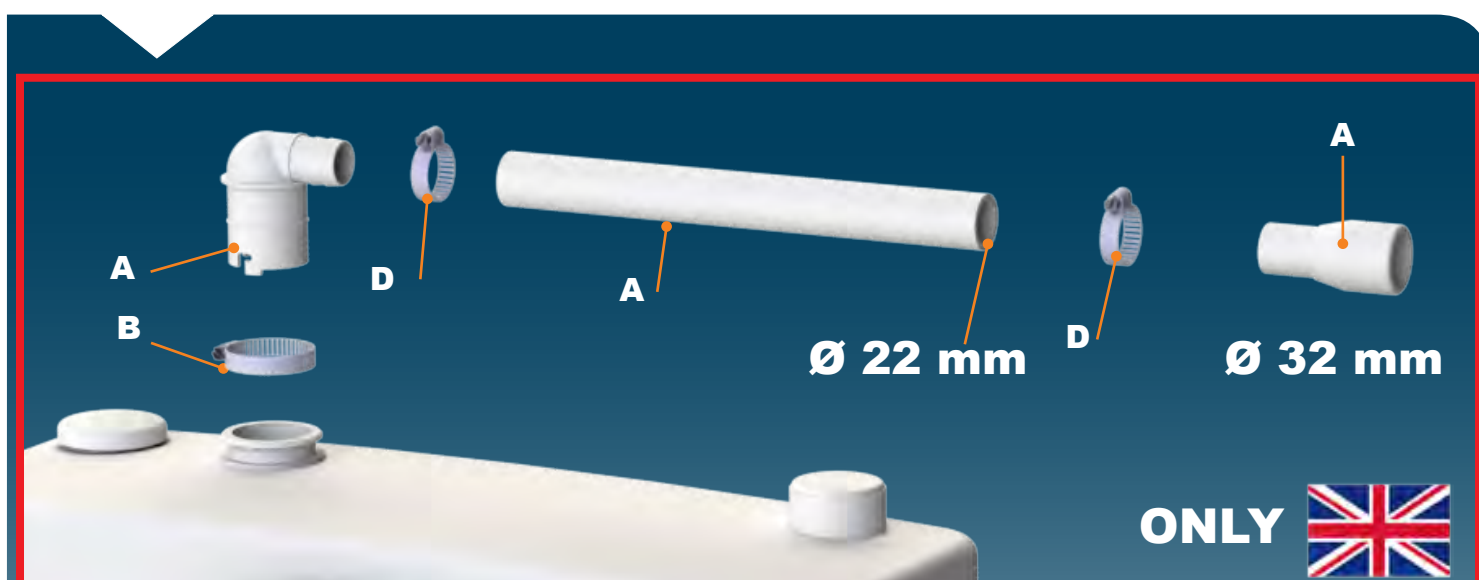
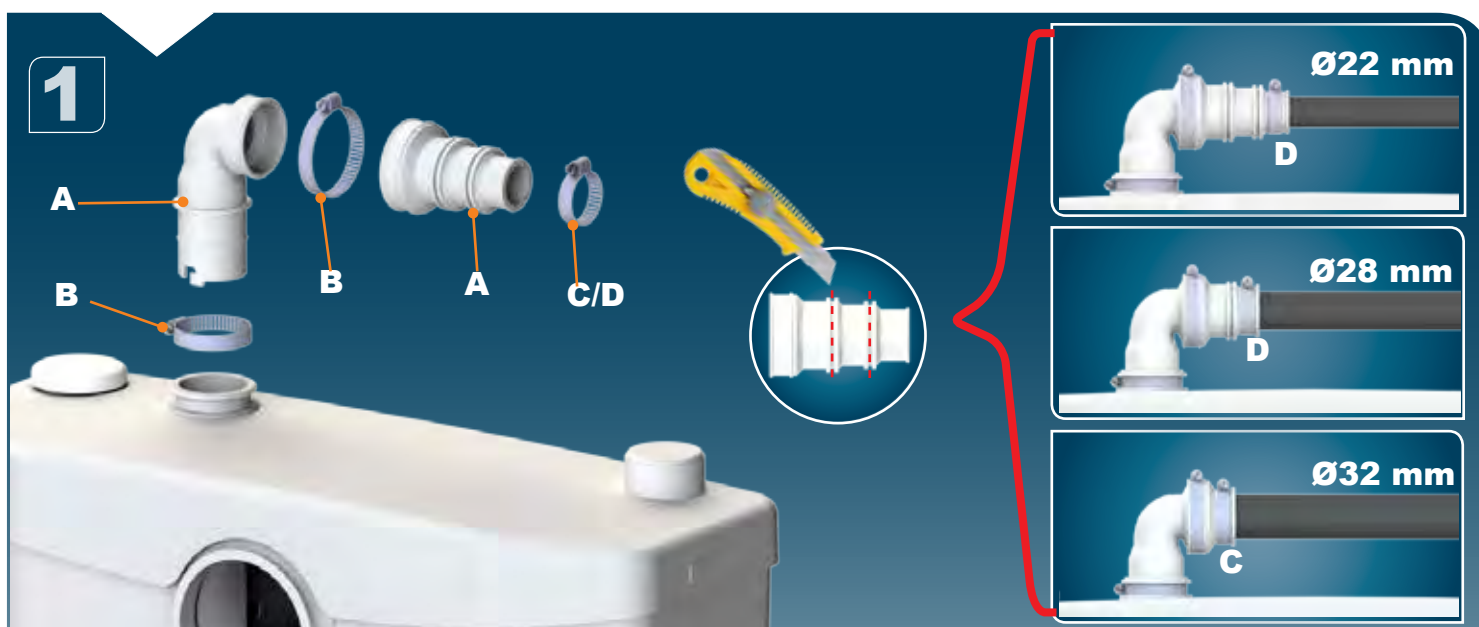
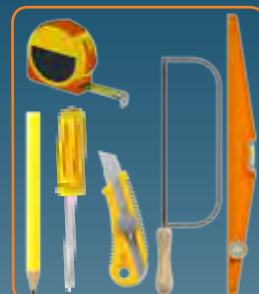
CN 用户应保留安装指南以备

KR 설치내용서





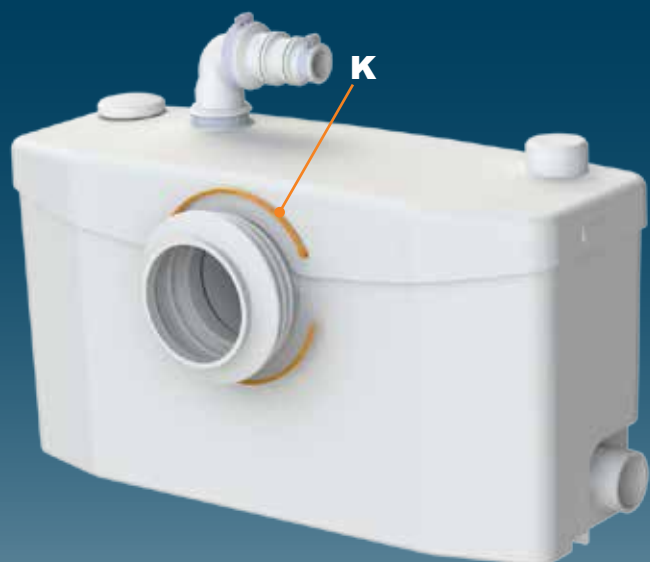
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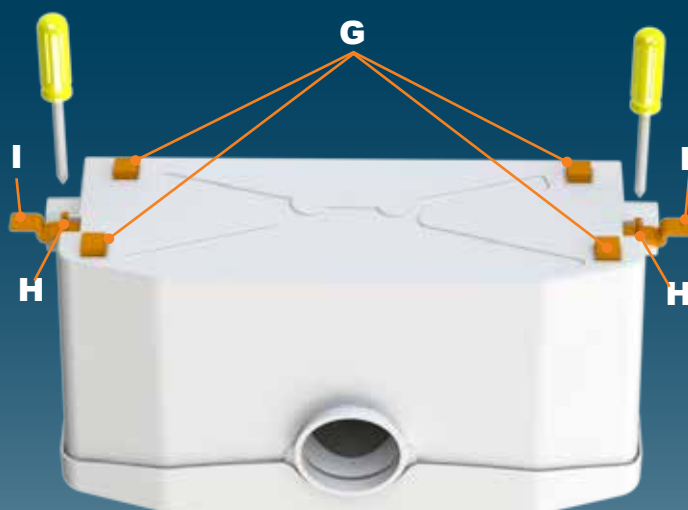
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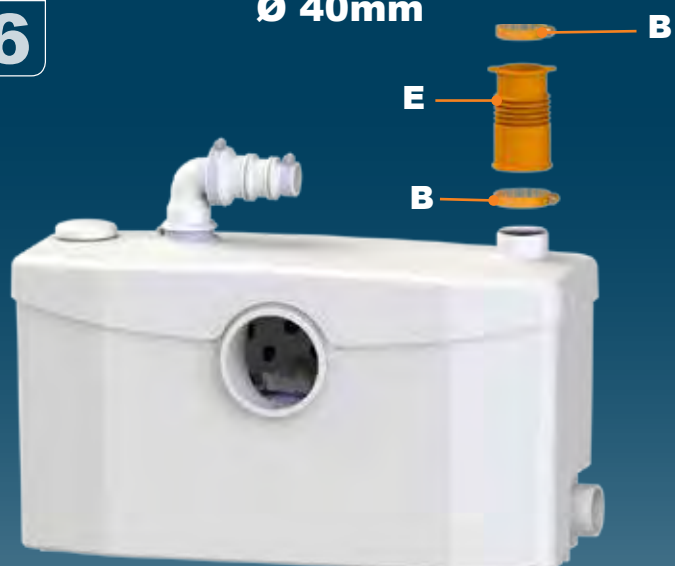


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Ø 40mm



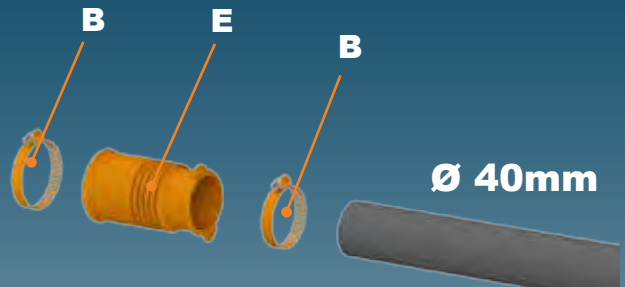
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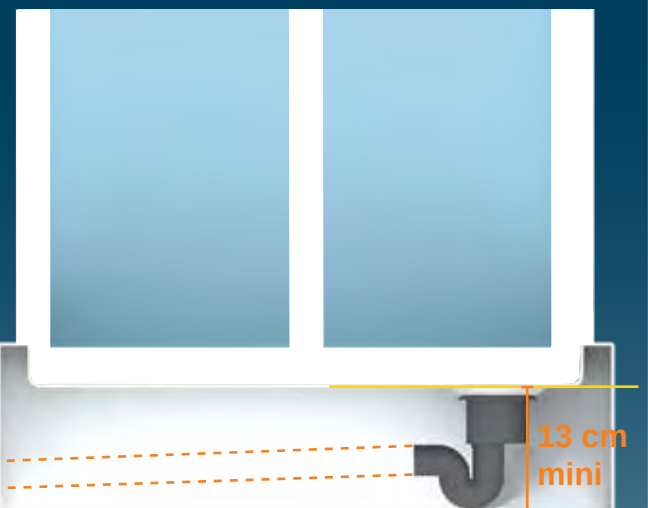
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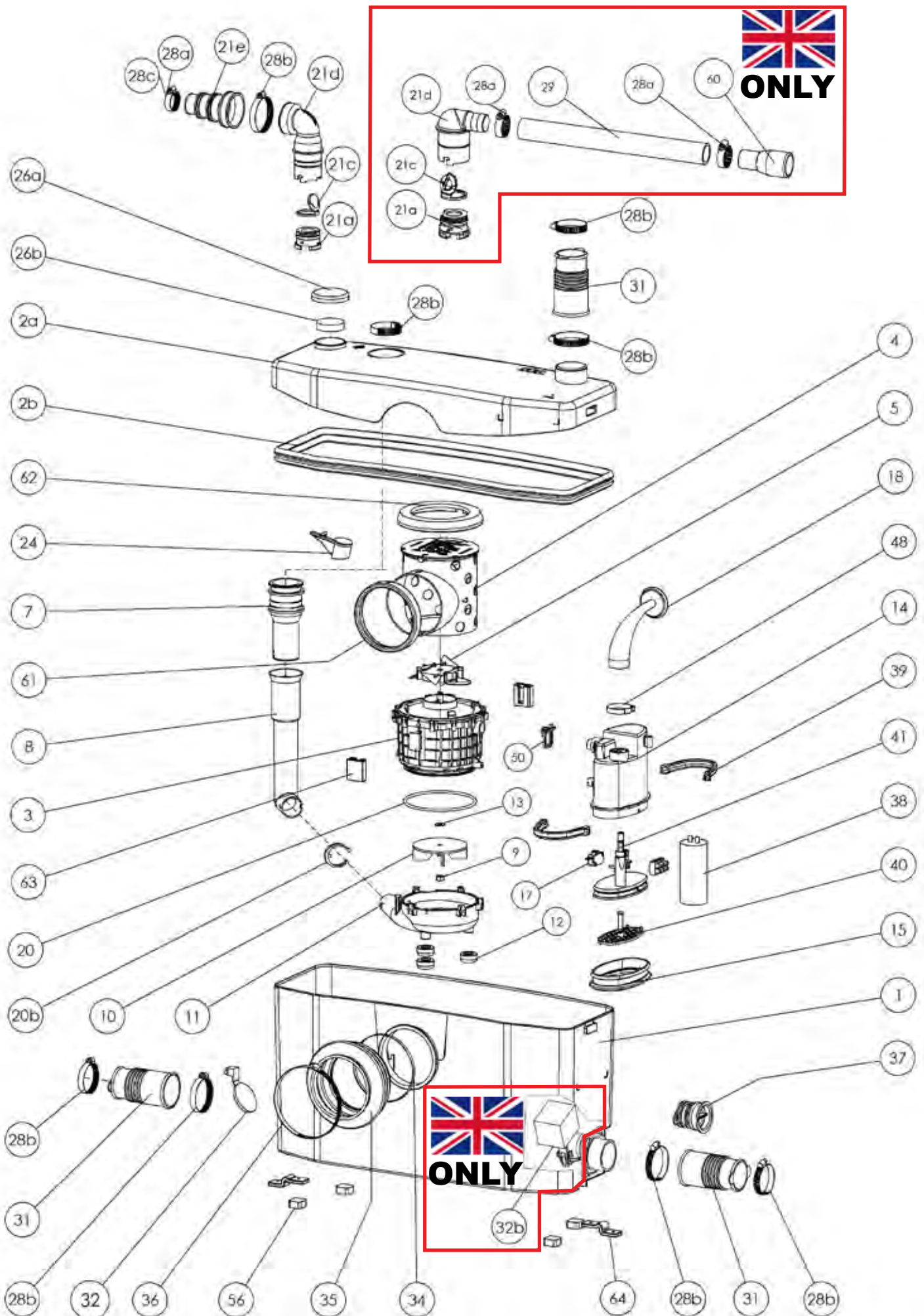


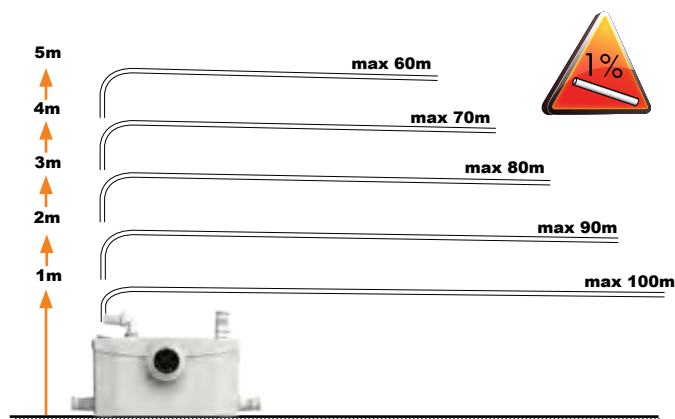
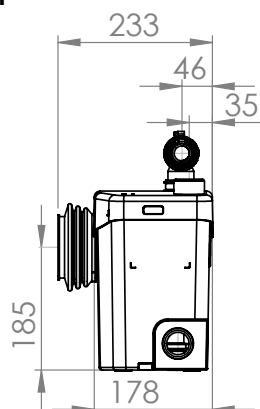
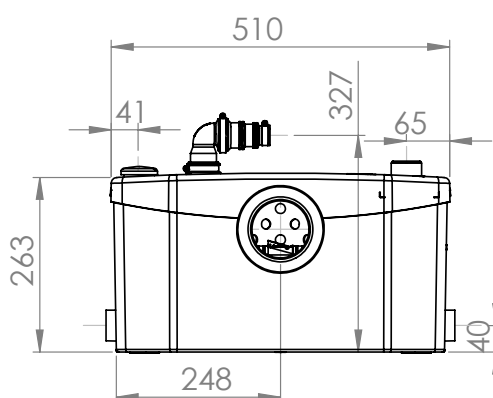
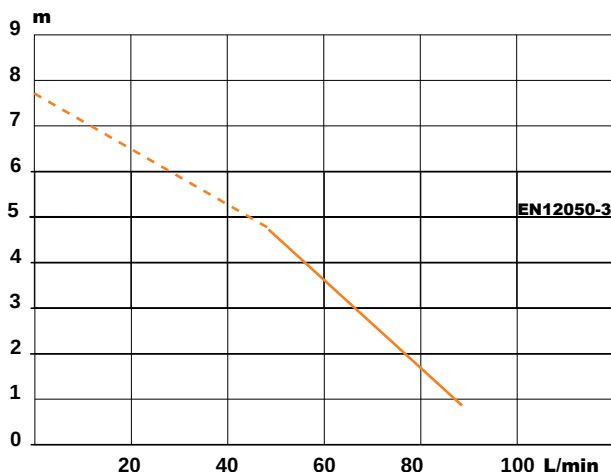
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13 cm
mini

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SANIPLUS

EN 12050-3

P 30

220-240 V - 50 Hz

400 W - IP44 - 1,9A -

(class 1) - 6,4 Kg

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Ireland	1850 23 24 25 (LOW CALL)	+353 46 97 33 093	Norge	+46 (0)8-404 15 30
Australia	+1300 554 779	+61.2.9882.6950	Polska	(+4822) 732 00 33
Deutschland	0800 82 27 82 0	(060 74) 30928-90	РОССИЯ	(495) 258 29 51
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Portugal	+35 21 911 27 85	+35 21 957 70 00	Türkiye	+90 212 275 30 88
Suisse Schweiz Svizzera	+41 (0)32 631 04 74	+41 (0)32 631 04 75	中国	+86(0)21 6218 8969
			Brazil	+55 11 3262 2903
				+31 475 486515
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				(495) 258 29 51
				+420 266 712 856
				+40 256 245 029
				+90 212 275 90 58
				+86(0)21 6218 8970

Service information : www.sfa.biz

FR INFORMATIONS COMPLÉMENTAIRES IMPORTANTES

UK IMPORTANT ADDITIONAL INFORMATION

DE WICHTIGE ZUSÄTZLICHE INFORMATIONEN

IT INFORMAZIONI AGGIUNTIVE IMPORTANTI

ES INFORMACIÓN COMPLEMENTARIA IMPORTANTE

PT INFORMAÇÕES COMPLEMENTARES IMPORTANTES

NL BELANGRIJKE EXTRA INFORMATIE

SE ANNAN VIKTIG INFORMATION

DK VIGTIGE SUPPLERENDE OPLYSNINGER

NO VIKTIG TILLEGGSINFORMASJON

FI TÄRKEITÄ LISÄTIETOJA

HU FONTOS KIEGÉSZÍTŐ INFORMÁCIÓK

PL WAŻNE INFORMACJE DODATKOWE

RU ВАЖНАЯ ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ

RO INFORMAȚII SUPLIMENTARE IMPORTANTE

CZ DŮLEŽITÉ DOPLŇUJÍCÍ INFORMACE

TR ÖNEMLİ EK BİLGİLER

CN 重要补充信息

KR 한국

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1 AVERTISSEMENT

Ce broyeur est soumis à un contrôle qualité permanent dans une usine certifiée ISO 9001. Il bénéficie d'un haut niveau de performance, de sécurité et de fiabilité dans la mesure où toutes les règles d'installation et d'entretien décrites dans cette notice sont scrupuleusement respectées.



Cet appareil n'est pas destiné aux personnes (y compris les enfants) dont les capacités physiques, sensorielles ou mentales sont limitées, ou auxquelles l'expérience et les connaissances font défaut, excepté si elles sont sous surveillance et reçoivent les instructions nécessaires pour utiliser l'appareil, avec l'aide d'une personne responsable de leur sécurité. Surveiller les enfants et veiller à ce qu'ils ne jouent pas avec l'appareil.

2 APPLICATIONS

Cet appareil est une station de relevage compacte conçue pour évacuer les eaux usées provenant d'un WC à évacuation horizontale, d'un lavabo*, d'une douche*, d'un bidet* (*:selon le modèle).

Cet appareil répond à la norme EN 12050-3 et aux normes Européennes sur la sécurité électrique et la compatibilité électromagnétique.

3 INSTALLATION

Le broyeur doit se trouver dans la même pièce que le WC et que les autres installations sanitaires éventuellement raccordées. L'appareil doit être d'accès aisé pour le contrôle et la maintenance.

L'installation et le fonctionnement de votre appareil doivent respecter les réglementations locales et la norme EN 12056-4.

Afin d'optimiser les derniers développements techniques en matière d'acoustique inclus dans cet appareil, il est important :

- d'installer la cuve en évitant que celle-ci ne touche une paroi de la pièce,
- de positionner la cuve sur un sol parfaitement plat afin de ne pas contrarier le bon fonctionnement des plots anti-vibratoires,
- de fixer correctement la tuyauterie d'évacuation en évitant des distances entre les fixations supérieures à un mètre.

RACCORDEMENT ÉLECTRIQUE



N'effectuer le branchement électrique qu'une fois les raccordements définitifs terminés.

L'installation électrique doit être réalisée par

un professionnel qualifié en électrotechnique. L'appareil doit être placé de façon telle que la fiche de prise de courant soit accessible.

Le circuit d'alimentation de l'appareil doit être relié à la terre (classe I) et protégé par un disjoncteur différentiel haute sensibilité (30mA).

Le raccordement doit servir exclusivement à l'alimentation de l'appareil. Si le câble de cet appareil est endommagé, il doit être remplacé par le fabricant ou son service après-vente.

Réglementation

Veillez à respecter les dispositions de la norme en vigueur dans le pays d'utilisation (France: NF C 15-100) concernant les volumes de protection d'une salle de bains.

4 MISE EN SERVICE

Actionner plusieurs fois la chasse d'eau.

Le passage cuvette doit être étanche. Vérifier l'étanchéité des raccordements avec les appareils sanitaires : WC, douche*, bidet*, lavabo* (*: selon le modèle).

5 MAINTENANCE

ATTENTION!!!

En cas d'absence prolongée, il est impératif de couper l'alimentation générale en eau et de protéger l'installation contre le gel.

NETTOYAGE/DÉTARTAGE

Pour détartrer et nettoyer le broyeur et la cuvette, utiliser régulièrement comme le détartrant spécial SANIBROYEUR de SFA, qui est conçu pour enlever le tartre tout en respectant les organes internes de votre appareil.

6 INTERVENTIONS ÉVENTUELLES



DANS TOUS LES CAS, DÉBRANCHER LA PRISE ÉLECTRIQUE DU BROYLEUR

ANOMALIE CONSTATÉE	CAUSES PROBABLES	REMÈDES
• Le moteur ne démarre pas	• Appareil non branché • Alimentation électrique défectueuse • Problème moteur ou système de commande	• Brancher l'appareil. • Vérifier l'alimentation électrique • Consulter un dépanneur agréé
• Le moteur tourne avec un bruit de crécelle ou bourdonne et ne tourne pas	• Moteur bloqué par un corps étranger • Problème moteur ou système de commande	• Enlever le corps étranger • Sinon, consulter un dépanneur agréé
• L'appareil se remet en marche par intermittence	• Les appareils sanitaires raccordés fuient • Le clapet anti-retour fuit	• Contrôler l'installation en amont • Nettoyer ou changer le clapet anti-retour
• Le moteur tourne correctement mais ne s'arrête plus ou tourne très longtemps	• La hauteur ou longueur d'évacuation est trop importante (perte de charge) • Problème hydraulique, colmatage	• Revoir l'installation • Sinon, consulter un dépanneur agréé
• L'appareil s'arrête	• L'appareil a fonctionné pendant trop longtemps (coupure thermique de sécurité)	• Attendre le réenclenchement. • Faites appel à un dépanneur agréé si nécessaire
• Le moteur tourne par à-coups et l'eau descend lentement dans la cuvette	• L'évent du couvercle est bouché • Problème moteur	• Déboucher le trou d'évent • Sinon, consulter un dépanneur agréé
• Retour d'eau trouble dans la douche (appareils avec entrées latérales)	• Douche installée trop bas par rapport au broyeur • Battants d'entrées latérales colmatés	• Revoir l'installation • Nettoyer les battants • Sinon, consulter un dépanneur agréé

7 CONDITIONS DE GARANTIE

L'appareil est garanti deux ans à compter de sa date d'achat sous réserve d'une installation et d'une utilisation conformes à la présente notice.



Ne sera prise en compte par la garantie que l'évacuation de papiers hygiéniques, matières fécales et eaux sanitaires.

Tout dommage causé à l'appareil par le broyage de corps étrangers tels que coton, tampons périodiques, serviettes hygiéniques, lingettes, produits alimentaires, préservatifs, cheveux, objets en métal, en bois ou en plastique, ou le pompage de liquides tels que solvants ou huiles n'entreraient pas dans le cadre de la garantie.

1 DESCRIPTION

This macerator is (manufactured in a factory which is quality) certified to ISO 9001. Installed and used correctly, the unit will give consistent and reliable service.

This device is not designed for persons (including children) with limited physical, sensory or mental abilities, or those with minimal experience and knowledge, unless they are monitored and are given the necessary instructions for using the device, with the help of a person responsible for their safety. Monitor children and make sure they do not play with the device.

2 APPLICATIONS

This appliance is a compact lift pump unit designed for removing waste water from a horizontal outlet toilet*, shower*, bidet* or washbasin* (*: depending on the model). This appliance conforms to EN 12050-3 and the European standards concerning electrical safety and electromagnetic compatibility.

3 INSTALLATION

The unit should be accessible for possible service.

The fitting and working of your appliance must meet local regulations and the EN 12056-4 standard.

To optimise the latest technical developments concerning soundproofing incorporated into this unit, it is important to:

- position the WC pan so that it is not in contact with a partition or wall of the room
- place the WC pan on a perfectly level surface to ensure that the resilient mounts are fully efficient
- fix the discharge pipe correctly, with distances of not more than one metre between the fastenings.

CONNECTION TO THE ELECTRICAL SUPPLY

The electrical installation should be carried out by a qualified person. The unit requires a 220/240V single phase AC 50 Hz supply (UK specification). The power supply circuit of the appliance must be earthed (Class I) and protected by a GFCI high sensitivity (30mA). Warning: Ensure the electricity is turned OFF at the main switch board before wiring to connector.

All wiring must conform to BS7671, 1992 requirements for electrical installations. Do not connect the unit to a conventional plug and socket. **It must be wired into a fused, unswitched, fixed wiring connector fitted with a 5 amp fuse.** The wires in the mains lead are coloured in accordance with

the following code:

Brown - Live
Blue - Neutral
Green/Yellow - Earth

The connection must be used exclusively to power the device.

All work on cable, pressure chamber and motor should only be carried out by a qualified Saniflo servicing agent, as special tools are required. Please do not cut/shorten the electrical supply cable which can make it very difficult to remove in the event of a service requirement.

4 COMMISSIONING THE UNIT

Flush the WC checking that all seals, and connections are watertight.

Check both the discharge pipework from the unit and the other sanitary appliances connections. Check the watertightness of connections to sanitary appliances:

toilet*, shower*, bidet* or washbasin* (*: depending on the model).

5 MAINTENANCE

WARNING !!! In the event of prolonged absence it is essential to turn off the water supply to protect the installation against sub zero temperatures.

CARE OF YOUR UNIT

In order to remove scale and clean the macerator and the bowl, use the SANIFLO Cleanser/Descaler.

- .Disconnect the macerator power supply,
 - .Pour an amount of cleanser into the pan
 - .Leave it to stand for 1 or 2 hours,
 - .Re-connect the macerator power supply,
 - .Rinse by operating the flushing system twice.
- Carry out the operation once every 3 months on average, but the frequency may need to be changed depending on the hardness of the water.

6 FAULT FINDING / REMEDIES

IN ALL CASES, YOU MUST DISCONNECT THE MACERATOR FROM THE POWER SUPPLY

SYMPTOMS	PROBABLE CAUSES	REMEDIES
• The motor does not activate	• <i>The electrical power supply is not active</i> • <i>The electrical power supply is defective</i> • <i>The motor or the control system is defective</i>	• Restore the electrical supply • Check the electrical power supply • Otherwise, ask an approved repair agent to intervene
• The motor emits a rattling or crunching sound, hums, but does not run	• Foreign object into the box • Problem with the motor or the control system	• Remove the foreign body • Otherwise, ask an approved repair agent to intervene
• The motor intermittently activates	• <i>The connected sanitary devices are dripping water</i> • <i>The non-return valve is faulty</i>	• Check the installation upstream • Clean or replace the non-return valve
• The motor operates normally, but continues to run for a long time	• <i>The length or height of the installation is over the specification, or there are too many bends/elbows</i> • <i>The pump cover plate is partially obscured/blocked</i>	• Check the installation
• The unit stops	• <i>The unit has been running for too long (thermal cut-out)</i>	• Otherwise, ask an approved repair agent to intervene • Wait for reset, then ask an approved repair agent to intervene
• Motor is surging and water in the WC pan goes down very slowly	• <i>The air dispenser is clogged up</i> • <i>Problem with motor</i>	• Clear the air relief hole • Otherwise, ask an approved repair agent to intervene
• Cloudy water comes up into the shower basin (units with side inlets)	• <i>Shower installed too low as compared with the macerator unit</i> • <i>Hinged side inlet discs clogged up</i>	• Check the installation • Clean the hinged discs • Otherwise, ask an approved repair agent to intervene

7 GUARANTEE

2 years guarantee as from its date of purchase subject to correct installation and correct use.

Only the disposal of toilet paper, faecal matter, and waste water will be under guarantee. Any damage due to foreign bodies such as cotton, condoms, sanitary towels, wet wipes, food, hair, metal, wood or plastic objects, will not be under guarantee. Solvents, acids and other chemicals can also cause damage to the unit, and will invalidate the guarantee.

1 BESCHREIBUNG

Diese Kompakthebeanlage ist ein Gerät das in einem, vom ISO 9001 zertifizierten Werk fachgerecht entwickelt wurde und einer ständigen Qualitätskontrolle unterzogen wird. Es verfügt über ein hohes Niveau bezüglich Leistung, Sicherheit und Zuverlässigkeit unter der Voraussetzung, dass die nachfolgenden Installations- und Wartungsanweisungen befolgt werden.



WARNUNG - Dieses Gerät ist nicht dafür bestimmt, durch Personen (einschließlich Kinder) mit eingeschränkten physischen, sensorischen oder geistigen Fähigkeiten oder mangels Erfahrungen und/oder mangels Wissen benutzt zu werden, es sei denn, sie werden durch eine für ihre Sicherheit verantwortliche Person beaufsichtigt oder erhalten von ihr eine Anweisung, wie das Gerät zu benutzen ist. Kinder sind zu beaufsichtigen und darauf achten, dass sie nicht mit dem Gerät spielen.

2 ANWENDUNGEN

Dieses Gerät ist eine kompakte Hebeanlage zur Ableitung von Abwasser aus einem WC mit horizontaler Ableitung, aus einer Dusche*, aus einem Bidet*, aus einem Waschbecken*. (*: je nach Modell). Dieses Gerät entspricht der Norm EN 12050-3 und den europäischen Normen zur elektrischen Sicherheit und zur elektromagnetischen Kompatibilität. Ihre Hebeanlage ist für den privaten Gebrauch bestimmt.

3 MONTAGE

Die Anlage darf max. 50cm entfernt montiert werden, um jedoch ein einwandfreies Arbeiten gewährleisten zu können, sollte das Gerät direkt an das WC angeschlossen sein. Die Kleinhebeanlage darf nur unmittelbar an ein WC angeschlossen werden und muss sich zusammen mit den zu entsorgenden Sanitärabjekten im gleichen Raum befinden. Das Gerät muss zu Prüfungs- und Wartungszwecken leicht zugänglich sein.

Die Montage und der Betrieb Ihres Geräts müssen den lokalen Bestimmungen und der Norm EN 12056-4/EN 12050-3 entsprechen sowie DIN 1986-100.

Zur Optimierung der jüngsten technischen Entwicklungen im Bereich der Akustik, die für dieses Gerät genutzt wurden, ist es wichtig:

- das WC so zu installieren, dass es keine Wand des Raums berührt,
- das WC auf einen vollkommen ebenen Boden zu stellen, damit die schwingungsdämpfenden Vorrichtungen einwandfrei funktionieren können,
- das Abgangsrohr korrekt zu befestigen und darauf zu achten, dass der Abstand zwischen den Befestigungen nicht größer ist als ein Meter.

ELEKTROINSTALLATION



Den elektrischen Anschluss erst vornehmen, wenn die Wasseranschlüsse komplett durchgeführt sind.

Die elektrischen Installationen müssen von einem Elektrotechniker realisiert werden.

Das Gerät muss so eingebracht werden, dass die Steckdose zugänglich ist.

Die Stromzufuhr darf ausschließlich der Hebeanlage dienen und muss über einen FI-Schutzschalter abgesichert sein! Der Anschluss muss ausschließlich der Stromzufuhr des Geräts dienen.

Bestimmungen: Bitte beachten Sie die Verfügungen der im Benutzungsland geltenden Normen (Deutschland DIN VDE 0100) betreffend den Schutzbereich von Feucht- und Nassräumen.

4 INBETRIEBNAHME

Nach Anschluss an die Wasser- und Stromversorgung mehrmals die Toilettenspülung betätigen. Der Abfluss der Toilettenschüssel muss dicht sein.

Überprüfen Sie die Dichtheit der Anschlüsse an den sanitären Anlagen: WC, Dusche*, Bidet*, Waschbecken*. (*: je nach Modell).

5 WARTUNG

Das Gerät ist einmal jährlich einer Wartung bzw. Reinigung zu unterziehen.

ACHTUNG !!! Bei längerer Abwesenheit muss unbedingt der Wasser-Hauptahn geschlossen und die Anlage gegen Frost geschützt werden.

REINIGUNG/ENTKALKER

Um die Kompakthebeanlage und die Toilettenschüssel zu reinigen und zu entkalken, muss regelmäßig ein geeigneter Entkalker von SFA benutzt werden, der darauf ausgelegt ist, den Kalk zu entfernen, wobei die inneren Teile des Geräts geschont bleiben.

6 EVENTUELLE EINGRIFFE



AUF JEDEN FALL DEN NETZSTECKER DER KOMPAKTHEBEANLAGE AUSZIEHEN

FESTGESTELLTE FEHLFUNKTION	MÖGLICHE URSACHEN	ABHILFEN
• Der Motor startet nicht.	• Gerät nicht angesteckt • Stromspeisung defekt • Problem am Motor oder Bediensystem	• Gerät einstecken • Die Stromspeisung überprüfen • Ansonsten, sich an einen zugelassenen Kundendienst-fachmann wenden
• Der Motor gibt beim Laufen ein schnarrendes Geräusch ab oder brummt und läuft nicht	• Motor durch einen Fremdkörper blockiert • Problem am Motor oder Bediensystem	• Den Fremdkörper entfernen • Ansonsten, sich an einen zugelassenen Kundendienst-fachmann wenden
• Das Gerät funktioniert mit Unterbrechungen	• Die angeschlossenen Sanitärgeräte sind undicht • Die Rückschlagklappe ist undicht	• Die vorlaufende Montage überprüfen • Die Rückschlagklappe reinigen oder austauschen
• Der Motor läuft korrekt, hält jedoch nicht mehr an oder läuft sehr lange	• Die Abflusshöhe oder –länge ist zu groß oder zu viele Winkelstücke (Druckverlust) • Hydraulikproblem, Verstopfung	• Montage überprüfen • Ansonsten, sich an einen zugelassenen Kundendienst-fachmann wenden
• Das Gerät schaltet sich aus	• Das Gerät funktioniert über einen zu langen Zeitraum (Wärmesicherung)	• Das Wiedereinschalten abwarten, dann sich gegebenenfalls an einen zugelassenen Kundendienstfachmann wenden
• Der Motor läuft ruckartig und das Wasser fließt in der Toilettenschüssel langsam ab	• Die Deckelöffnung ist verstopft • Motorproblem	• Die Abflussoffnung frei legen • Ansonsten, sich an einen zugelassenen Kundendienst-fachmann wenden
• Rückfluss von Schmutzwasser in der Dusche (Geräte mit seitlichem Zulauf)	• Dusche im Verhältnis zur Kompakthebeanlage zu niedrig installiert • Seitliche Eingangsklappen verstopft	• Montage überprüfen • Die Klappen reinigen • Ansonsten, sich an einen zugelassenen Kundendienst-fachmann wenden

7 GARANTIEBESTIMMUNGEN

Für das Gerät gilt eine 2jährige Garantie ab Kaufdatum unter Einhaltung der geltenden Normen sowie dieser Montage- und Gebrauchsanweisung.



ACHTUNG: es dürfen über die Anlage keine Farben, Laugen, Lösungsmittel, Faserstoffe etc. die nach DIN 1986-3 und geltenden Abwasserverordnungen nicht in das Abwassersystem eingeleitet werden dürfen, entsorgt werden.

1 AVVERTENZE

Il trituratore è un apparecchio sviluppato a regola d'arte e sottoposto ad un controllo di qualità permanente in una fabbrica certificata ISO 9001. È dotato di un alto livello di prestazioni, sicurezza ed affidabilità se tutte le regole di installazione e di manutenzione descritte in questo manuale sono scrupolosamente rispettate.



Questo apparecchio non è destinato alle persone (ivi compresi i bambini) le cui capacità fisiche, sensoriali o mentali sono limitate, o alle quali fanno difetto esperienza e conoscenze, a meno che non siano sorvegliate o abbiano ricevuto le istruzioni necessarie per utilizzare l'apparecchio, con l'aiuto di una persona responsabile della loro sicurezza. Sorvegliare i bambini e badare che non giochino con l'apparecchio.

2 APPLICAZIONI

Questo apparecchio è un trituratore destinato all'evacuazione delle acque reflue provenienti da un WC a scarico orizzontale, da una doccia*, da un bidet*, da un lavabo* (*secondo il modello).

Il presente apparecchio è conforme alla norma EN 12050-3 e alle normative europee sulla sicurezza elettrica e la compatibilità elettromagnetica.

3 INSTALLAZIONE

Il trituratore deve trovarsi nello stesso ambiente previsto per il WC e per le altre installazioni sanitarie eventualmente collegate. L'apparecchio deve essere installato in modo da garantire un facile accesso per il controllo e la manutenzione.

L'installazione e il funzionamento dell'apparecchio devono rispettare la regolamentazione locale e la norma EN 12056-4.

Per ottimizzare gli ultimi sviluppi tecnologici in campo di acustica inclusi nel presente apparecchio, è necessario:

- Installare il trituratore in modo da evitare che sia in contatto con una parete del vano
- posizionare il trituratore su un suolo perfettamente piatto in modo da non contrariare il corretto funzionamento dei piedini antivibrazioni
- fissare correttamente i tubi di evacuazione evitando distanze tra fissazioni superiori ad un metro.

COLLEGAMENTO ELETTRICO



Effettuare il collegamento alla rete elettrica solo dopo aver terminato l'allacciamento idraulico.

L'impianto elettrico deve essere realizzato da un professionista qualificato in elettrotecnica. L'apparecchio va collocato in modo tale che la spina della presa di corrente sia accessibile.

Il circuito d'alimentazione dell'apparecchio va collegato a terra (cia se I) e protetto da un differenziale ad alta sensibilità (30 mA).

Il collegamento deve servire esclusivamente all'alimentazione dell'apparecchio. Se il cavo di questo apparecchio è danneggiato, deve essere sostituito dal fabbricante o dal suo Servizio Assistenza per evitare pericoli.

Normativa

Si raccomanda di rispettare le disposizioni della normativa in vigore nel paese di utilizzo riguardo ai volumi di protezione di una sala da bagno.

4 MESSA IN FUNZIONE

Una volta terminate tutte le operazioni di installazione elettrica ed idraulica azionare ripetutamente lo scarico del WC. Verificare che

l'allacciamento al WC non abbia perditte.

Verificare la tenuta stagna dei raccordi con gli apparecchi sanitari: WC, doccia*, bidet*, lavabo* (*secondo il modello).

5 MANUTENZIONE

ATTENZIONE!!!

In caso di assenza prolungata, è necessario interrompere l'alimentazione generale dell'acqua e proteggere l'installazione contro il gelo.

PULIZIA, RIMOZIONE DEL CALCARE

Per pulire e disincrostarne il trituratore ed il WC in ceramica utilizzare regolarmente un prodotto adeguato per togliere le incrostazioni. SFA ha ideato e progettato un liquido anticalcare apposito, in grado di non rovinare le prestazioni del vostro trituratore.

6 EVENTUALI INTERVENTI



IN TUTTI I CASI SCOLLEGARE LA PRESA ELETTRICA DEL TRITURATORE

ANOMALIE CONSTATATE	PROBABILI CAUSE	SOLUZIONI
• Il motore non parte	• Apparecchio non collegato • Alimentazione elettrica difettosa • Problema al motore o al sistema di comando	• Collegare l'apparecchio • Controllare l'alimentazione elettrica • Se necessario, contattare un centro assistenza autorizzato
• Il motore gira producendo un rumore crepitante oppure ronzia ma non gira	• Motore bloccato da un corpo estraneo • Problema al motore o al sistema di comando	• Eliminare il corpo estraneo • Se necessario, contattare un centro assistenza autorizzato
• L'apparecchio si rimette in moto in modo intermittente	• Gli apparecchi sanitari collegati perdono • La valvola antiritorno perde	• Controllare l'installazione a monte • Pulire o sostituire la valvola antiritorno
• Il motore gira correttamente ma non si arresta mai o gira troppo a lungo	• L'altezza o la lunghezza dello scarico è eccessiva (perdita di carico) • Problema idraulico, ostruzione	• Modificare l'installazione
• L'apparecchio si ferma	• L'apparecchio è rimasto in funzione troppo a lungo (interruzione termica di sicurezza)	• Attendere il ripristino e, se necessario, contattare un centro assistenza autorizzato
• Il motore gira irregolarmente e l'acqua scende lentamente nel vaso	• Lo sfiatatoio del coperchio è otturato • Problema al motore	• Liberare il foro dello sfiatatoio • Se necessario, contattare un centro assistenza autorizzato
• Ritorno di acque di scarico nella doccia (apparecchi con entrate laterali)	• Doccia installata troppo in basso rispetto al trituratore • Otturatori delle entrate laterali ostruiti	• Modificare l'installazione • Pulire gli otturatori • Se necessario, contattare un centro assistenza autorizzato

7 CONDIZIONI DI GARANZIA

Gli apparecchi sono garantiti 2 anni, a partire dalla data d'acquisto. La garanzia decade se installati o utilizzati in maniera non conforme a quanto riportato in questo manuale.



ATTENZIONE !!! Ai fini della garanzia verra' presa in considerazione solo l'evacuazione di carta igienica, materie fecali e acque sanitarie. Qualsiasi danno dovuto alla frantumazione di corpi estranei quali cotone, tamponi assorbenti, preservativi, capelli, salviettine, prodotti alimentari, oggetti di metallo, legno o plastica o dal pompaggio di liquidi quali solventi o oli fa decadere la garanzia. Vedere condizioni di garanzia allegate.

1 ADVERTENCIA

Este triturador es un producto diseñado siguiendo un control de calidad permanente. Tiene la certificación ISO 9001. El aparato tiene un alto nivel de cualidades técnicas, seguridad y fiabilidad, siempre que se cumplan atentamente todas las reglas de instalación y mantenimiento descritas el presente manual.



Este aparato no está destinado a personas (incluidos niños) cuyas capacidades físicas, sensoriales o mentales estén limitadas, como tampoco a aquellas que carezcan de la experiencia o el conocimiento del mismo, salvo que se encuentren bajo supervisión y reciban las instrucciones necesarias para utilizar el aparato, con la ayuda de una persona responsable de su seguridad. Supervisar a los niños y vigilar que no jueguen con el aparato.

2 ÁMBITO DE APLICACIÓN

Este aparato es una estación compacta de elevación, diseñada para evacuar las aguas usadas procedentes de un WC con salida horizontal, de una ducha*, de un bidet* o de un lavabo*. (*: Según el modelo).

Este aparato cumple la norma EN 12050-3 y normas europeas sobre la seguridad eléctrica y la compatibilidad electromagnética.

3 INSTALACIÓN

El aparato debe de estar en la misma sala / habitación que el WC y los otros aparatos sanitarios. El aparato debe ser instalado de manera que el acceso sea fácil para su control y mantenimiento.

La instalación y funcionamiento de su aparato deben respetar las reglamentaciones locales y la norma EN 12056-4.

Para optimizar los últimos desarrollos técnicos en materia acústica incluidos en este aparato, es importante :

- instalar el depósito de forma que no toque ninguna pared de la sala / habitación,
- posicionar el depósito sobre un suelo lo más plano posible, para permitir el adecuado funcionamiento de los contactos anti vibratorios,
- fijar correctamente el tubo de evacuación evitando que las distancias entre las fijaciones sean superiores a un metro.

CONEXIÓN ELÉCTRICA

Efectuar la conexión eléctrica sólo una vez llevados a cabo todas las conexiones definitivas.

La instalación eléctrica debe ser realizada por un profesional cualificado en electrotécnica.

El aparato debe estar colocado de forma que el enchufe de corriente sea accesible.

El circuito de alimentación eléctrico del aparato debe estar conectado a tierra (Clase I) y protegido por un disyuntor diferencial de alta sensibilidad (30 mA).

La conexión debe servir exclusivamente para la alimentación del aparato.

Si el cable de este aparato está dañado, debe ser reemplazado por el fabricante o por su servicio postventa, con el fin de evitar cualquier peligro.

Reglamentación

Respetar las disposiciones de la norma UNE 20.315 referente a las medidas de protección de un cuarto de baño.

4 PUESTA EN MARCHA

Una vez efectuadas las conexiones eléctricas e hidráulicas, tirar varias veces de la cadena.

El paso del inodoro debe ser estanco.

Verificar la estanqueidad de las conexiones con los aparatos sanitarios: WC, ducha*, bidet*, lavabo*. (*:Según el modelo).

5 MANTENIMIENTO

¡ATENCIÓN!

En caso de ausencia prolongada, es imperativo cortar la alimentación general de agua y proteger la instalación contra la congelación.

LIMPIEZA / DESINCrustACIÓN

Para limpiar y desincrustar el triturador y la cubeta, utilizar frecuentemente un producto desincrustante sanitario, como el desincrustante especial SFA SANITRIT, que desincrusta sin afectar los órganos internos del aparato.

6 POSIBLES INTERVENCIONES



EN CUALQUIER CASO, DESCONECTE LA TOMA ELÉCTRICA DE LA TRITURADORA

ANOMALÍAS	CAUSAS	REMEDIOS
• El motor no arranca	• Aparato no enchufado • Alimentación eléctrica defectuosa • Problema del motor o del sistema de control	• Enchufar el triturador a la corriente • Comprobar la alimentación eléctrica • Si no, consultar al SAT
• El motor gira con un ruido de carraca pero no gira	• Motor bloqueado por un cuerpo extraño • Problema del motor o del sistema de control	• Extraiga el cuerpo extraño • Si no, consultar al SAT
• El triturador se pone en marcha intermitentemente	• Los sanitarios conectados pierden agua • La válvula anti-retorno pierde	• Revisar cada uno de los elementos conectados • Limpiar o cambiar la válvula anti-retorno
• El motor gira correctamente pero no se para o gira lentamente	• La altura o la longitud de evacuación es muy larga o tiene muchos codos • Problema hidráulico, taponamiento	• Mirar la instalación • Si no, consultar al SAT
• El aparato se para	• El aparato ha funcionado durante demasiado tiempo (corte térmico de seguridad)	• Esperar a que se vuelva a activar y consultar al SAT, si es necesario
• El motor funciona con sacudidas y el agua desciende lentamente en la taza	• El respiradero está tapado • Problema del motor	• Destapar el respiradero • Si no, consultar al SAT
• Retorno de agua turbia en la ducha (aparatos con entradas laterales)	• Ducha instalada demasiado baja con relación al aparato • Clapetas de las entradas laterales obstruidas	• Revisar la instalación • Limpiar las clapetas • Si no, consultar al SAT

7 CONDICIONES DE GARANTÍA

Los aparatos SFA tienen una garantía de 2 años a partir de la fecha de compra siempre que la instalación y la utilización sean conformes al presente manual. A partir de los 6 meses, el cliente final deberá hacerse cargo de los gastos de desplazamiento del técnico SFA.



¡ ATENCION ! La garantía cubre únicamente la evacuación de papel higiénico, materia fecal y aguas sanitarias. Cualquier avería producida por el bombeo de cuerpos extraños tales como algodón, tapones higiénicos, compresas, toallitas, productos alimentarios, preservativos, cabellos, objetos de metal, de madera o de plástico, o bombeo de líquidos como disolventes o aceites no sera cubierta por la garantía.

1 ADVERTENCIA

Este triturador é um aparelho desenvolvido de acordo com as regras da arte e submetido a um controlo de qualidade permanente numa fábrica certificada ISO 9001. O funcionamento correcto do seu aparelho exige o cumprimento rigoroso das regras de instalação e de manutenção descritos neste manual.



Este aparelho não foi concebido para ser utilizado por indivíduos (incluindo crianças) cujas capacidades físicas, sensoriais ou mentais estão limitadas ou por indivíduos sem experiência ou conhecimentos, excepto no caso de poderem beneficiar, pelo intermédio da pessoa responsável pela sua segurança, de vigilância ou instruções referentes à utilização do aparelho. Mostra-se adequado vigiar as crianças para garantir que estas não brincam com o aparelho.

2 APLICAÇÕES

Este aparelho é uma estação elevatória compacta concebida para evacuar as águas residuais provenientes de um WC de evacuação horizontal de um duche*, bidê*, lavabo*. (*: Consoante o modelo).

Este aparelho responde à norma EN 12050-3 e às normas europeias sobre a segurança eléctrica e a compatibilidade electromagnética.

3 INSTALAÇÃO

O triturador deve estar na mesma divisória que o WC e que as outras instalações sanitárias eventualmente ligadas. Deve ser facilitado o acesso ao aparelho para manutenção. A instalação e o funcionamento do seu aparelho devem respeitar os regulamentos locais e a norma EN 12056-4.

De forma a otimizar os últimos desenvolvimentos técnicos em matéria de acústica incluída neste aparelho, é importante:

- instalar a cuba evitando que esta toque uma parede da divisória,
- posicionar a bacia num solo perfeitamente plano de forma a não contrariar o funcionamento correcto dos blocos anti-vibratórios,
- fixar correctamente os tubos de evacuação evitando distâncias entre as fixações superiores a um metro.

LIGAÇÃO ELÉCTRICA



Efectuar a ligação eléctrica só depois de ter finalizado todas as outras ligações.

A instalação eléctrica deve ser efectuada por um profissional qualificado em electrotécnica.

O aparelho deve ser instalado de forma que a ficha eléctrica fique acessível.

O circuito de alimentação do aparelho deve ser ligado à terra (Classe I) e protegido por um disjuntor diferencial de alta sensibilidade (30mA).

A ligação deve servir exclusivamente para a alimentação do aparelho. Se o cabo deste aparelho estiver danificado, deve ser substituído pelo fabricante ou pelo seu Serviço Pós-Venda para evitar um perigo.

Regulamentação

Procure observar as disposições da norma UNE 20-460 referente ao volume de protecção da casa de banho.

4 FUNCIONAMENTO

Uma vez efectuadas as ligações hidráulicas e eléctricas, Puxar várias vezes pelo auto-

clismo. A passagem da sanita não deve ter fugas.

Verifique a impermeabilidade das ligações com os aparelhos sanitários: WC, duche*, bidê*, lavabo*. (*: Consoante o modelo).

5 MANUTENÇÃO ATENÇÃO!!!

No caso de ausência prolongada, é obrigatório cortar a alimentação geral em água e proteger a instalação contra o gelo.

LIMEZA

Para remover o tártaro e limpar o triturador e a sanita, utilize regularmente um removedor de tártaro adaptado, como o removedor de tártaro especial SANIBROYEUR da SFA, concebido para eliminar o tártaro respeitando os órgãos internos do seu aparelho.

6 POSSÍVEIS INTERVENÇÕES



EM TODOS OS CASOS, DESLIGUE A TOMADA ELÉCTRICA DO TRITURADOR

ANOMALIAS CONSTATADAS	CAUSAS PROVÁVEIS	SOLUÇÕES
• O motor não funciona	• Aparelho não está ligado • Alimentação eléctrica defeituosa • Problema motor ou sistema de comando	• Ligar o aparelho • Verificar a alimentação eléctrica • Caso contrário, consultar o serviço técnico SFA
• O motor funciona com um ruído de matraqueado ou faz barulho mas não funciona (não bombeia)	• Motor bloqueado por um corpo estranho • Problema motor ou sistema de comando	• Remova o corpo estranho • Caso contrário, consultar o serviço técnico SFA
• O aparelho põe-se constantemente em funcionamento	• O autoclismo ou as torneiras dos outros aparelhos sanitários têm fugas • A válvula de retenção tem fugas	• Rever a instalação a montante • Limpar ou substituir a válvula
• O motor funciona correctamente mas não pára ou funciona durante muito tempo	• A altura ou o cumprimento de evacuação é demasiado grande ou há demasiadas curvas (percas de carga) • Problema hidráulico, obstrução	• Rever a instalação • Caso contrário, consultar o serviço técnico SFA
• O aparelho pára	• O aparelho funcionou durante demasiado tempo (corte térmico de segurança)	• Aguardar pelo reacção e consultar o serviço técnico SFA se necessário
• O motor trabalha aos solavancos e a água desce lentamente para a bacia	• O respiradouro da tampa está tapado • Problema do motor	• Destape o respiradouro • Caso contrário, consultar o serviço técnico SFA
• Retorno de água turva no duche (aparelhos com entradas laterais)	• Duche instalado demasiado em baixo em relação ao triturador • Batentes de entradas laterais colmatados	• Rever a instalação • Limpar os batentes • Caso contrário, consultar o serviço técnico SFA

7 CONDIÇÕES DE GARANTIA

Os aparelhos tem uma garantia de 2 anos a partir da data de compra na medida em que a instalação e a utilização estejam conforme a este manual.



ATENCAO !!! Apenas serao tidos em conta pela garantia a evacuacao de papeis higienicos, materias fecais e aguas sanitarias. Fica fora de garantia todos os danos causados no aparelho pela trituracao de substancias estranhas, tais como ; algodoa, tampoes periodicos, pensos higienicos, preservativos, cabelos toalhas, produtos alimentares, objectos de metal, de madeira ou de plastico, ou por evacuacao de liquidos tais como ; dissolventes ou oleos.

1 ALGEMEEN

Het vermaalsysteem is in een speciale unit geïntegreerd en enkel geschikt voor WC's met horizontale afvoer. Deze fecaliënvermaler is geproduceerd volgens kwaliteitsnormen ISO9001. De fecaliënvermaler levert hoge prestaties mits alle installatie- en onderhoudsvorschriften worden opgevolgd.



Dit apparaat is niet bedoeld voor gebruik door personen (inclusief kinderen) met beperkte lichamelijke, zintuiglijke of mentale vaardigheden, of voor personen met ontoereikende kennis of ervaring. Uitzondering hierop vormen zij die onder toezicht staan van een voor hun veiligheid verantwoordelijke persoon, of zij die van die persoon de benodigde aanwijzingen ontvangen voor gebruik van het apparaat. In geval van kinderen dient er toezicht gehouden te worden, om te voorkomen dat ze met het apparaat gaan spelen.

2 TOEPASSINGSMOGLIJKHEDEN

Dit apparaat is een compacte vermaler/vuil-waterpomp ontworpen voor de afvoer van vuil water afkomstig uit een WC met horizontale afvoerleiding, een douche*, een bidet*, een wastafel*, een fonteinje* (*: Afhankelijk van het model). Dit apparaat voldoet aan de Europese Norm (EN) 12050-3 en aan de Europese normen betreffende elektrische veiligheid en elektromagnetische compatibiliteit.

3 INSTALLATIE

De Sanibroyeur dient in dezelfde ruimte aangesloten te worden als de WC en de andere sanitaire toestellen. Voor inspectie en onderhoud dient het apparaat toegankelijk en bereikbaar te zijn.

De installatie en het gebruik van dit apparaat dienen te voldoen aan de Europese installatienorm EN12056-4 en de plaatselijk geldende eisen.

Teneinde de laatste technische vernieuwingen op gebied van geluid te optimaliseren, is het belangrijk:

- de WC zodanig te installeren dat deze de wanden van het vertrek niet raakt
- de WC op een volmaakte vlakke vloer te plaatsen, zodat de goede werking van de isolatiematjes niet verhinderd wordt.
- de afvoerleidingen goed bevestigen en te zorgen dat de afstand tussen de bevestigingsklemmen niet meer dan één meter bedraagt.

ELECTRISCHE INSTALLATIE



De elektriciteit dient pas aangesloten te worden nadat alle wateraansluitingen zijn bevestigd.

De elektrische installatie moet door een erkend vakman worden uitgevoerd. Het apparaat moet zodanig geplaatst worden dat de stekker toegankelijk is.

De stroomkring van het apparaat moet geaard worden en beveiligd worden door een zeer nauwkeurige aardlekschakelaar(30mA).

De aansluiting mag uitsluitend gebruikt worden voor de stroomvoorziening van het apparaat. Indien de kabel van dit apparaat beschadigd is, moet deze door de fabrikant of zijn servicedienst vervangen worden, om ieder gevaar uit te sluiten.

Normen

Gelieve de bepalingen en normen van het betreffende land in acht te nemen betreffende de zones van een badkamer.

4 IN BEDRIJFSTELLING

Wanneer alle hydraulische en elektrische

aansluitingen geïnstalleerd zijn, dient u een paar keer door te spoelen. De verbinding dient waterdicht te zijn.

Controleer of de aansluitingen van de sanitaire apparaten waterdicht zijn: WC, douche*, bidet*, wastafel*, een fonteinje* (*: Afhankelijk van het model).

5 ONDERHOUD

ATTENTIE!!! Bij lange afwezigheid moet de hoofdwatertoevoer worden afgesloten en dient de installatie tegen vorst beveiligd te worden.

ONDERHOUD EN ONTKALKEN

De vermaler en de WC kunnen met ieder in de handel verkrijgbaar schoonmaakmiddel worden onderhouden (geen schuimende wasmiddelen). Gebruik regelmatig de speciale ontalker van SFA Sanibroyeur, die ontworpen is voor het verwijderen van kalkaanslag en vervuilingen zonder de inwendige onderdelen van uw apparaat te beschadigen.

6 OORZAKEN EN REMEDIES VAN STORINGEN



IN IEDER GEVAL DE STEKKER VAN DE VERMALER UIT HET STOPCONTACT HALEN.

STORING	VERMOEDELIJKE OORZAAK	OPLOSSING
De motor slaat niet aan	- De stroomtoevoer is niet ingeschakeld - Elektrische aansluiting is defect - Probleem met de motor of het bedieningssysteem	- Schakel de stroomtoevoer in - Controleer de elektrische aansluiting - Neem contact op met onze servicedienst
De motor maakt een ratelend geluid, bromt maar draait niet	- Motor geblokkeerd door een vreemd voorwerp - Probleem met de motor of het bedieningssysteem	- Het vreemde voorwerp verwijderen - Neem contact op met onze servicedienst
Het apparaat begint af en toe te werken	- Waterlekkeage van de sanitaire aansluitingen - De terugslagklep sluit niet voldoende af	- Controleer het sanitair op lekkage - Controleer de terugslagklep of maak hem schoon
De motor draait correct maar stopt niet meer of draait zeer lang	- De afvoerinstallatie voldoet niet aan de richtlijnen (opvoerhoogte/ lengte) - Hydraulisch probleem, verstopping	Controleer de afvoer
Het apparaat gaat uit (thermisch)	Het apparaat heeft te lang gewerkt (thermische beveiliging)	Wacht tot het apparaat is afgekoeld. Neem daarna indien nodig contact op met een erkende monteur
De motor draait onregelmatig en het water stroomt langzaam in de closetpot	- De beluchter is verstopt - Probleem met de motor	- Maak de beluchter schoon - Neem contact op met onze servicedienst
Er stroomt troebel water terug in de douche (apparaten met zij-ingangen)	- De douche is te laag geïnstalleerd ten opzichte van de fecaliënvermaler - De terugslagkleppen van de zij-ingangen zijn verstopt	- Controleer de afvoer - Reinig de terugslagkleppen - Neem contact op met onze servicedienst

7 GARANTIE

Wij verlenen 2 jaar garantie, vanaf de aankoopdatum, op voorwaarde dat het apparaat correct geïnstalleerd en gebruikt wordt zoals in deze handleiding is aangegeven.



ATTENTIE!!! Schade aan het toestel kan worden voorkomen door volgende voorwerpen NIET in de WC te werpen: watten, maandverbanden, tampons, vochtige toiletdoekjes, keukenpapier, condooms maar ook harde voorwerpen, metalen en houten of plastic voorwerpen. Ook oplosmiddelen, zuren of andere chemische middelen kunnen het apparaat aantasten en zullen niet onder de garantie vallen.

1 BESKRIVNING

Pumpstationen har utvecklats efter konstens alla regler och genomgår kontinuerliga kvalitetskontroller i en fabrik certifierad av ISO 9001. Den har hög prestanda, och är mycket säker och pålitlig men alla installations- och skötselanvisningar i denna bruksanvisning måste iaktas för att enheten ska fungera på rätt sätt.



Denna apparat är inte avsedd att användas av personer (inklusive barn) vars fysiska förmåga, känslighet eller mentala förmåga är begränsad, eller av personer med begränsad erfarenhet och kunskap, förutom om de är under överinseende och får nödvändiga instruktioner om hur apparaten ska användas, samt bistås av en person som ansvarar för deras säkerhet. Håll barn under uppsikt och se till att de inte leker med apparaten.

2 ANVÄNDNINGSSOMRÅDE

Denna enhet är en kompakt pump tillverkad för att evakuera avloppsvatten från en toalett med p-lås, en dusch*, en bidé*, ett handfat*. (*: Beroende på modell).

Apparaten uppfyller kraven i EN 12050-3, och i europeiska säkerhetsstandarder om el-säkerhet och elektromagnetisk kompatibilitet.

3 INSTALLATION

Apparaten ska placeras i samma rum som toaletten och övriga anslutna enheter. Apparaten måste vara lättåtkomlig för kontroll och service.

Vid installation och bruk av apparaten ska lokala regler och standarden EN 12056-4 följas.

För att kunna utnyttja den senaste tekniska utvecklingen på akustikområdet i enheten är det viktigt att:

- installera behållaren så att den inte vidrör en vägg
- placera behållaren på ett helt plant golv för att inte motverka de vibrationsdämpande funktionerna.
- se till att avloppsrören är korrekt fästade/klamrade och att avstånden mellan fästpunkterna inte överstiger en meter.

ELANSLUTNING



Koppla inte in strömmen förrän alla ledningar är dragna.

Allt elektriskt arbete ska utföras av behörig montör. Elinstallationerna måste utföras av en yrkesperson med elektroteknisk kompetens.

Apparaten måste placeras på ett sådant sätt att stickkontaktens propp är tillgänglig.

Apparatens matningskrets måste jordas (elklass I) och skyddas av en mycket känslig differentialbrytare (30mA).

Kopplingen får endast användas till strömförsörjning av apparaten. Om enhetens kabel är skadad måste den bytas ut av tillverkaren eller av dess garantiservice.

Bestämmelser

Respektera gällande standarder i användningslandet beträffande säkerhetsavstånd i badrum.

4 PROVKÖRNING EFTER INSTALLATION

När alla rör- och elanslutningar färdigställts och kontrollerats, spola flera gånger. Kontrollera att röret till toalettens spoltank är tätt.

För att undvika läckage kontrollera alla anslutningar mot: WC, dusch* bidé* handfat*. (*: Beroende på modell).

5 UNDERHÅLL VARNING!!

Vid långvarig frånvaro är det viktigt att stänga av vattentillförseln och skydda systemet mot frost.

RENGÖRING OCH AVKALKNING

För att rengöra och avkalka WC-pumpen och spoltanken, ska ett lämpligt avkalkningsmedel användas regelbundet. Ett exempel är specialavkalkningsmedlet DESCALER från SFA, som är framtaget för att ta bort kalk utan att skada insidan av apparaten.

6 EVENTUELL DRIFTSTÖRNING



BRYT ALLTID STRÖMMEN INNAN NI GÖR NÅGRA INGREPP I ENHETEN

SYMPTOM	MÖJLIG ORSAK	ÅTGÄRD
• Motorn startar inte	• Ingen spänning • Fel i strömförsörjningen • Fel i motorn eller styrenheten	• Koppla ström till apparaten • Kontrollera strömförsörjningen • Kontakta aukt. servicetekniker
• Motorn avger ett skramlande/rasslande ljud men pumpar dåligt	• Främmande föremål blockerar knivrotorn • Fel i motorn eller styrenheten	• Avlägsna föremålet • Eller kontakta auktoriserad servicetekniker
• Motorn startar och stoppar ideligen	• Tillkopplade enheter läcker • Backventilen är defekt/felmonterad	• Kontrollera tillkopplingen • Rensa eller byt backventil
• Motorn arbetar normalt men fortsätter för länge	• Nivåskillnaden för tömning för hög eller får många vinklar (tappar fart) • Hydrauliskt problem, igensättning	• Kontrollera tillkopplingen • Eller kontakta en aukt. servicetekniker
• Enheten stannar	• Enheten har arbetat för länge (motorskyddet har löst ut)	• Avvakta återstart och kontakta sedan en auktoriserad servicetekniker om det behövs.
• Motorn arbetar oregelbundet och vattnet sjunker långsamt i WC-skålen	• Skyddsgallret igensatt • Fel i motorn	• Rensa skyddsgallret • Eller kontakta en aukt. servicetekniker
• Grävatten stiger upp i duschkarat (gäller enheter med sidoinlopp)	• För liten nivåskillnad mellan dusch och pump • Inloppsventilen igensatt	• Kontrollera installationen • Rengör inloppsventilen • Kontakta aukt. servicetekniker

7 GARANTIVILLKOR

Vi lämnar 2 års garanti från inköpsdatumet på WC-pumparna under förutsättning att de installeras och används enligt skötsel- och installationsanvisningen.



WARNING!!! Garantin gäller endast för bortpumpning av toalettppap, er, fekalier och avfallsvatten. Garantin gäller inte för skador på pumpen som orsakats av nedspolning av främmande föremål som t.ex. sanitetsbindor, ta-m ponger, bomull, topz, pappershanddukar, preventivmedel, större mängder hår, våtservetter, livsmedel, föremål av metall, trä eller plast, eller vätskor av typen lösningsmedel, oljor, syror etc.

1 ADVARSEL

Denne kværn/pumpe er udviklet og produceret under konstant kvalitetskontrol på en fabrik, som er ISO 9001 certificeret. Den har høj ydeevne, er sikker og pålidelig under forudsætning af overholdelse af reglerne vedrørende installation og vedligeholdelse beskrevet i denne brugsanvisning.



Dette apparat er ikke beregnet til at blive brugt af personer (herunder børn) hvis fysiske, sensoriske eller mentale evner er svækkede eller personer blot for erfaring eller kendskab, med mindre de er under opsyn eller har modtaget instruktioner om brugen af apparatet af en person, der er ansvarlig for deres sikkerhed. Børn skal være under opsyn for at sikre, at de ikke leger med apparatet.

2 ANVENDELSER

Denne kværn/pumpe er beregnet til at bortlede spildevandet fra et toilet med vandret afløb (Uni-lås), en brusekabine*, et bidet* eller en håndvask*. (*: Afhængigt af model). Dette apparat opfylder standarden EN 12050-3 og de europæiske standarder vedrørende elektrisk sikkerhed og elektromagnetisk kompatibilitet.

3 INSTALLATION

Pumpestationen skal placeres i samme rum som toilettet og andre eventuelt tilsluttede sanitære komponenter. Pumpen skal monteres så den er let tilgængelig for kontrol og service. Apparatets installation og virkemåde skal overholde nationale forskrifter og standarden EN 12056-4. De medfølgende fikseringsplader monteres – forhindrer at pumpen bevæger sig. Afløbsrør fikseres med rørbojler – max afstand 1 meter.

ELEKTRISK TILSLUTNING



Foretag ikke den elektriske tilslutning, før alle installationens tilslutninger er endeligt udført.

Den elektriske installation skal udføres af autoriseret installatør. Apparatet skal placeres således, at stikkontakten er let tilgængelig.

Den elektriske tilslutning skal have jordforbindelse (klasse I) og være beskyttet af et HPII-relæ (30mA) .

Tilslutningen må udelukkende bruges til strømforsyning af apparatet. Ved beskadigelse af kabel etc. skal udskiftning udføres af autoriseret installatør.

Forskrifter

Sørg for at overholde alle bestemmelserne i den gældende standard i brugslandet vedrørende beskyttelse i et badeværelse.

4 AFPRØVNING EFTER INSTALLATION

Når alle hydrauliske og elektriske tilslutninger er udført, skyl toilettet ud flere gange. Pas-sagen fra kummen skal være vandtæt. Tjek at tilsluttede enheder er tætte: toilet, bruser*, bidet*, håndvask*. (*: Afhængigt af model).

5 VEDLIGEHOLDELSE VIGTIGT !!!

Ved længere tids fravær skal der lukkes for vandforsyningen, og installationen skal beskyttes mod frost.

RENGØRING/AFKALKNING

Brug regelmæssigt et velegnet afkalkningsmiddel for at undgå kalkaflejringer i kummen og pumpestationen, som f.eks. det særlige SANIBROYEUR afkalkningsmiddel fra SFA, som er beregnet til at fjerne kalk uden at ødelægge apparatets interne komponenter.

6 EVENTUELLE DRIFTSFORSTYRRELSER



UNDER ALLE OMSTÆNDIGHEDER SKAL KVÆRNE NS STIK TAGES UD AF STIKKONTAKTEN

KONSTATETERET FEJL	MULIG ÅRSAG	UDBEDRING
• Motoren starter ikke	• Apparatet er ikke tilsluttet • Der er fejl ved strømforsyningen • Problem med motoren eller styresystemet	• Tilslut apparatet • Kontrollér strømforsyningen • Hvis ikke, kontakt en autoriseret reparatør
• Motoren går med en skramlende lyd eller summer, men drejer ikke rundt	• Motoren er blokeret af et fremmedlegeme • Problem med motoren eller styresystemet	• Fjern fremmedlegemet • Hvis ikke, kontakt en autoriseret reparatør
• Pumpen fungerer diskontinuerligt	• De tilsluttede sanitetsapparater lækker • Kontraventilen lækker	• Kontrollér installationen ovenfor pumpen • Rengør eller udskift kontraventilen
• Motoren går normalt, men stopper ikke eller går meget længe	• Aflobsrøret sidder for højt eller er for langt eller har for mange bøjninger (tryktab) • Hydraulisk problem, tilstopning	• Kontrollér installationen • Hvis ikke, kontakt en autoriseret reparatør
• Pumpen standser	• Pumpen har fungeret for længe (termisk sikkerhedsafbrydelse)	• Vent indtil pumpen genindkables, og kontakt om nødvendigt en autoriseret reparatør
• Motoren starter med ryk og vandet løber langsomt ned i kummen	• Lågets luftåbning er tilstoppet • Problem med motoren	• Rens luftåbningen • Hvis ikke, kontakt en autoriseret reparatør
• Tilbageløb af grumset vand i brusekabinen (pumper med sideindløb)	• Brusekarets afløb er installeret for lavt i forhold til kværnen • Klapperne i sideindløbene er tilstoppet	• Kontrollér installationen • Rengør klapperne • Hvis ikke, kontakt en autoriseret reparatør

7 GARANTIBETINGELSER

Dette apparat er dækket af en 2-års garanti regnet fra købsdatoen under forbehold af en installation og en anvendelse i overensstemmelse med nærværende brugsanvisning.



ADVARSEL!!! Kun bortledning af toiletpapir, fækalier og grå afløbsvand er dækket under garantien. Beskadigelse grundet fremmedlegemer som f.eks. menstruationsbind kondomer, papirhåndklæder. Mad, metal-, træ- eller plastigenstande, hår eller væsker som olie, ætsende væsker dækkes ikke under garantien.

1 BESKRIVELSE

Denne klosettumpen er produsert av en fabrikk med kvalitetssertifikat ifølge ISO 9001. Apparatet har et høyt prestasjons-, sikkerhets- og pålitelighetsnivå, så fremt reglene for montering og vedlikehold du finner i denne bruksanvisningen respekteres nøye.



Dette apparatet er ikke beregnet for personer (herunder barn), med reduserte fysiske, sansemessige eller mentale evner, eller som har mangelfull kunnskap om bruken av apparatet, med mindre de overvåkes av og får tilstrekkelig opplæring i bruken av apparatet av en person som er ansvarlig for deres sikkerhet. Pass på barna og sørg for at de ikke leker med apparatet.

2 BRUK

Dette apparatet er et kompakt pumpeanlegg som leder bort avløp vann fra et toalett med vannrett avløpsrør, fra en dusj*, bidet*, vask*. (*: Avhengig av modell).

Dette apparatet er i overensstemmelse med EN 12050-3 og europeiske normer angående elektrisk sikkerhet og elektromagnetisk kompatibilitet.

3 INSTALLASJON

Pumpen skal plasseres i samme rom som klosettet og de andre sanitære produktene som eventuelt er tilkople. Plasser ikke klosettet nærmere veggen enn at klosettumpen enkelt kan demonteres for eventuell service.

Installasjon og funksjon av apparatet må være i tråd med lokale regler og normen EN 12056-4.

For å få fullt utbytte av de siste teknologiske innovasjoner når det gjelder akustikk er det viktig:

- å plassere tanken slik at den ikke berører rommets vegger
- å plassere klosettumpen på et helt jevnt gulv slik at de vibrasjonshindrende anordningene ikke forstyrres
- å sørge for at avløpsrørene er godt festet/ klamret og at avstanden mellom festepunktene ikke er større enn en meter.

EL-TILKOPLING



Utfør de elektriske kablingene først når alle kablingene er avsluttet.

Den elektriske installeringen skal utføres av en kvalifisert elektrotekniker. Apparatet skal

plasseres slik at støpselet er tilgjengelig.

Apparatets strømkrets skal kobles til jording (klasse I) og beskyttes med en overbelastningsbryter med høy følsomhet (30mA).

Tilkoblingen skal kun brukes til strømtilførsel til apparatet. Dersom ledningen til dette apparatet er skadet, skal den erstattes av produsenten eller dens kundeservice for å unngå enhver fare.

Regelverk

Sørg for å overholde bestemmelsene i gjeldende norm angående strømvern i baderom i det landet der apparatet brukes.

4 PRØVEKJØRING

Når alle de hydrauliske og elektriske kablingene er utført, spyler du ned klosettet flere ganger for å kontrollere at alle pak-

ninger og skjøter er tette.

Kontroller også de eventuelle tilkoblede sanitærproduktene, som servant, dusjabinett, bidet, etc., at det ikke sildrer vann fra disse inn i klosettumpen.

5 VEDLIKEHOLD ADVARSEL!!!

Ved lengre fravær skal husets vanntilførsel alltid stenges.

RENGJØRING OG AVKALKING

For innvendig rengjøring av kvernen og klosettskålen, bruk et egnet avkalkingsmiddel som Sanibroyeur fra SFA, laget for å fjerne kalk samtidig som det ikke skader apparatet.

6 EVENTUELLE DRIFTSFORSTYRRELSER



KOBLE ALLTID FRA STRØMTILFØRSELEN FØR DET GJØRES INNGREP

PROBLEM	ÅRSAK	UTBEDRING
• Motoren starter ikke	• Apparatet er ikke tilkoblet • Defekt strømtilførsel • Problem i motoren eller styresystemet	• Koble til apparatet • Kontroller strømtilførselen • Eller kontakt installatøren
• Motoren brummer, men går ikke. Pumper ikke ut.	• Motoren er blokkert av et fremmedlegeme • Problem i motoren eller styresystemet	• Fjern fremmedlegemet • Eller kontakt installatøren
• Motoren går med korte avbrudd	• Lekkasje i et av de tilkoblede sanitærproduktene • Lekkasje i tilbakeslagsventilen	• Kontroller installasjonen oppstrøms • Rengjør eller skift ut tilbakeslagsventilen
• Motoren går normalt, men stopper ikke eller stopper først etter lang tid	• Lengden eller høyden på avløpsrøret er for stor, eller det er for mange bøyger på opplegget (trykktap) • Hydraulisk problem, tiltetning	• Kontroller installasjon
• Apparatet stanser	• Apparatet har vært for lenge i drift (termisk beskyttelses utløst)	• Eller kontakt installatøren
• Motoren går ujevnt og vannet synker langsomt i klosettskålen	• Tett beskyttelsesgitter • Motorproblem	• Rens gitteret • Eller kontakt installatøren
• Uklart vann kommer opp i dusjkabinettet (klosettumpe med sideinnløp)	• Dusjkabinettet er installert for lavt i forhold til klosettumpen • Sideinnløpsventilene er tilstoppet	• Kontroller installasjonen • Rengjør ventilene • Eller kontakt installatøren

7 GARANTIBETINGELSER

Det gir 2 års garanti fra kjøpsdato på klosettumpene under forutsetning at de er installert og brukt i henhold til bruks- og installasjonsanvisningen.



ADVARSEL !!! Garantien gjelder kun for utpumpning av toalett-papir, fekalier og avløp vann. Garantien gjelder ikke for skader på pumpen som forårsakes av nedspylte fremmedlegemer, som f. eks. sanitetsbind, tamponger, Q-tips, papi-rhandklar, kondomer, større mengder hår, bomull, næringsmidler, gjenstander av metall, treverk eller plast eller væsker som løsemidler, oljer, syrer etc.

1 KUVAUUS

Silppuripumppu on normien mukaisesti suunniteltu laite, ja sen laatu tarkastetaan säännöllisesti ISO 9001 -sertifioidussa laaduntarkastuslaitoksessa. Laitteesi moitteeton toiminta, turvallisuus ja luotettavuus vaatii, että tässä ohjeessa annettu- ja asennus- ja huolto-ohjeita noudatetaan asianmukaisesti.



Laite on tarkoitettu jätevesien (WC) poistoon, ja sen saa aukaista ja huoltaa vain ammattitaitoinen putkiasentaja. Tarvittaessa opasta käyttäjiä laitteen käyttöön liittyvissä asioissa.

2 SOVELLUKSET

Tämä laite on pienikokoinen pumppausasema jätevesien poistoon WC:stä (vaakataston poistolla), suihkusta*, bideestä*, pesualtaasta* (*: mallista riippuen).

Tämä laite täyttää EN 12050-3 ja eurooppalaisten standardien sähköturvallisuutta ja sähkömagneettista yhteensopivuutta koskevat vaatimukset.

3 ASENNUS

Silppuripumppu asennetaan samaan tilaan WC:n kanssa. Laitteeseen on päästävähelosti tekemään tarkistus- ja huoltotoimenpiteitä.

Laitteen asennuksen ja toiminnan on oltava paikallisten määräysten ja EN 12056-4 -standardin mukaiset.

Jotta hyötyisit optimaalisesti laitteen edistyksestä akustiiikkateknikaasta, on tärkeää:

- asentaa WC siten, että se ei kosketa asennustilan seinämää
- sijoittaa WC täysin tasaiselle lattialle, jotta tärinäsuojien toiminta ei häiriintyisi
- kiinnittää tyhjennysputkisto kannakkein. Kannakeväli ei saa olla yli 1 m.

SÄHKÖLIITÄNTÄ



Tee sähköliitäntä vasta sen jälkeen, kun muut liitokset ja kytkennät on tehty.

Laitteen sähköliitäntään saa tehdä vain sähköasentaja.

Laite on sijoitettava niin, että sähköjohtojen pistoke on helposti käsiteltävissä.

Laitteen sähköpiiri on maadoitettava (luokka I) ja suojattava erittäin herkästi reagoivalla vikavirtasuojakytkimellä (30 mA).

Sähköliitäntä on varattava yksin tämän laitteen käyttöön.

Normit

Noudata laitteen käyttömaassa kylpyhuoneen suojaamisesta annetun, voimassaolevan normin määräyksiä.

4 KÄYTTÖÖNOTTO

Kun kaikki vesi- ja sähköliitännät on tehty, suorita huuhtelu useita kertoja. Tarkista putkien ja liitosten tiiviys.

Tarkista saniteettilaitteiden liitäntöjen tiiviys: WC, suihku*, bidee*, pesuallas* (*: mallista riippuen).

5 HUOLTO

HUOM!!!

Katkaise veden pääsyttö ja suojaa laite pakkaselta pidemmän poissolon ajaksi.

PUHDISTAMINEN JA KALKINPOISTO

Käytä säännöllisesti kalkin poistoon ja silppuripumpun ja WC:n puhdistukseen sopivaa kalkinpoistoainetta (esim. SFA:n SANIBROYEUR-kalkinpoistoaine), joka on suunniteltu poistamaan kalkki laitteen sisäosia vahingoittamatta.

6 MAHDOLLISET KÄYTTÖHÄIRIÖT



IRROTA PISTOKE PISTORASIASTA ENNEN TOIMENPITEITÄ

HÄIRIÖ	MAHDOLLISET SYYT	TOIMENPITEET
• Moottori ei käynnisty	• Laitetta ei ole kytketty virtapiiriin • Virtalähde on viallinen • Ongelma moottorissa tai ohjausjärjestelmässä	• Kytke laite virtapiiriin • Tarkista virtalähde • Ota muussa tapauksessa yhteys huoltoon
• Moottori rämisee ja hurisee, mutta ei käy eikä huutele	• Vieras esine salpaa moottorin • Ongelma moottorissa tai ohjausjärjestelmässä	• Poista vieras esine • Ota muussa tapauksessa yhteys huoltoon
• Laite käy katkonaisesti	• Liitetyt saniteettikalusteet vuotavat • Takaiskuventtiili vuotaa	• Tarkista liitetyt saniteettikalusteet • Puhdista tai vaihda takaiskuventtiili
• Moottori käy normaalisti, mutta ei pysähdy enää ja käy hyvin pitkään	• Poistojärjestelmän korkeus tai pultus on liian suuri tai putkenkulmia on liikaa (vastapaine) • Tukos	• Tarkista poistojärjestelmän asennus • Ota muussa tapauksessa yhteys huoltoon
• Laite lakkaa toimimasta	• Laite on käynyt liian kauan (yliliikumenemissuoja)	• Odota, että virta kytkeytyy päälle, ja kutsu tarvittaessa huolto paikalle
• Moottori käy jaksottaisesti, ja vesi laskee WC:ssä hitaasti	• Kannen aukko on tukossa • Moottorissa on toimintahäiriö	• Puhdista kannen aukko • Ota muussa tapauksessa yhteys huoltoon

7 TAKUUEHDOT

Laitteessa on 2 vuoden takuu ostopäivästä alkaen, mikäli se on asennettu ja sitä on käytetty tämän ohjeen mukaisesti.



HUOM !!! Takuu ei kata muiden kuin vessapaperin, ulosteen ja saniteettivesien poiston. Takuu ei koske niita vahinkoja, jotka on aiheutettu pumpulle silputtaessa vieraita esineitä kuten pumppulia, tamponeja, terveysseiteitä, kondomeja, hiuksia tai öljyjä, riepua, elintarvikkeita, metalli-, puu- tai muoviesineitä.

1 FIGYELMEZTETÉS

Ezt az őrlőszerkezetet a vonatkozó szakmai előírások szerint fejlesztették ki, és állandó minőségi ellenőrzésnek vetik alá egy ISO 9001 minősítéssel rendelkező üzemben. A készülék magas színvonalú, biztonságos és üzembiztos működéséhez gondosan be kell tartani az ebben az utasításban leírt telepítési és karbantartási szabályokat.

 **Ez a készülék nem csökkent fizikai, érzékszervi vagy mentális képességekkel rendelkező személyek (és gyerekek), illetve tapasztalatlan vagy megfelelő ismeretekkel nem rendelkező személyek által történő használatra készült, kivéve, ha biztonságukért felelős személy felügyelete alatt állnak, illetve ha ez a felelős személy előzetesen ellátta őket a készülék használatára vonatkozó információkkal. Vigyázzon a gyermekekre, és ügyeljen arra, hogy ne játsszanak a készülékkel.**

2 LEÍRÁS

Ez a készülék egy komplett szivattyúállomás, amely vízszintes elfolyású WC-csészből, tusolóból*, bidéből* mosdóból* (*: modellől függően) származó szennyvíz elvezetéséhez tervezték.

Ez a készülék megfelel az EN 12050-3 szabványnak, valamint a villamos termékek biztonságáról és az elektromágneses összeférhetőségről szóló európai előírásoknak.

3 TELEPÍTÉS

Az őrlőberendezésnek a WC-vel és az esetleg csatlakoztatott egyéb szaniter berendezéssel azonos helyiségben kell lennie. A készülék legyen könnyen hozzáférhető az ellenőrzés és karbantartás érdekében.

A készüléket a helyi előírások és az EN 12056-4 szabvány figyelembe vételével kell telepíteni és működtetni.

A készüléknél felhasznált legújabb akusztikai technikai fejlesztések optimalizálása érdekében fontos, hogy:

- a tartályt úgy helyezze el, hogy az ne érjen hozzá a helyiség egyik falához sem
- a tartályt tökéletesen sima padlózatot helyezze el, hogy semmi se akadályozza a vibrációcsökkentő elemek működését
- az ürítő csöveket úgy helyezze el, hogy a felső rögzítések közötti távolság ne haladja meg az egy métert.

VILLAMOS CSATLAKOZTATÁS

 **A villamos bekötéseket a készülék végleges csatlakoztatása után kell elvégezni.**

Az elektromos szerelést elektrotechnikai végzettséggel rendelkező szakember végezze. A készüléket úgy kell elhelyezni, hogy a hálózati

csatlakozó aljzat hozzáférhető maradjon.

A készülék áramkörét földelni kell (I. érintésvédelmi osztály), és nagy érzékenységű (30 mA) differenciálmegszakítóval kell védeni.

A bekötés kizárólag a készülék áramellátására szolgálhat. Ha készülék kábele meghibásodik, akkor azt a gyártónál vagy a vevőszolgálatnál lehet kicserélni, a veszély elkerülése végett.

Előírások

A telepítés országában hatályos szabvány fürdőszobai elektromos védelemre vonatkozó előírásait be kell tartani.

4 ÜZEMBE HELYEZÉS

A hidraulikus és villamos csatlakozások kivételése után húzza le többször a WC öblítő-

tartályt. A csésze átfolyó részének vízállónak kell lennie.

Ellenőrizni kell, hogy szivárgásmentesek-e a szaniter készülékek (WC, tusoló*, bidé*, mosdó* (*: modellől függően) csatlakozásai.

5 KARBANTARTÁS

FIGYELEM!!!

Hosszas távollét esetén feltétlenül el kell zárni a fővízcsapot, és biztosítani kell a berendezés fagyvédelmét.

TISZTÍTÁS/VÍZKÖMENTESÍTÉS

Az őrlőkészülék és a tartály vízkömentesítéséhez és tisztításához használjon megfelelő vízkömentesítő szert, például SANIBROYEUR SFA vízköoldót, ami a készülék belső egyseit kímélve távolítja el a vízkövet.

6 ESETLEGES JAVÍTÁSOK



MINDEN ESETBEN HÚZZA KI A KONNEKTORBÓL A KÉSZÜLÉKET.

HIBALEÍRÁS	LEHETSÉGES OKOK	HIBAELHÁRÍTÁS
• A motor nem indul el.	• Rossz villamos csatlakozás • Hibás áramellátás • Motor- vagy vezérlőmű hiba	• Csatlakoztassa a készüléket a hálózathoz • Ellenőrizze az áramellátást • Forduljon engedéllyel rendelkező szerelőhöz
• A motor zörög vagy zúmmög, de nem forog	• A motor működését idegen test akadályozza • Motor vagy vezérlőmű hibás	• Távolítsa el az idegen testet • Forduljon engedéllyel rendelkező szerelőhöz
• A készülék időnként újraindul	• A csatlakoztatott szaniter eszközök szivárognak • A visszacsapó szelep szivárog	• Ellenőrizze az előtte lévő berendezéseket • Tisztítsa meg vagy cserélje ki a visszacsapó szelepet
• A motor megfelelően működik, de nem áll le, vagy nagyon sokáig működik	• A szállítási magasság vagy távolság túl nagy, vagy túl sok kanyók van a vezetékekben (teljesítményvesztés) • Hidraulikus probléma, eltömődés	• Vizsgálja át a berendezést
• A készülék leáll	• A készülék túl hosszú ideig működött (biztonsági hőkapcsoló)	• Várja meg, míg újra bekapcsolódik, szükség esetén forduljon engedéllyel rendelkező szerelőhöz
• A motor akadozva működik, a víz lassan folyik le a végecsészébe	• A fedél szellőzőnyílása eltömődött • Motorhiba	• Tisztítsa ki a szellőzőnyílást • Forduljon engedéllyel rendelkező szerelőhöz
• Zavaros víz folyik vissza a zuhanyhoz (oldalsó bevezetési készülékek)	• A zuhany túl alacsonyan helyezkedik el az őrlőkészülékhez képest • Eltömődött oldalsó bemeneti csapanttyúk	• Ellenőrizze a berendezést • Tisztítsa ki a csapanttyúkat • Forduljon engedéllyel rendelkező szerelőhöz

7 JÓTÁLLÁSI FELTÉTELEK

A készülékre a vásárlás napjától számított két év jótállás vonatkozik, feltéve, hogy a készülék telepítése és használata megfelel ennek a használati útmutatónak.



FIGYELEM !!! A Garancia csak vécepapírra, fecaliaanyagra és szennyvizre vonatkozik. Azokra a károokra, ami idegen tárgyak, pl. vatta, tampon, tisztaságibetét, penek, elemiszerek, ovszer, haj, fem-, fa- vagy műanyagtárgyak őrlésekor vagy olajok illetve oldoszeres szivattyúzasakor keletkeznek a készülékben, nem vonatkozik a garancia.

1 OSTRZEŻENIE

Rozdrabniacz jest opracowany zgodnie z zasadami sztuki i poddawany stałej kontroli jako@ci w fabryce posiadającej certyfikat ISO 9001. Prawidłowe działanie urządzenia wymaga skrupulatnego przestrzegania zasad instalacji i konserwacji podanych w instrukcji.



Niniejsze urządzenie nie jest przeznaczone do ucytku przez osoby (w tym dzieci) o ograniczonej sprawności fizycznej, umysłowej lub psychicznej lub osoby, które nie posiadają wystarczającego do@wiadczania lub wiedzy, z wyjątkiem przypadków, w których niniejsze osoby znajdują się pod nadzorem lub otrzymały niezbędne instrukcje w zakresie ucytkowania urządzenia od osoby odpowiedzialnej za ich bezpieczeństwo. Należy dopilnować, aby dzieci nie wykorzystywały urządzenia do zabawy.

2 ZASTOSOWANIE

Urządzenie to przepompownia przeznaczona do odprowadzania brudnej wody pochodzącej z WC z odpływem poziomym, z kabiny prysznicowej*, bidetu*, umywalki*. (*: w zależności od modelu).

Urządzenie jest zgodne z normą europejską EN 12050-3 i z dyrektywami oraz normami europejskimi dotyczącymi bezpieczeństwa elektrycznego i zgodności elektromagnetycznej.

3 INSTALACJA

Rozdrabniacz musi znajdować się w tym samym pomieszczeniu co WC i pozostałe, ewentualnie podłączone, urządzenia sanitarne. Urządzenie musi być zainstalowane w miejscu zapewniającym łatwy dostęp do kontroli i konserwacji.

Instalacja i działanie tego urządzenia muszą być zgodne z miejscowymi przepisami i normą EN 12056-4.

Jest dostarczone z elementami mocowania zapobiegającymi obracaniu się i przemieszczaniu. Dla zoptymalizowania najnowszych technik tłumienia hałasu wykorzystanych w urządzeniu, należy:

- zainstalować muszlę tak, aby nie stykała się ze ścianami pomieszczenia
- ustawić muszlę na płaskiej powierzchni, aby nie zakłócać działania kółek antywibracyjnych
- umocować prawidłowo przewody odpływowe unikając przekraczania odległości jednego metra między mocowaniami.

PODŁĄCZENIE ELEKTRYCZNE



Należy podłączać urządzenie do prądu tylko po wcześniejszym zakończeniu generalnych prac z instalacją elektryczną.

Instalacja elektryczna musi zostać wykonana przez wykwalifikowanego specjalistę w dziedzinie elektrotechniki. Urządzenie musi zostać ustawione w taki sposób, aby zapew-

niony był łatwy dostęp do wtyczki w gniazdu zasilającym. Obwód zasilający urządzenia musi być uziemiony (Klasa I) i wyposażony w wyłącznik różnicę prądowy o wysokiej czułości (30mA). Połączenie może słychać wyłączenie zasilania urządzenia. Jeżeli przewód zasilania urządzenia jest uszkodzony, musi zostać wymieniony przez producenta lub serwis posprzedażowy, aby zapobiec wszelkiemu niebezpieczeństwu.

Normy

Należy przestrzegać przepisów obowiązującej normy, dotyczących bezpiecznych odległości w łazience.

4 URUCHOMIENIE

Po wykonaniu podłączeń hydraulicznych i elektrycznych, należy kilkakrotnie uruchomić spłuczkę. Zawór zamykający spłuczkę jak i uszczelka urządzenia spusto-

wego muszą być szczelne.

Sprawdź szczelność połączeń z urządzeniami sanitarnymi: WC, prysznic*, bidet*, umywalka*. (*: w zaleceniu@ci do modelu).

5 OBSŁUGA I ZALECENIA UWAGA !!!

W przypadku długiej nieobecności, należy zakręcić główny zawór wody i zabezpieczyć instalację przed mrozem.

CZYSZCZENIE/USUWANIE KAMienia

W celu usunięcia kamienia i wyczyszczenia rozdrabniarki i muszli, należy regularnie używać środka do usuwania kamienia, takiego jak produkt SANICLEAN firmy SFA, przeznaczony do usuwania kamienia bez żadnej szkody dla elementów wewnętrznych urządzenia.

6 MOŻLIWOŚCI USUNIĘCIA USTEREK



W KAŻDYM PRZYPADKU NALEŻY ODŁĄCZYĆ ZASILANIE ROZDRABNIACZA

STWIERDZONE NIEPRAWIDŁOWOŚCI	PRAWDOPODOBNE PRZYCZYNY	JAK POSTĘPOWAĆ
• Silnik nie włącza się	• Urządzenie nie jest podłączone do sieci • Wadliwe zasilanie elektryczne • Problem z silnikiem lub układem sterowania	• Podłączyć urządzenie • Sprawdzić zasilanie elektryczne • Skontaktować się z serwisem
• Silnik pracuje głośno. Silnik buczy, ale nie pracuje.	• Silnik jest zablokowany przez ciało obce • Problem z silnikiem lub układem sterowania	• Usunąć ciało obce • Skontaktować się z serwisem
• Pompa włącza się w regularnych odstępach czasu	• Przeciek spłuczka lub baterie podłączonego do urządzenia punktów sanitarnych • Zawór zwrotny nie funkcjonuje prawidłowo	• Sprawdzić instalację poprzedzającą urządzenie • Przeczścić lub wymienić zawór zwrotny
• Silnik pracuje normalnie ale nie zatrzymuje się lub pracuje bardzo długo	• Wysokość podnoszenia lub odległość odprowadzenia jest zbyt duża lub zbyt wiele kolanek zainstalowano (spadek ciśnienia) • Problem hydrauliczny, zatkanie	• Sprawdzić instalację
• Urządzenie zatrzymuje się	• Urządzenie działa za długo (termiczny wyłącznik bezpieczeństwa)	• Zaczekać na kolejne włączenie, a następnie w razie potrzeby skontaktować się z serwisem
• Silnik pracuje w sposób nieciągły, a woda spływa powoli do zbiornika	• Odpowietrznik pokrywy jest zatkały • Problem z silnikiem	• Odebrać odpowietrznik pokrywy • Skontaktować się z serwisem
• Powrót wody do prysznic (urządzenia z wlotami bocznymi)	• Prysznic jest zainstalowany za nisko w stosunku do rozdrabniacza • Kłapy wlotowe boczne zatkałe	• Sprawdzić instalację • Wyczyścić kłapy • Skontaktować się z serwisem

7 GWARANCJA

Urządzenie posiada gwarancję na dwa lata licząc od daty zakupu pod warunkiem wykonania prawidłowej instalacji i użytkowania zgodnie z niniejszą instrukcją.



Gwarancja obejmuje wyłącznie usuwanie papieru toaletowego, fekalii i wody sanitarnej. Każde uszkodzenie urządzenia spowodowane przez ciała obce takie jak bawełna, tampony, ręczniki papierowe, chusteczki, produkty spożywcze, prezerwatywy, włosy, przedmioty metalowe, drewniane lub plastikowe lub przepompowywanie płynów takich jak rozpuszczalniki lub oleje nie jest objęte gwarancją.

1 ПРЕДУПРЕЖДЕНИЕ

Данная насосная станция разработана в соответствии с промышленными нормами. Она прошла постоянный контроль качества на заводе в соответствии со стандартом ISO 9001. Для того чтобы ваш аппарат правильно функционировал, необходимо тщательно соблюдать правила установки и технического обслуживания, указанные в данной инструкции.



Этот аппарат не предназначен для лиц (в том числе детей) с ограниченными физическими, сенсорными или умственными возможностями, а также не имеющих опыта и знаний по обращению с ним, за исключением тех случаев, когда они пользуются им под наблюдением и получают указания по работе с ним от лица, ответственного за их безопасность. Следите за детьми и контролируйте, чтобы они не играли с аппаратом.

2 ПРИМЕНЕНИЕ

Данное устройство представляет собой компактную насосную станцию, предназначенную для удаления отработанной воды из унитаза с горизонтальным стоком (выпуском), душа*, биде* или умывальника*. (*: В зависимости от модели).

Данный аппарат соответствует нормам EN 12050-3 и европейским нормам, касающимся электрической безопасности и электромагнитной совместимости.

3 УСТАНОВКА

Аппарат должен находиться в том же помещении, что и унитаз, а также прочее подключенное к нему санитарно-техническое оборудование, если таковое имеется. Необходимо иметь свободный доступ к прибору для выполнения проверок и технического обслуживания.

Установка и эксплуатация аппарата должны соответствовать местным нормам и стандарту EN 12056-4.

Установить насос таким образом, чтобы он не касался перегородки помещения, поставить насос на совершенно плоскую поверхность пола во избежание нарушения правильной работы противовибрационных захжимов, правильно закрепить систему выводющих труб таким образом, чтобы расстояние между креплениями ями не превышало один метр.

ЭЛЕКТРИЧЕСКОЕ ПОДКЛЮЧЕНИЕ



Электрическое подключение следует осуществить только после окончательного выполнения всех необходимых соединений.

Электроустановка должна осуществляться квалифицированным специалистом. Прибор следует поместить таким образом, чтобы был обеспечен доступ к электрической розетке.

Данный аппарат должен быть обязательно подключен к заземлению (класс I) и дифференциальному автоматическому выключателю высокой чувствительности (30mA).

Розетка должна быть использована только для питания аппарата. В случае повреждения кабеля аппарата его следует заменить у производителя или в его послепродажной службе во избежание риска.

Нормы и правила

Соблюдайте нормативы по электрической безопасности в ванных комнатах, действующие в стране использования.

4 ВВОД В ЭКСПЛУАТАЦИЮ

Выполнив электрические и гидравлические соединения, следует несколько раз спустить воду. Унитаз не должен подтекать.

Проверить герметичность соединений с сантехникой: унитаза, душ*, биде*, умывальник*. (*: В зависимости от модели).

5 ТЕХНИЧЕСКОЕ ОБСЛУЖИВАНИЕ ОСТОРОЖНО !!!

В случае длительного отсутствия необходимо перекрыть общую подачу воды и защитить установку от заморозков, слив воды из корпуса насоса.

ОЧИСТКА И УДАЛЕНИЕ ИЗВЕСТКОВОГО НАЛЕТА

Для удаления известкового налета и очистки насосной станции и унитаза следует регулярно использовать специально предназначенное для этого средство от накипи или раствор 1л/л 9% уксуса на 5 литров воды.

6 НЕИСПРАВНОСТИ, ИХ ПРИЧИНЫ И СПОСОБЫ УСТРАНЕНИЯ



ДО ВЫПОЛНЕНИЯ ВСЕХ ОПЕРАЦИЙ АППАРАТ СЛЕДУЕТ ОТКЛЮЧИТЬ ОТ СЕТИ

ВЫЯВЛЕНИЕ НЕИСПРАВНОСТЕЙ	ВОЗМОЖНЫЕ ПРИЧИНЫ	ПОЧИНКА
• Мотор не включается	• Прибор не включен в сеть • Неисправность системы электроснабжения • Неисправность мотора или системы управления	• Включить аппарат в сеть • Проверить систему электроснабжения • Если проблема не устранена, обратиться в лицензированную службу ремонта
• Мотор трещит при работе или гудит, но не вращается	• Инеродный предмет мешает вращению мотора • Неисправность мотора или системы управления	• Изъять инородное тело • Если проблема не устранена, обратиться в лицензированную службу ремонта
• Самопроизвольное включение прибора	• Подтекание запорных устройств санитарной техники, подключенной к прибору • Пропускает обратный клапан	• Проверить оборудование, подключенное к прибору • Прочистить или заменить обратный клапан
• Мотор вращается без нарушений, но не останавливается или вращается слишком длительное время	• Высота или длина вывода слишком велика или насчитывает слишком много патрубков (потеря нагрузки) • Проблема гидравлики, закупорка	• Произвести осмотр напорного трубопровода • Если проблема не устранена, обратиться в лицензированную службу ремонта
• Прибор останавливается	• Прибор работал слишком длительное время (термическое отключение)	• Подождать повторного включения, затем при необходимости проконсультироваться в лицензированной службе ремонта
• Мотор работает с перерывами и вода медленно спускается в унитаз	• Вытяжное отверстие крышки закупорено • Неисправность мотора	• Прочистить отверстие вытяжки • Если проблема не устранена, обратиться в лицензированную службу ремонта
• Загрязненная вода выводится в душ (приборы с боковыми выходами)	• Душ установлен слишком низко относительно аппарата • не работают створки боковых выходов	• Произвести осмотр установки • очистить створки • Если проблема не устранена, обратиться в лицензированную службу ремонта

7 УСЛОВИЯ ГАРАНТИИ

Гарантийный срок аппарата 2,5 года (Для Украины – 2 года гарантии), начиная с даты покупки, при условии установки и использования в соответствии с данной инструкцией.



ОСТОРОЖНО!!! Гарантия распространяется только на вывод туалетной бумаги, экскрементов и сточных вод. Гарантия не распространяется на ущерб, нанесенный прибору в результате проникновения инородных тел, как то: вата, тампоны, гигиенические салфетки, прокладки, продукты питания, презервативы, волосы, металлические, деревянные или пластмассовые предметы, а также в результате перекачки таких жидкостей, как масла или растворители.

1 AVERTISMENT

Acesta este un aparat de tocare-pompare dezvoltat în conformitate cu regulile în vigoare și supus permanent controlului calității într-o uzină certificată ISO 9001. Acest aparat dispune de un nivel ridicat de performanță, este sigur și fiabil, cu condiția ca toate instrucțiunile de instalare și întreținere specificate în prezentul manual să fie respectate cu strictețe.



Acest aparat nu trebuie utilizat de persoanele (inclusiv copii) cu deficiențe fizice, senzoriale sau psihice sau de persoanele care nu au experiență și cunoștințele necesare pentru folosirea acestuia, cu excepția cazului în care sunt supravegheate sau au primit instrucțiuni privind utilizarea aparatului de la o persoană care răspunde de siguranța lor. Supravegheați copiii pentru ca aceștia să nu se joace cu aparatul.

2 APLICAȚII

Acest aparat este o stație de pompare pe verticală, de mici dimensiuni, destinată evacuării apelor uzate care provin de la un WC cu evacuare orizontală, de la un duș*, un bideu* sau o chiuvetă* (* în funcție de model).

Acest aparat corespunde normei EN 12050-3 și normelor europene cu privire la siguranța electrică și compatibilitatea electromagnetică.

3 INSTALARE

Aparatul trebuie să se afle în aceeași încăpere cu WC-ul, ca și cu celelalte instalații sanitare racordate eventual la acest echipament. Accesul la aparat trebuie să se realizeze ușor, în cazul unor verificări sau în cazul unor lucrări de service. Instalarea și funcționarea aparatului trebuie să fie conforme cu reglementările locale și cu norma EN 12056-4.

Pentru a beneficia de ultimele îmbunătățiri tehnice în domeniul acustic, aduse acestui aparat, este important:

- să poziționezi rezervorul aparatului astfel încât acesta să nu atingă vreun perete al încăperii
- să amplasezi rezervorul pe o suprafață perfect plană, astfel încât să nu influențeze buna funcționare a elementelor de preluare a vibrațiilor
- să fixați corect conducta de evacuare evitând distanțe între elementele de prindere, mai mari de 1 metru.

CONECTAREA ELECTRICĂ



Nu efectuați bransamentul electric decât după realizarea definitivă a racordurilor.

Conectarea electrică trebuie realizată de către personal calificat în electrotehnică.

Aparatul trebuie amplasat astfel încât să aveți acces la prizele de alimentare.

Circuitul de alimentare electrică al apar-

tului trebuie să aibă împământare (clasa I) și să fie protejat de un disjuncteur diferențial de înaltă sensibilitate (30 mA).

Această priză trebuie să fie destinată exclusiv alimentării aparatului. În cazul în care cablul electric al aparatului este deteriorat, acesta trebuie înlocuit de către fabricant sau de către o persoană autorizată de Departamentul de Service, pentru a evita orice pericol.

Reglementare

Asigurați-vă că respectați dispozițiile normei în vigoare din țara de utilizare a aparatului cu privire la nivelul de protecție pentru sălile de baie.

4 PUNEREA ÎN FUNCȚIUNE

Odată efectuate racordurile hidraulice și electrice, trageți apa de mai multe ori. Oua trebuie să rămână etanșă la trecerea apei.

6 INTERVENȚII EVENTUALE



ÎN TOATE CAZURILE, DECONECTAȚI MAI ÎNTÂI APARATUL DE LA SURSA ELECTRICĂ DE ALIMENTARE.

ANOMALIE CONSTATATĂ	CAUZE PROBABILE	SOLUȚII
• Motorul nu pornește	• Aparatul nu este conectat la o sursă electrică de alimentare • Alimentare electrică defectuoasă • Defecțiuni la motor sau la sistemul de comandă	• Conectați aparatul la o sursă electrică de alimentare • Verificați alimentarea electrică • În caz contrar, consultați un depanator autorizat
• Motorul hârâie sau bâzâie și nu mai funcționează	• Motorul este blocat de un corp străin • Defecțiuni la motor sau la sistemul de comandă	• Îndepărtați corpul străin • În caz contrar, consultați un depanator autorizat
• Aparatul pornește cu intermitențe	• Obiectele sanitare racordate prezintă scurgeri • Supapa antiretur prezintă scurgeri	• Verificați instalația în amonte • Curățați sau schimbați supapa antiretur
• Motorul se învârt normal, dar nu se mai oprește sau funcționează prea mult timp	• Lungimea conductei de evacuare pe verticală sau orizontală este prea mare sau există prea multe coturi (pierdere de sarcină) • Defecțiune hidraulică, colmatare	• Revizuiți instalația • În caz contrar, consultați un depanator autorizat
• Aparatul se oprește	• Aparatul a funcționat prea mult timp (întrerupere tehnică de siguranță)	• Așteptați ca aparatul să-și revină la funcționare, apoi contactați un depanator autorizat dacă este necesar
• Motorul funcționează cu întreruperi, iar apa coboară lent în vasul de WC	• Orificiul de aerisire din capacul aparatului este infundat • Defecțiuni la motor	• Desfundati orificiul de aerisire • În caz contrar, consultați un depanator autorizat
• Apa se întoarce pe traseu spre duș (aparate cu intrări laterale)	• Cădita dușului a fost montată prea jos în raport cu aparatul • Supapele intrărilor laterale sunt colmate	• Verificați instalația • Curățați supapele • În caz contrar, consultați un depanator autorizat

7 CONDIȚII DE GARANȚIE

Aparatul beneficiază de doi ani garanție de la data cumpărării, cu condiția ca instalarea și utilizarea aparatului să fie conforme cu instrucțiunile din acest manual.



ATENȚIE !!! Nu se acorda garanție decât în cazul utilizării aparatului pentru evacuarea hârtiei igienice, materiilor fecale și apelor uzate igienico-sanitare. În cazul unor deteriorări ale aparatului provocate de: tocare a unor corpuri străine precum vată, tamponi, servetele igienice, servetele parfumate, produse alimentare, prezervative, par, carne, obiecte din lemn, plastic sau metal (ex: agrafe de par), materiale de construcție; sau de pomparea unor lichide precum solvenți sau uleiuri, acestea nu intra în cadrul garanției acordate.

Verificați etanșeitatea racordurilor la aparatele sanitare: WC, duș*, bideu*, chiuvetă* (* în funcție de model).

5 ÎNTREȚINERE ATENȚIE!!!

În cazul unei absențe prelungite de acasă (vacanță) va recomandăm să întrerupeți alimentarea cu apă a WC-ului și a obiectelor sanitare conectate la aparat și să protejați instalația împotriva înghețului.

CURĂȚARE/DETARTRAJ

Pentru a detartra și curăța dispozitivul de tocare și WC-ul, utilizați în mod regulat un detartrant corespunzător, ca de exemplu detartrant special SANIBROYEUR de la SFA care este conceput pentru a îndepărta tartrul și care protejează piesele din interiorul aparatului dumneavoastră.

1 VŠEOBECNÉ INFORMACE

Toto sanitární kalové čerpadlo je přístroj vyvinutý v souladu s technickými normami a podléhá neustálé kontrole kvality v továrně certifikované dle ISO 9001. Přístroj poskytuje vysokou úroveň výkonu, bezpečnosti a spolehlivosti za předpokladu dodržení všech dále uvedených požadavků pro instalaci a používání.



Toto zařízení není určeno pro osoby (včetně dětí), jejichž tělesné, smyslové nebo duševní schopnosti jsou omezeny, nebo jimž chybí zkušenosti a znalosti, pokud nejsou pod dohledem a nedostává se jim nezbytných pokynů pro používání zařízení od osoby odpovídající za jejich bezpečnost. Děti je nutno mít pod dohledem a dohlédnout, aby si s přístrojem nehrály.

2 POUŽITÍ

Tento přístroj je kompaktní přečerpávací stanice určená k odvádění odpadních vod pocházejících z WC s horizontálním odpadem, ze sprchy*, bidetu*, umyvadla*. (*: podle konkrétního modelu).

Tento přístroj odpovídá následujícím normám: ČSN EN 12050-3 a evropským normám o bezpečnosti elektrických přístrojů a elektromagnetické kompatibilitě.

3 INSTALACE

Přístroj se musí nacházet ve stejné místnosti jako WC a případně další připojené zařízení předměty. Přístroj musí být volně přístupný pro případný servis či údržbu.

Instalace a provoz tohoto přístroje musí odpovídat místním předpisům a normě EN 12056-4.

Pro maximalizaci účinku nejnovějších výsledků vývoje v oblasti hlučnosti, které jsou v tomto přístroji použity, je důležité:

- instalovat WC tak, aby se nedotýkalo žádné stěny
- instalovat WC s přístrojem na zcela rovnou podlahu, aby prostředky pohlcující vibrace byly plně funkční
- odpadní tlakové potrubí důkladně ukotvit s tím, že je třeba dodržet vzdálenost mezi kotvami max. 1m

ELEKTRICKÁ INSTALACE



Připojení na elektrický rozvod smí být provedeno až po ukončení vlastní instalace přístroje!!!

Zásuvku pro připojení přístroje musí instalovat oprávněný kvalifikovaný pracovník tak, aby byla volně přístupná, přičemž je nutné respektovat příslušné normy.

Elektrický přívod přístroje musí být uzemněn (třída II) a musí být chráněn

vysoce citlivým proudovým chráničem s jmenovitým vybavovacím proudem nepřesahujícím 30 mA.

Elektrický přívod musí sloužit výhradně k napájení tohoto přístroje. Poškozený přívodní kabel musí být vyměněn a to pouze kvalifikovanou osobou. Před každým zásahem do přístroje odpojte přístroj od přívodu elektrického proudu.

Předpisy

Čerpadla nejsou určena k umístění v zónách 1 a 2 definovaných prostorů v koupelnách a sprchách dle ČSN 332000-7-701.

To platí pro čerpadlo i pro umístění zásuvky k jeho připojení na elektrický rozvod. Čerpadla lze instalovat v zóně 3 koupelny dle ČSN 332000-7-701 (min. 0,6 m od okraje vany či sprchové vaničky) a ve všech jiných místnostech.

Čerpadla smí být připojena na el. obvod odpovídající platným českým normám a předpisům (ČSN 332000-4-41 a normy související).

4 UVEDENÍ DO PROVOZU

Po dokončení celkové instalace přístroje vložte do WC toaletní papír a WC spláchněte. To opakujte 2x – 3x. Poté uveďte do provozu armatury dalších připojených zařízení předmětů.

Zkontrolujte těsnost všech propojení se zařízeními předměty: WC, sprcha*, bidet*, umyvadlo*. (*: podle konkrétního modelu).

5 ÚDRŽBA

POZOR !!! V případě dlouhodobé nepřítomnosti je nezbytné uzavřít hlavní přívod vody a zajistit ochranu přístroje proti mrazu.

ČIŠTĚNÍ

Pro čištění WC misy a povrchu přístroje doporučujeme používat běžné neagresivní čisticí prostředky.

Pro čištění přístroje od vodního kamene doporučujeme použít přípravek SFA® ANTIKALK.

6 NEJBĚŽNĚJŠÍ PROBLÉMY A JEJICH ODSTRANĚNÍ



VŽDY ODPOJTE PŘÍSTROJ OD PŘÍVODU ELEKTRICKÉHO PROUDU.

ZJIŠTĚNÝ PROBLÉM	MOŽNÉ PŘÍČINY	VÁŠ POSTUP
• Motor se neaktivuje	• Přístroj není připojen • Porucha el. přívodu • Porucha motoru nebo ovládacího systému	• Připojte přístroj. • Proveďte el. přívod. • Kontaktujte autorizovaný servis
• Motor pracuje s rušivými zvuky nebo pouze bzučí a neotáčí se	• Motor je zablokovaný cizím tělesem • Porucha motoru nebo ovládacího systému	• Odstraňte cizí těleso • Kontaktujte autorizovaný servis
• Přístroj se samovolně aktivuje	• Armatura WC nebo připojených zařízení předmětů netěsní • Nefunkční zpětný ventil	• Zkontrolujte připojené zařízení předměty • Vyčistěte nebo vyměňte zpětný ventil
• Motor pracuje déle než je obvyklé nebo nevypíná	• Příliš dlouhé nebo vysoké odpadní potrubí, nebo příliš mnoho ohybů • Problémy hydrauliky, ucpaní	• Zkontrolujte instalaci • Kontaktujte autorizovaný servis
• Přístroj přestal pracovat	• Přístroj pracoval příliš dlouho (aktivace tepelné pojistky)	• Počkejte na opětovné zapnutí, poté v případě potřeby kontaktujte autorizovaný servis
• Motor pracuje přerušovaně a voda v misě klesá pomalu	• Ucpaný ventil odvětrání • Porucha motoru	• Vyčistěte ventil odvětrání • Kontaktujte autorizovaný servis
• Odpadní voda se vrací do sprchy (přístroj s bočními vstupy)	• Sprcha nainstalovaná příliš nízkou vzhledem k přístroji • Ucpaný boční vstup	• Zkontrolujte instalaci sprchy • Vyčistěte boční vstup • Kontaktujte autorizovaný servis

7 ZÁRUKA

Na přístroj se vztahuje záruka dva roky od data zakoupení pod podmínkou instalace a používání v souladu s tímto návodem a jeho přílohami.



POZOR!!! sanitární kalové čerpadlo slouží výhradně ke zpracování vody, fekálií a WC papíru. Záruka je poskytována pouze pro tyto účely. Odpady jako např. chemikálie (kyseliny, žíraviny, prostředky s vysokou koncentrací chloru apod.), oleje, barvy, tampony, prezervativy, hygienické vložky, textilie, tvrdé předměty, písek, kameny, abnormální množství vlasů, kosmetické ubrousky apod., mohou způsobit poruchu přístroje, na kterou se nevztahuje záruka.

1 UYARI

Bu öğütücü teknikte geçerli kurallara uygun şekilde geliştirilen ve tarafından ISO 9001 onaylı bir fabrikada sürekli kalite kontrole tabi tutulan bir cihazdır. Bu öğütücü, bu kullanım kılavuzunda tanımlanan tüm kurulum ve bakım kurallarına titizlikle uyulduğu takdirde, yüksek bir performans, güvenlik ve güvenilirlik sağlar.

! Bu cihaz, fiziksel, duysal veya zihinsel kapasiteleri sınırlı olan (bunlara çocuklar da dahildir), veya tecrübe ve bilgi sahibi olmayan kişilere yönelik değildir; bu tip kişiler gözetim altında bulunmaları ve cihazı kullanmak için gerekli talimatları almaları durumunda, kendi güvenliklerinden sorumlu bir kişinin yardımıyla cihazı kullanabilirler. Çocukları gözetim altında tutun ve cihazla oynamalarına izin vermeyin.

2 UYGULAMALAR

Bu cihaz, yatay çıkışlı klozet, duşakabin*, bide* ve lavabodan gelen atık suların tahliyesi için tasarlanmış kompakt bir tahliye istasyonudur. (*: Modele göre).

Bu cihaz EN 12050-3 standardına ve elektrik güvenliği ve elektromanyetik uyumluluk ile ilgili Avrupa standartlarına uygundur.

3 KURULUM

Öğütücü WC ve bağlı olabilecek diğer sıhhi tesisat üniteleri ile aynı yerde bulunmalıdır. Kontrol ve bakım için, cihaza erişim kolay olmalıdır.

Cihazınızın kurulumu ve çalışması yerel mevzuata ve EN 12056-4 standardına uygun olmalıdır.

Bu cihaz akustik alanında mevcut son teknik yenilikleri içermektedir. Bu son teknik gelişmelerden en verimli düzeyde faydalanmak için:

- Hazneyi duvara değmeyecek şekilde yerleştirin.
- Titreşim yalıtıcılarının düzgün işleyişine engel olmamak için, hazneyi düz bir zemin üzerine yerleştirin.
- Sabitleme elemanları arasında bir metre-den fazla mesafe bırakmadan, tahliye borularını düzgün bir şekilde sabitleyin.

ELEKTRİK BAĞLANTISI

! Elektrik bağlantısını, tüm nihai bağlantıları gerçekleştirdikten sonra yapın.

Elektrik tesisatı elektroteknik alanında uzman vasıflı bir profesyonel tarafından kurulmalıdır.

Cihaz, elektrik fişine erişilebilecek şekilde yerleştirilmelidir.

Cihazın güç devresi topraklanmalı (sı-nıf 1 topraklama) ve çok hassas (30mA) bir diferansiyel devre kesici vasıtasıyla korunmalıdır.

Bu bağlantı sadece cihaza güç sağlamak için kullanılmalıdır. Bu cihazın kablo-su hasar görmüş ise, tehlikeli bir durumu ortadan kaldırmak için, imalatçısı veya satış sonrası servisi tarafından değiştirilmelidir.

Mevzuat

Bir banyodaki koruma hacimleri ile ilgili olarak, cihazın kullanıldığı ülkede yürürlükte olan standartın hükümlerine uymaya dikkat edin.

4 HİZMETE ALMA

Hidrolik ve elektriksel bağlantılar gerçekleştirdikten sonra sifonu birkaç kez çekin.

Küvet geçişi sızdırmaz olmalıdır.

Cihaz ile sıhhi tesisat ünitelerinin (WC, duşakabin*, bide*, lavabo*) bağlantılarını sızdırmazlığını kontrol edin. (*: Modele göre).

5 BAKIM

DİKKAT !!! Uzun süre evde bulunmaması halinde, evin ana su vanasını mutlaka kapatınız ve donma tehlikesine karşı tesisatınızı uygun bir şekilde koruyunuz.

TEMİZLEME / KİREÇTEN ARINDIRMA

Öğütücüyü ve klozeti kireçten arındırmak ve temizlemek için, düzenli aralıklarla, SFA'nın özel kireç çözücü SANIBROYEUR® gibi cihazınızın iç organlarına zarar vermemek üzere tasarlanmış uygun bir kireç çözücü kullanın.

6 OLASI MÜDAHALELER



HER DURUMDA, ÖĞÜTÜCÜNÜN FİŞİNİ ELEKTRİK PRİZİNDEN ÇEKİN

TESPİT EDİLEN ANORMALLİK	MUHTEMEL NEDENLER	ÇÖZÜMLER
• Motor devreye girmiyor	• Cihazın bağlantısı yapılmamış • Kusurlu elektrik bağlantısı • Motor veya kumanda sistemi sorunu	• Cihazı elektrik prizine bağlayın, • Elektrik bağlantısını kontrol edin • Aksi takdirde yetkili bir teknik servise başvurun
• Motor gürültülü bir şekilde dönüyor veya uçuşta çıkıyor ve dönüyor	• Yabancı bir cisim motoru bloke ediyor • Motor veya kumanda sistemi problemi	• Yabancı cisim çıkartın • Aksi takdirde yetkili bir teknik servise başvurun
• Cihaz zaman zaman çalışmaya başlıyor	• Bağlı sıhhi tesisat ünitelerinde sızıntı var • Çekvalfi sızıntı var	• Cihazın girişlerine bağlı olan tesisatı kontrol edin • Çekvalfi temizleyin veya değiştirin
• Motor düzgün bir şekilde dönüyor, ama durmuyor veya çok uzun süre dönüyor	• Tahliye kanalının yüksekliği veya uzunluğu çok fazla veya (basiş düşüşü) • Hidrolik sorun, tıkanma	• Tesisatı kontrol edin • Aksi takdirde yetkili bir teknik servise başvurun
• Cihaz duruyor	• Cihaz uzun bir süre çalışmış (güvenlik termik koruması)	• Yeniden çalışmasını bekleyin, ardından gerekirse yetkili bir teknik servise başvurun
• Motor kesintili olarak dönüyor ve su klozetin içine yavaşlıyor	• Cihazın kapığında bulunan havallı tıkalı • Motor sorunu	• Havalığı açın • Aksi takdirde yetkili bir teknik servise başvurun
• Bulanık suyun duşa geri dönmesi (yan girişleri olan cihazlar)	• Duş öğütücüyü göre alçak bir noktaya yerleştirilmiş • Yan giriş klapesi tıkalı	• Tesisatı gözden geçirin • Yan giriş klapesini temizleyin • Aksi takdirde yetkili bir teknik servise başvurun

7 GARANTİ KOŞULLARI

Cihaz, bu kurulum kılavuzuna uygun bir şekilde kurulması ve kullanılması kaydıyla satın alma tarihinden 2 yıl parça ve işçilik garantilidir.



DİKKAT!!! Garanti kapsamında, yalnızca tuvalet kağıdı, dışkı maddeleri ve sıhhi tesisat sularının tahliyesi dikkate alınacaktır. Pamuk, vajinal tampon, hijyenik ped, kucuk havlular, gıda maddeleri, prezervatif, sac teli, metal, ahşap veya plastik cisimler gibi yabancı cisimlerin öğütülmesi veya solvent veya yağ gibi sıvıların pompalanması sonucu cihazda oluşan hiçbir hasar garanti kapsamında değerlendirilmeyecektir.

1 描述

该设备通过了ISO9001认证，严格按照工艺规格设计制造。



只要严格按照本说明进行安装及维护，此设备可保证安全可靠的高性能运行。

该设备不适用于包括儿童在内的一些特殊人群（精神或智力有障碍等）。除非在确保安全或有监护人的情况下安装此设备。

2 使用

这个装置是一个设计紧凑的提升设备，它能将卫生间、浴缸、淋浴房、水槽里的污水从水平方向的出口排出。（视机型而定）

此设备符合EN 12050-3标准，并符合相关电气安全和电磁兼容性的欧洲标准。

3 安装

机器的安装和使用须遵照EN 12056-4标准及当地法规进行。

本设备使用了先进的消音技术，能达到它最理想的效果，关键在于：

- 座便器放置之处不能接触到房间的墙或隔板墙。
- 座便器必须置于完全水平的平面上，确保弹力托架充分地高效运作。
- 正确安装排水管，各固定点之间距离不超过1米。

电路连接

电气的安装结束之前确保电源关闭。

设备安装必须由专业工程师完成。

选择电源插头的位置应方便设备的安装。

电路应当接地线（一级），

本机所在电路中必须有30毫安的漏电保护开关。

连接线必须只用于本设备供电。

电机保护：该设备配备有一套温度保护系统，在过热之后，为了安全，必须切断机器电源，停机2小时。

规定

V请遵守使用国的有关浴室保护容积的现行规定。

4 安装调试

一旦电气与管道连接完成，启动多次马桶冲水，查看所有部分是否密封。

仔细检查所有与卫浴设备间的接口：马桶、淋浴房、净身盆、洗手盆。（视机型而定）。

6 发现故障/修理

在任何情况下，必须关闭机器电源

故障	原因	解决方法
• 设备不启动	• 没有接电 • 供电问题 • 电机或控制系统问题	• 给设备接电 • 检查供电系统 • 如不能解决，求助于授权维修人员
• 电机运转时发出卡卡嗒嗒声，或是只发出嗡嗡声而不运转	• 电机被异物阻滞 • 电机或控制系统问题	• 取出异物 • 如不能解决，求助于授权维修人员
• 设备间断性运转	• 连接的设备漏水 • 止回阀漏水	• 检查设备上端安装 • 清洁或更换止回阀
• 电机运行正常，但无法停止或持续时间过长	• 排水管过高或过长，或者管弯过多（能效损耗） • 水流堵塞问题	• 重新调整安装 • 如不能解决，求助于授权维修人员
• 设备停止运行	• 运行时间过长（热保护）	• 等待重启，然后如有必要，求助于授权维修人员
• 电机间歇运行，排水缓慢	• 通气道堵塞 • 电机问题	• 清理通气道 • 如不能解决，求助于授权维修人员
• 污水回流入淋浴池内（带有侧入水的设备）	• 淋浴相对于设备位置过低 • 设备内底部两边的止回阀片堵塞	• 重新调整安装 • 清理止回阀片 • 如不能解决，求助于授权维修人员

7 保修

在安装及使用符合本说明书的条件下，设备自购买日起，保修两年。



保修范围只针对针对卫生纸和粪便之类的污水所发生的故障。

任何因外物造成的损坏，如棉球、避孕套、卫生巾、湿纸巾、食物、头发、金属、木头或塑胶物品等，都不在保修范围内。由溶剂、酸性物质和其它化学品所造成机器的故障，均不属于保修范围内

1 제품 개요

본 분쇄기 펌프(품질보증 공장에서 제조된)는 ISO 9001 인증을 받았다. 올바르게 설치 및 사용되면 지속적으로 안정적인 작동을 할 것이다.

 **신체적, 감각적, 심리적 장애가 있는 사람이나(어린이 포함) 최소한의 경험 및 지식만 있는 사람은 본 장치를 사용하지 못하며, 보호자의 도움을 받거나 장치 사용에 필요한 모니터링과 필요 사항을 숙지한 다음에는 본 장치를 사용할 수 있다. 어린이가 사용할 때에는 모니터링을 하고 장난치지 못하도록 주의한다.**

2 제품 사용

본 가정 기기는 수평으로 설치된 변기, 샤워기, 비데나 세면대의 배출구에서 나오는 폐수 처리를 위해 만들어진 소형 리프트 펌프이다(*모델에 따라 상이). 본 기기는 EN 12050-3 및 전기안전 및 전자기 적합성 관련 유럽 표준을 준수한다.

3 설치

본 제품은 서비스를 받을 수 있도록 접근이 용이해야 한다.
귀하가 설치한 기기의 부품 및 작동은 해당 지역 규제 및 EN 12056-4 표준을 준수하여야 한다.
본 제품에 적용된 최첨단 방음기술의 최적 사용을 위해서는 아래 내용이 중요하다.
· 양변기가 파티션 또는 벽에 닿지 않도록 위치를 정한다.
· 단상 마운트가 효율을 충분히 발휘하도록 양변기와 완벽히 수평면에 놓는다
· 결합부분간 거리가 1미터가 넘지 않도록 배출관을 올바르게 고정시킨다

 **전기공급 연결**
전기는 기술자가 설치해야 한다. 본 제품은 220/240 볼트 단상 전류 AC 60 Hz 전력을 사용한다(한국 사양). 본 기기의 전원 공급 회로는 GFCI 고감도(30mA)에 의해 접지되고(Class I) 보호되어야 한다. 경고: 커넥터에 배선작업을 하기 전에 주 배전반에 전기가 모두 차단되었는지 확인할 것.

60Hz 주파수 사용가능.

모든 배선 작업은 1992년 전기설비 요건인 BS7671을 준수해야 한다. 본 제품을 종래의 플러그와 소켓에 연결하면 안 된다. 반드시 5 암페어 퓨즈 설비가 있는 직류전원출력단자이며 고정배선 타입의 커넥터에 배선작업을 해야 한다. 주도선의 전선은 아래 규칙에 따라 색깔 별로 표시되어 있다.

갈색(Brown) - 활성(Live)
파랑(Blue) - 중성선(Neutral)

초록/노랑(Green/Yellow)-접지선(Earth)
이상의 연결은 장치의 전력공급 목적을 위해서만 사용되어야 한다.
모든 케이블, 가압실 및 모터 작업은 특수 도구가 필요한 관계로 반드시 Saniflo 기술 직원이 해야 한다. 향후 장치 제거 등의 서비스 요청이 있을 시 상당한 어려움이 있을 수 있으니 전기공급케이블을 절단하거나 줄이지 마시오.

4 제품 작동 점검

모든 밀봉 부위 및 연결부위에 물이 새지 않는 지 확인하면서 화장실 물을 내린다. 양변기*, 샤워기*, 비데*나 세면대*와 같은 위생 기기와의 연결부위에 물이 새지 않는 지 확인한다(*모델에 따라 상이).

5 유지 보수

경고!!! 장기간 부재 시 영하의 기온으로 인한 동파를 막기 위해 물 공급을 꼭 차단시켜둘 것.

제품 관리법

물때(석회)를 제거하고 오수펌프 및 좌변기를 청소하려면 SANIFLO 클렌저/ 디스 케일링제를 사용하십시오.

· 오수펌프의 전원을 차단한다
· 일정량의 클렌저를 양변기에 붓는다
· 1-2시간 정도 둔다
· 전원을 다시 연결한다
· 플러시 시스템을 이용해 두 번 내려 씻어낸다
· 이상의 순서를 평균 3개월마다 반복한다.
· 물의 경도에 따라 횟수는 변경될 수 있다.

6 고장점검 및 해결방안

 **모든 경우에, 오수펌프의 전원을 차단해야 한다.**

증상	고장 원인	해결방안
· 모터가 작동하지 않는다	· 전원공급이 작동하지 않는다 · 전원공급에 결함이 있다 · 모터나 컨트롤 시스템에 결함이 있다	· 전원공급을 복원한다 · 전원공급을 확인한다 · 승인된 수리 대리점에 문의한다
· 모터에서 덜거덕거리거나 부서지는 소리가 나고, 웅웅거림만 돌아가지는 않는다.	· 이물질이 박스 안에 있다 · 모터나 컨트롤 시스템에 문제가 있다	· 이물질을 제거한다 · 승인된 수리 대리점에 문의한다
· 모터가 불규칙적으로 작동한다	· 연결된 위생 장치에서 물이 떨어진다 · 역류방지밸브에 결함이 있다	· 상류로 설치를 확인한다 · 역류방지밸브를 세척하거나 교체한다
· 모터가 정상적으로 작동하지만 오랫동안 계속 돌아간다	· 설치 길이나 높이가 설치사양을 초과했거나 벤딩/엘보우가 너무 많다. · 펌프 덮개판이 부분적으로 불투명/막혔다	· 설치상태를 확인한다 · 승인된 수리 대리점에 문의한다
· 제품이 멈었다	· 제품이 너무 오랫동안 돌아간다(열차폐장치)	· 제품을 재가동 시켜서 결과를 보고 A/S 검증을 받는다
· 모터에 물에 휘둥둥이치고 양변기 물이 아주 느리게 내려간다	· 공기변이 막혔다 · 모터에 문제가 있다	· 공기 방출 구멍을 청소한다 · 승인된 수리 대리점에 문의한다
· 탁한 물이 샤워대에서 올라온다(측면 유입구가 있는 제품)	· 오수 펌프 제품에 비해 샤워기가 너무 낮게 설치되었다 · 한쪽 유입구 디스크가 막혔다	· 설치 상태를 확인한다 · 유입구체코를 확인한다 · 승인된 수리 대리점에 문의한다

7 제품 보증

 제품이 올바르게 설치되고 사용되었다면 본 제품의 품질보증은 구매일로부터 2년간이다.
화장실 휴지, 대변, 폐수만 품질보증 대상이 된다. 솜, 콘돔, 위생용 타월, 물티슈, 음식물, 머리카락, 금속류, 나무, 플라스틱 물체 등과 같은 이물질을 버리면 품질보증을 받을 수 없다. 용해성 물질, 산성 물질 및 기타 화학물질은 제품에 손상을 입힐 수 있으며, 그런 경우 제품 보증은 무효화된다.



BRANZ Appraised

Appraisal No. 462 [2016]

SHELTERSEAL DAMP-PROOF MEMBRANES

Appraisal No. 462 [2016]

This Appraisal replaces BRANZ
Appraisal No. 462 [2010]

BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 Shelterseal Membranes are self adhesive damp-proof membranes (DPM) for basement retaining walls and floors. They are applied under floor slabs and foundations and to the exterior face of basement retaining walls to prevent water vapour penetrating to the interior face in spaces where moisture may cause damage.
- 1.2 The products are supplied as self-adhering, cold-applied, polymer-rubber modified bitumen sheets in roll form and are applied as single or double layer systems.

Scope

- 2.1 Shelterseal Membranes have been appraised as damp-proof membranes for use under floor slabs complying with NZS 3604 and as a damp-proof membrane behind concrete masonry basement walls and under floor slabs complying with NZS 4229.
- 2.2 Shelterseal Membranes have also been appraised for use as a damp-proof membrane on buildings subject to specific design within the following scope:
 - where the design of the building will be the responsibility of the building designer; and,
 - with clean, sound, continuous substrates of insitu or precast concrete complying with NZS 3101 and AS/NZS 1170 or concrete masonry complying with NZS 4230 and 4210; and,
 - where the membrane is adequately protected against damage during backfilling and in service; and,
 - where subsoil drainage and free draining granular backfill has been placed behind basement walls.
- 2.3 The products must be installed by ARDEX New Zealand Limited approved applicators.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 **In the opinion of BRANZ, Shelterseal Membranes if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:**
 - Clause B2 DURABILITY:** Performance B2.3.1 [a] not less than 50 years. Shelterseal Membranes meet this requirement. See Paragraph 11.1.
 - Clause E2 EXTERNAL MOISTURE:** Performance E2.3.3. Shelterseal Membranes meet this requirement. See Paragraphs 13.1 – 13.3.
 - Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. Shelterseal Membranes meet this requirement and will not present a health hazard to people.
- 3.2 This is an Appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance.

Technical Specification

4.1 Materials supplied by ARDEX New Zealand Limited are as follows:

Shelterseal Membranes

- **Shelterseal 3000X and Dunlop Shelterseal 3000X** - The membranes are manufactured from a bituminous asphalt compound modified with SBS [styrene-butadiene-styrene] rubber and high tack resins. The self-adhesive inner face is protected by a release paper with the outer surface protected by high-density polyethylene film. The membranes are 1.5 mm thick, and supplied in rolls 1 metre wide by 20 metres long.
- **Shelterseal HD** - The membrane is manufactured from a bituminous asphalt compound modified with SBS [styrene-butadiene-styrene] rubber and high tack resins. The self-adhesive inner face is protected by a release paper with the outer surface protected by a layer of polypropylene mesh. Shelterseal HD is designed for use where a more robust system is required. The membrane is 1.5 mm thick, and supplied in rolls 1 metre wide by 20 metres long. The roll weight is approximately 30 kg.

Primers

- **Shelter Primer** - A solvent based, bitumen-modified primer. It is supplied in 5 or 20 litre containers and is coloured black.
- **WPM 247 Primer** - A water based, bitumen emulsion primer. It is supplied in 5 or 20 litre containers and is coloured black.
- **WA 98 Contact Adhesive/Primer** - A contact adhesive that can be used as a primer in difficult drying conditions. It can be spray applied. It is supplied in 4 or 20 litre containers and is coloured red or clear.

Handling and Storage

5.1 Handling and storage of all materials whether on or off site is under the control of the installer. Dry storage must be provided for all products and the membranes must be protected from sunlight and UV radiation. Rolls of membrane must be stored on end.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Shelterseal Membranes. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

Substrate Design

- 7.1 Substrate design must be in accordance with the NZBC to a relevant standard, such as NZS 3101 for concrete, and NZS 4229 or NZS 4230 for concrete masonry.
- 7.2 The substrate must have a surface finish that is smooth, clean and free from defects or irregularities which may damage the membrane or allow water to trap behind the membrane.

Control Joints

8.1 Where control or construction joints are formed in the substrate, ARDEX New Zealand Limited must be consulted for use of the membranes over these joints.

Concrete Slab-on-ground

9.1 The membranes must be laid on a minimum of 75 mm thickness of site concrete. The structural concrete slab placed over the membranes must be a minimum of 100 mm thick.

Backfilling and Drainage

- 10.1 The membranes must be protected against damage by the placement of a protection material between the membranes and the granular fill.
- 10.2 The minimum requirement for backfilling is that a granular, free-draining material is used with the top of the backfill capped with an impervious clay fill that may be covered with topsoil if required. The impervious capping and topsoil must slope with a minimum of 1:30 fall away from the wall.
- 10.3 A minimum 100 mm diameter subsoil perforated drainage pipe must be installed at the bottom of the wall. The pipe must be covered with a geotextile filter fabric, be laid at a minimum 1:200 fall and discharge to a drainage outlet. Provision for cleaning the pipe must also be provided.

Durability

Serviceable Life

- 11.1 Shelterseal Membranes are suitable DPM materials (Modified bitumen sheet) therefore they are expected to have a serviceable life of at least 50 years provided they are installed and maintained in accordance with this Appraisal and are continually protected from sunlight and ultra-violet (UV) radiation.

Maintenance

- 12.1 Annual inspections must be made of the membranes top edge seal and protection, the backfill capping, and the drainage pipe to ensure all are functioning as originally designed.
- 12.2 If required, the drainage pipe must be cleared to remove any sediment or silt build-up. The slope of the backfill capping must be maintained at all times.

External Moisture

- 13.1 Shelterseal Membranes, when installed in accordance with this Appraisal and the Technical Literature, will prevent water vapour from penetrating to the interior face of basement retaining walls and floors in spaces where moisture may cause damage. The membranes have a vapour flow resistance of not less than 90 MN s/g.
- 13.2 The membranes self-adhere, and can be used to form sealed joints and to seal penetrations. The top edge of the membranes must be sealed to the wall as set out in the Technical Literature, and protected.
- 13.3 Building designers must ensure junctions with other membranes, such as at the floor/wall junction, form a waterproof joint. These junctions have not been assessed and are outside the scope of this Appraisal.

Installation Information

Installation Skill Level Requirement

- 14.1 Installation of the membranes must be completed by ARDEX New Zealand Limited approved applicators.

System Installation

Substrate Preparation

- 15.1 All surfaces must be checked to ensure they are dry, clean, smooth and free from sharp edges, loose or foreign materials, oil, grease or other deleterious material that may affect adhesion or may damage the membranes.

Priming

- 15.2 All substrates must be primed before application of the membranes. The supplier of the membranes, ARDEX New Zealand Limited, should be contacted to confirm the most suitable primer. Application instructions for the primers are contained in the technical data sheets.

Membrane Installation – Walls

- 15.3 Starting at the lowest point, the membranes must be installed in accordance with the Technical Literature. Sheet edges must be overlapped a minimum of 60 mm as marked on the sheets. End laps must be a minimum of 100 mm, with upper sheets lapped over lower sheets. Internal and external corners of single layer systems must be reinforced with an extra layer of membrane 300 mm wide. Where two layer systems are specified, lap joints must be staggered. Protection material must be installed before backfilling. Backfilling must commence immediately after the membranes are installed to ensure the membranes is not left exposed to sunlight or UV radiation.

Membrane Installation – Floors

- 15.4 Membranes must be installed in accordance with the Technical Literature. Sheet edges must be overlapped a minimum of 60 mm as marked on the sheets and end laps must be a minimum of 100 mm. The membranes must be inspected for damage and any damage must be repaired in accordance with the Technical Literature. The membranes must not be exposed to UV radiation for any longer than two months before the structural concrete slab is placed.

Inspections

- 15.5 The Technical Literature and the installation company's Quality Control sheets must be referred to during the inspection of the membrane installation by building consent authorities and territorial authorities.

Health and Safety

- 16.1 Safe use and handling procedures for the membranes are provided in the Technical Literature.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

- 17.1 The following testing of Shelterseal 3000X and Dunlop Shelterseal 3000X has been undertaken by the following organisations:
- Istituto Giordano S.p.A., Italy – Resistance to chemical agents, tensile properties, determination of dielectric strength, resistance to tearing, resistance to static perforation, resistance to dynamic perforation and resistance to hydrostatic pressure.
 - Singapore Institute of Standards and Research – Thickness, dimensional stability, tensile properties, tensile strength at joints, puncture resistance, water absorption, pliability, water vapour transmission, hydrostatic head and resistance to leakage at joints.
 - Isoltema, S.p.A., Italy – Adhesion to cement [concrete].

Test methods and results have been reviewed by BRANZ and found to be satisfactory.

- 17.2 The following testing of Shelterseal HD has been undertaken by the following organisations:
- Istituto Giordano S.p.A., Italy – Puncture resistance, tensile properties and elongation.
 - Autostrade S.p.A., Italy – Tensile strength, elongation, resistance to dynamic perforation and cold flexibility.
 - Isoltema, S.p.A., Italy – Adhesion to cement [concrete].

Test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

- 18.1 A durability opinion has been given by BRANZ technical experts.
- 18.2 Practicability of installation has been assessed by BRANZ and found to be satisfactory.
- 18.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 19.1 The manufacture of the membranes and primers have not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 19.2 The quality management system of the membrane manufacturer has been assessed and found to be satisfactory.
- 19.3 The quality of materials supplied to the market is the responsibility of ARDEX New Zealand Limited.
- 19.4 Quality of installation on site is the responsibility of the ARDEX New Zealand Limited approved applicator.
- 19.5 Designers are responsible for the building design, and building contractors are responsible for the quality of construction of substrate systems in accordance with the instructions of ARDEX New Zealand Limited.
- 19.6 Building owners are responsible for the maintenance of the membrane systems in accordance with the instructions of ARDEX New Zealand Limited.

Sources of Information

- NZS 3101: 2006 Concrete structures standard.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4229: 2013 Concrete masonry buildings not requiring specific engineering design.
- NZS 4230: 2004 Design of reinforced concrete masonry structures.
- Acceptable Solutions and Verification Methods for New Zealand Building Code External Moisture Clause E2, Ministry of Business, Innovation and Employment, Third Edition July 2005 (including Amendment 6, 14 February 2014).
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.



In the opinion of BRANZ, Shelterseal Damp-Proof Membranes are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **ARDEX New Zealand Limited**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the Technical Literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. **ARDEX New Zealand Limited:**
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions.
 - d) Warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by **ARDEX New Zealand Limited**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **ARDEX New Zealand Limited** or any third party.

For BRANZ



Chelydra Percy

Chief Executive

Date of Issue:

14 October 2016



ARDEX WPM 3000X

Shelterseal 3000X

Self adhesive SBS Waterproofing Membrane

Suitable for under asphalt

High tear resistance

Self Healing

High initial tack

Radon and Methane gas barrier

Resistance to most chemicals

Cold applied

Quick installation



BRANZ Appraised
Appraisal No.462 [2016]

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ARDEX SHELTERSEAL 3000X

Bitumen based waterproofing membrane

PRODUCT DESCRIPTION

ARDEX Shelterseal 3000X is a "peel and stick" bituminous /asphalt damp proof membrane protected by a cross laminated high density polyethylene film.

ARDEX Shelterseal is made from two structural components:

Bitumen/asphalt compound modified with SBS and high tack resins

This special compound has been formulated to make the product easy to install. The membrane can be adjusted should it initially be placed in the wrong position, as the adhesive on the sheet achieves final adhesion only after a few minutes.

Protection film

This is hot laminated to the bituminous/asphalt compound and gives the membrane its mechanical and physical characteristic, such as heat stability, shape and chemical resistance.

FEATURES/BENEFITS

Cold Application: installed without the use of open flames. Ideal for installation in restricted spaces.

Chemical resistance: the protective polymer film is highly resistant to acids and alkalis pollutants.

Flexibility and adaptability: this membrane will adapt easily to irregularly shaped surfaces, and will stretch up to 9% without breaking or cracking.

Self sealing: the membrane self seals on contact maintaining its water tightness.

Constant thickness: the membrane is manufactured using high-tech machinery which constantly monitors its thickness to ensure that the films and synthetic materials are manufactured to the highest specifications and quality control requirements.

USES

ARDEX Shelterseal 3000X is used for planter boxes, foundations, below-ground applications, retaining walls, balconies, decks under cement screeds or other compatible hard coverings.

SUBSTRATES

- Concretes, renders and screeds,
- Fibre cement sheets
- Structural or marine plywood
- Polystyrene blocks

For further substrate types please consult ARDEX Technical Department.

SURFACE PREPARATION

Surfaces to which the ARDEX Shelterseal 3000X system is installed must be properly prepared prior to installation. All surfaces must be clean, dry, smooth, free of sharp edges, loose or foreign materials, oil, grease, and other materials that may damage the membrane. If concrete has moisture on the surface use a gas torch to dry and warm before priming.

INSTALLATION

Priming

Prior to the installation of the membrane all prepared surfaces must be primed with ARDEX WPM 240 Solvent based primer or ARDEX WPM 247 water based primer (Shelter Primer).

Starting at the lowest point, the membrane must be installed in accordance with the Technical Literature. Sheets edges must be overlapped a minimum of 60 mm as marked on the sheets. End laps must be a minimum of 100mm, with upper sheets lapped over lower sheets. Internal and external corners of single layer systems must be reinforced with an extra layer of membrane 300mm wide. Where two layer systems are specified lap joints must be staggered. Protection material must be installed before backfilling. Backfilling should commence immediately after the membrane is installed to ensure the membrane is not left exposed to sunlight or UV radiation. In no circumstance should WPM 3000X be left exposed to UV for more than 2 months.

Installation of the membrane must be completed by an ARDEX approved Applicator and who has experience in the application of self-adhesive membranes.

Note: A LBP is required to carry out Restricted Building Work. A LBP must do or supervise this work. They must work within the scope of their licence class.

Two Layer DPM System

In critical areas a specifier may require a second layer of ARDEX Shelterseal 3000X to be applied with laps staggered to the layer.

ARDEX Waterstops should be considered for use in all construction joints.

STORAGE

All rolls of ARDEX Shelterseal should be stored in a covered area protected against sunlight and UV radiation. Rolls should be stored in a vertical position on a smooth floor so as not to damage the edges.

PACKAGING

Roll size: 1m X 20m

Roll weight: Approximately 30kg

Other products: Shelter Primer water based and solvent based 5 litres and 20 litres

TECHNICAL DATA

The technical data shown is the average results of the Tests, Measurements and Trials carried out on ARDEX Shelterseal 3000X Waterproofing Membrane.

CHARACTERISTICS	TEST METHOD	UNITS	NOMINAL VALUE
Thickness	EN 1849-1	mm	1.5
Weight	UNI 8202	kg	1.6
Tensile Strength Longitudinal Transversal	EN 12311-1	N/50mm N/50mm	215 220
Elongation at Break Longitudinal Transversal	EN 12311-1	% %	324 238
Impact Resistance Method A Method B	EN 12691	mm mm	500 1000
Static Load Resistance Method A Method B	EN 12730	kg kg	10 15
Tear Resistance Longitudinal Transversal	EN 12310-1	N N	125 65
Peel Resistance of Joints	EN 12316-1	N/50mm	65
Shear Resistance of Joints Longitudinal Transversal	EN 12317-1	N/50mm N/50mm	180 200
Peel Resistance on Concrete at 23°C	ASTM D 1000	N/mm	2.9
Probe Tack	ASTM D 2979	N	7
Impermeability	EN 1928	>60 kPa	Pass
Vapour Transmission Rate	EN 1931	μ	90000
Water Absorption	ASTM D 570	%	0.09
Hydrostatic Test	DN 52123		>6 bar (24hrs)/no leakage at 3 bars for 1hr
Permeability to Radon Gas Institute	SP Swedish Nat. Testing & Research	m ² /s	5.7 x 10 ⁻¹²
Permeability to Methane gas	CSI Method		<5 cc/m ² x 24h x atm
Application Temperature			+5°C/+45°C
Service Temperature			-40°C/+80°C

Complying with EN 13969 types A and T: EN 14967
Volatile Organic Compound emissions (VOC): 250 μg/m³
Classification for transport: Not Applicable
Reaction to fire: E (EN 11925-2; EN 13501-1)

DISCLAIMER

The technical details, recommendations and other information contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is your responsibility to ensure that our products are used and handled correctly and in accordance with any applicable New Zealand Standard, our instructions and recommendations and only for the uses they are intended. We also reserve the right to update information without prior notice to you to reflect our ongoing research and development program. Country specific recommendations, depending on local standards, codes of practice, building regulations or industry guidelines, may effect specific installation recommendations. The supply of our products and services is also subject to certain terms, warranties and exclusions, which may have already been disclosed to you in prior dealings or are otherwise available to you on request. You should make yourself familiar with them.



ARDEX WPM 300

(HydrEpoxy 300)

Water Based Epoxy Membrane

Water resistant, prevents rising damp, efflorescence
and withstands hydrostatic pressure

Excellent adhesion to most substrates including damp
surfaces and freshly laid green concrete

Safe to use in sensitive locations

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ARDEX WPM 300

(HydrEpoxy 300)

Water Based Epoxy Membrane

PRODUCT DESCRIPTION

ARDEX WPM 300 (HydrEpoxy 300) is a two component water based epoxy polyamide membrane/barrier coating.

Approved for use with potable (drinking) water, independent testing confirms conformity with the requirements of AS4020.2000 and BS6920.

FEATURES/BENEFITS

- Non-flammable and negligible odour.
- Can be applied to damp surfaces.
- Can be safely applied to freshly laid hardened (green) concrete.
- Conforms to requirements of the:
Building Code of Australia
as a waterproofing membrane.
- Conforms to the requirements of:
Australian standard 4020 – 2000
and **British Standard 6920**
for use in contact with potable water.
- When applied directly to the substrate the cured membrane will withstand 250kPa of hydrostatic pressure which is equivalent to a 25 metre head of water.
- When used wet on wet over ARDEX WPM 256 Bonding Bridge the cured membrane will withstand 400kPa of pressure which is equivalent to 40 metre head of water.
- Can be overcoated using almost any decorative or industrial finishing paint.
- Prevents rising damp and the formation of efflorescence when used as a single coat barrier coat.
- Has excellent adhesion to most substrates including brick, masonry, concrete block, concrete, stone and timber.
- Easy clean-up using water.

TYPICAL APPLICATIONS

- As a low water vapour transmission coating in the building and construction industries and as a barrier/seal coating over freshly laid or damp concrete.
- As a hydrostatic pressure resistant waterproofing membrane to prevent water seepage or dampness penetration through to the interior of walls and floors.
- As a waterproofing barrier on the negative side in below grade surfaces such as basements, tunnels, liftwells, retaining walls and carparks.

- As a waterproofing membrane or barrier coating over freshly laid hardened (green) concrete, prior to the application of conventional levelling compounds, carpet and tile adhesives.
- As a waterproofing membrane in tanking applications, including potable water containment.
- As a barrier seal coating over damp, green or efflorescence producing concrete prior to overcoating with conventional building paints.

LIMITATIONS

Tiling can commence after 24 hours cure of ARDEX WPM 300 although should not exceed a maximum of five days. Installer is to ensure that there is no surface contamination during this period.

The product should be applied whilst the surface temperature is between 10–35°C. The product will cease to cure below 10°C. Curing time will also be adversely affected in situations where relative humidity is >85%.

In enclosed areas, ventilation must be provided during curing cycle to enable adequate evaporation of the water.

Care should be taken when sandwiching adhesives between ARDEX WPM 300 (HydrEpoxy 300) and floor coverings to ensure the water vapour transmission of the covering is sufficient to allow the solvent to escape.

ARDEX WPM 300 (HydrEpoxy 300) is not classified as a trafficable membrane.

BASIC APPLICATION INSTRUCTIONS

Surface preparation

All surfaces to be treated must be structurally sound; and existing coatings, adhesives, efflorescence should be removed to achieve maximum bond strength and resistance to hydrostatic pressure. Surfaces must be cleaned free of dirt, grease, oil, or other surface contaminants.

Holes, non-structural cracks or other surface deformities should be filled with an ARDEX WPM 405 (Sheltercrete Additive), sand/cement mortar, WPM 300 epoxy mortar or ARDEX concrete repair systems and allowed to cure for 2–3 hours before coating is applied.

Installation

Each component should be individually mixed to form a homogenous component.

Thoroughly mix the two components in the ratio of 1:1 by volume until a homogeneous blend is obtained. Only mix as much as may be used within the pot life and avoid excessive aeration during mixing.

When the product is to be applied to dry concrete it is advisable to wet the surface with a fine mist of water before application and allow to just surface dry.

Floors—Spread the material using a squeegee or stiff nylon broom to achieve coverage and finish using a long nap roller.

Walls—Apply the product by roller or spray taking care to achieve required coverage.

Care must be taken to work the material into the surface to fill voids and avoid pinholing. A minimum of one coat for efflorescence and rising damp, two coats for waterproofing and waterproofing negative side walls is recommended and care should be taken to ensure uniformity of material and the required coverage is maintained. When finishing it is necessary to lay the material onto the surface and lightly finish to achieve the required dry film thickness per coat.

The final coverage rate for all surfaces should be a total of 1.5 square metres per litre (3.0 square metres per litre wet applied per coat) to achieve optimum properties. In the event that this coverage rate is not achieved in two coats, further coats should be applied to achieve a total uniform coverage rate of 1.5 square metres per litre.

Allow to cure for 24 hours before applying water based adhesives, mortars, levelling compounds, decorative coatings or other surface treatments. Care is necessary to ensure the waterproofing membrane coating is not damaged in any way during subsequent treatments.

TILING APPLICATIONS

Substrates such as screeds and renders should be normally allowed to dry for 7 days prior to the fixing of ceramic tiles. Alternatively ARDEX WPM 300 can be applied in one coat by brush or roller application at a coverage rate of 3m²/L. Whilst the coat is wet, clean dry sand of 0.5mm diameter shall be broadcast over the surface at a rate of 700g/m² to achieve at least 90% coverage. After overnight cure the excess sand shall be swept and vacuumed from the surface.

FLOORING APPLICATIONS

Where concrete subfloors are damp (moisture content exceeds 5.5% or have a relative humidity of 70%) ARDEX WPM 300 can be applied as a moisture barrier. Two coats are applied at 3.0 square metres per litre per coat. The second coat can be sand seeded as is done for tile applications, or left neat and ARDEX P 82 primer applied before the smoothing cement. A single coat of ARDEX WPM 300 applied at 2.5 square metres per litre per coat acts as a moisture stop for 'green concrete' not subject to rising damp or permanent moisture.

PACKAGING

4L kit

20L kit

SAFETY PRECAUTIONS

ARDEX WPM 300 is hazardous and may cause sensitisation by skin contact. Keep containers in a well ventilated place and tightly closed. Take off immediately all contaminated clothing. In case of eye contact, rinse with plenty of water and contact Doctor or Poisons Information Centre. If swallowed immediately contact Doctor or Poisons Information Centre. Avoid release to the environment.

ADDITIONAL INFORMATION IS LISTED IN THE MATERIAL SAFETY DATA SHEET.

THINNING AND CLEAN UP

The first coat should be thinned with water, as required depending on the porosity of the surface to be coated (up to 20% for dense surface to 5% for more porous surfaces) to ensure optimum penetration. Thinning of the second coat should be avoided since this increases the difficulty in achieving the required dry film thickness. Wash all equipment in water or water/detergent immediately on completion.

TECHNICAL PERFORMANCE DATA

Colour	Grey, Black
Finish	Semi-gloss going to matt with aging
Volume solids	44%
Mixing ratio	1:1 (Part A:/Part B) by volume
Coverage	Must be applied at a rate of 1.5 square metres per litre (3.0 square metres per litre per coat) to achieve an effective waterproofing membrane
Wet film thickness	300 micrometers (0.3mm) per coat
Recoat time	4 hours @ 25°C and 50% R.H.
Full cure	7 days @ 25°C and 50% R.H.
Pot life	2 hours @ 25°C 1 hour @ 35°C
VOC content	26g/L

The recommended wet film thickness specified produces a nominal dry film thickness of 150 micrometers (0.15mm) per coat or 300 micrometers (0.3mm) for two coats. The apparent dry film thickness will reduce depending on the porosity of the substrate, however the product absorbed by the substrate forms part of the waterproofing function.

DISCLAIMER

The technical details, recommendations and other information contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is your responsibility to ensure that our products are used and handled correctly and in accordance with any applicable Australian Standard, our instructions and recommendations and only for the uses they are intended. We also reserve the right to update information without prior notice to you to reflect our ongoing research and development program.

The supply of our products and services is also subject to certain terms, warranties and exclusions, which may have already been disclosed to you in prior dealings or are otherwise available to you on request. You should make yourself familiar with them.

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October 2010

Proposed House Alterations 36 Omokoroa Road, Omokoroa Structural Calculations

For Malcolm and Caron MacDonald

1 November 2018

Ref: 12509



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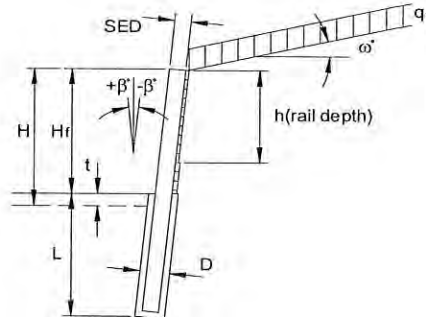
Timber retaining wall	1-2
Masonry retaining wall	3-5
Bearer check	6-7

POLE RETAINING WALL - COHESIVE SOIL, CONCRETE FOOTING

SHORT TERM LOADING

CONFIGURATION

H _r =	0.60	Wall Face Height (m)
ω =	0	Backfill Slope (degrees)
q _s =	5.00	Surcharge (kPa)
β =	-6	Wall Slope (degrees)
s =	1.20	Pole Spacing (m)
θ =	30	Internal Friction (degrees)
γ =	16	Soil Density (kN/m ³)
f _o =	0.20	Length of pile shaft unsupported (m)
δ =	20	Wall friction (degrees) typically 2/3θ
c =	0	(ult) soil cohesion
su =	50	Undrained shear Strength (kPa)



TIMBER PROPERTIES

φ =	0.8	Strength Reduction
k ₁ =	0.6	Load Duration
k ₂₀ =	0.9	Machine Shaving
k ₂₁ =	0.85	Steaming Factor

POLE	RAIL
E = 8.7 MPa	E = 6.5 MPa
f _b = 38 MPa	f _b = 11.7 MPa

SOIL LOADS

K _a = 0.26 (Coulomb)	P _{soil} = 1/2 · K _a · p · g · H ² · s =	1.58 kN
	P _{sur} = K _a · q _s · H · s =	1.23 kN
	P _{TOTAL} =	2.81 kN

POLE DESIGN

Assumes max pole bending below ground level at depth to max moment gc

$$M^* = L F x (P_{soil} \cdot H/3 + P_{sur} \cdot H/2) = 1.50 \text{ kNm/m} \quad L F (\text{Load Factor}) = 1.5 \quad M^* = 1.50 \text{ kNm}$$

$$\phi M_n = \phi \cdot k_1 \cdot k_{20} \cdot k_{21} \cdot f_b \cdot Z \quad Z = \pi \cdot d^3 / 32$$

$$\text{For } M^* = \phi M_n \text{ and solving for 'd', } d = [(M^* \cdot 32) / (\phi \cdot k_1 \cdot k_{20} \cdot k_{21} \cdot f_b \cdot \pi)]^{0.33}$$

Min Groundline Dia, d =	103 mm
Min SED (8mm taper/m) =	97 mm

Trial SED =	150 mm
φM _n =	5.08 kNm
Check φM _n > M*	OK

POLE EMBEDMENT

Using NZ Building Code B1/VM4 for cohesive soil; H_u = 9su · D_s [2[(f+L)² + (f+f_o)²] - (L+2f+f_o)]

L = embedment depth

$$f, \text{ height of applied load} = (P_{soil} \cdot H/3 + P_{sur} \cdot H/2) / (P_{soil} + P_{sur}) = 0.33 \text{ m}$$

$$f_o, \text{ Length of pile shaft unsupported} = 0.20 \text{ m}$$

$$gc, \text{ depth to max moment} = 0.08 \text{ m}$$

Φ =	0.6	(Soil strength reduction factor)
Load Factor =	1.5	(Load Factor applied Loads)

Trial D _s =	300 mm
L _{min} =	0.70 m
% of Isol Pile factor B1/VM4 =	1.00

RAILS

$$\text{Load at depth 'H', } w = (K_a \cdot \gamma \cdot H + K_a \cdot q_s) \times \text{Rail Depth} \quad P^* (\text{factored to allow for isol \%}) = 4.21$$

$$\phi M_n = \phi \cdot k_1 \cdot f_b \cdot Z \quad M^* = 1.6 w s^2 / 8 \quad f_b = 11.7 \text{ MPa} \quad \text{Planks, } Z = b d^2 / 6$$

$$\text{Using } M^* = \phi M_n \text{ and solving for H} \quad 1/2 \text{ round, } Z = 0.19 r^3$$

$$\text{Round, } Z = \pi d^3 / 32$$

Rough Sawn 150mm Planks

RAIL	MAX DEPTH (h) metres	Deflection, mm @ h (k ₂ = 3)	
		1 Span	2 Span
40mm Plank	0.77 m	7.60	3.60
50mm Plank	1.44 m	5.98	2.97
75mm Plank	3.79 m	3.91	2.07
1/2 round, 130 face	1.59 m	6.46	2.68
1/2 round, 160 face	2.57 m	5.25	1.82
115 SED	5.85 m	4.23	1.46

LONG TERM CASE

Check the pile embedment for the long term case. Calculate L long to confirm F.O.S valid for pile spacings less than 3 pile diameters

CONFIGURATION

Pile Spacing < 3ds check Spacing
 $H_f = 0.60$ Wall Face Height (m)
 $\theta' = 30$ Internal Friction (degrees)
 $f_o = 0.20$ Length of pile shaft unsupported (m)
 $\delta' = 20$ Wall friction (degrees) typically $2/3\theta$
 $c' = 7$ (ult) soil cohesion
 $L_{long} = 0.60$ m

SOIL LOADS

$K_a = 0.26$ (Coulomb) $P_{a_{soil}} = \frac{1}{2} K_a \cdot \rho \cdot g \cdot H + L^2 = 2.96$ kN
 $P_{a_{sur}} = K_a \cdot q_s \cdot H + L = 1.54$ kN
 $K_p = 4.60$ NAVFAC DM7 Based on long term properties
 $P_{p_{soil}} = \frac{1}{2} K_p \cdot \rho \cdot g \cdot (L - f_o)^2 = 5.89$ kN
 $P_{p_{co}} = 2c \sqrt{K_p} \cdot (L - f_o) = 12.01$ kN

DRIVING MOMENTS

Moment from active soil pressure above rotation point
 $M_d P_{a_{soil}} = \frac{1}{2} K_a \cdot \rho \cdot g \cdot H + L^2 \cdot H + L/3 = 1.18$ kN-m
 $M_d P_{a_{sur}} = K_a \cdot q_s \cdot H + L \cdot H + L/2 = 0.92$ kN-m
2.11 kN-m

RESTORING MOMENTS

Restoring moment about base from passive soil pressures
 $M_r P_{p_{soil}} = \frac{1}{2} K_p \cdot \rho \cdot g \cdot (L - f_o)^2 \cdot L - f_o/3 = 0.79$ kN-m
 $M_r P_{p_{co}} = 2c \sqrt{K_p} \cdot (L - f_o) \cdot L - f_o/2 = 2.40$ kN-m
3.19 kN-m

FACTOR OF SAFETY

Check factor of safety is greater than 1.5 for long term gravity case
 $F.O.S = M_r P_p / M_d P_a$ 1.5 FOS OK

EMBEDMENT LENGTH CHECK

$L_{long \cdot 1.2} = 0.72$ m Long term embedment multiplied x 1.2
 $L_{min} = 0.70$ m Short term embedment
 $L = 0.72$ m Max embedment for both cases

ADOPT

150 S.E.D posts at 1.2
0.6 max retaining 5.0 surcharge
800 x 300 footing

CANTILEVER RETAINING WALL DESIGN

Flexible Wall

Wall Parameters

Height of wall

Thickness of wall

Length of Toe

Foundation thickness

Length of heel

Depth of shear key

Angle of backfill

Soil friction angle

interface friction angle

Wall slope

Soil unit weight

Concrete unit weight

Surcharge, factored gravity case, de stabilising

(1.2G+0.4Q)

Surcharge, factored EQ case, de stabilising

(G+Eu+0.3Q)

Surcharge, factored gravity case, stabilising (0.9G)

Effective stress cohesion (sliding)

Effective stress angle of shearing (sliding)

undrained shear strength

Width of footing

Total height of structure

Weight of footing

Weight of key

Weight of wall

Weight of soil above heel

Additional Weight (on wall)

Additional weight lever arm for inertia force EQ

Stability

LRFD Parameters

Resistance factor for bearing capacity, gravity case

Resistance factor for sliding, gravity case

Resistance factor for passive earth pressure, gravity case

Resistance factor for sliding, Eq case

Resistance factor for passive earth pressure, Eq case

Load factor for self weight (stabilising)

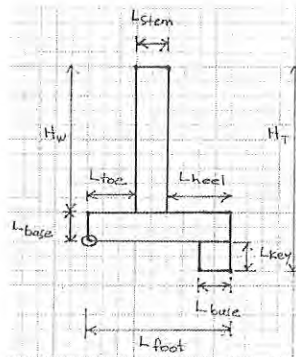
Load factor for self weight (de-stabilising)

Load factor for earth pressure, gravity case (de-stabilising)

Top of wall case Pinned P, Unsupported U

Active Earth Pressure Coefficient Ka or Ko

Passive Earth Pressure coefficient



H_w	1.6 m
T_{wall}	0.2 m
L_{toe}	0.6 m
T_{found}	0.2 m
L_{heel}	0.2 m
D_{key}	0 m
β	0 °
ϕ	30 °
δ	20 °
	0 °
γ_{soil}	18 kN/m ³
γ_{wall}	24 kN/m ³
S_g	0 kPa
S_g	0 kPa
S_{gs}	0 kPa
C'	0 kPa
ϕ'	20 °
S_u	50 kPa
L_{foot}	1 m
H_T	1.8 m
W_{foot}	4.8 kn/m
W_{key}	0 kn/m
W_{wall}	7.68 kn/m
W_{soil}	5.76 kn/m
W_{misc}	0 kn/m

Lever arm Fbase W_{misc} 0 m

ϕ_{bc}	0.5
ϕ_{sl}	0.8
ϕ_p	0.5
$\phi_{sl eq}$	0.9
$\phi_{p eq}$	0.5
G_{stab}	0.9
G_{destab}	1.2
EP_{static}	1.5
u	
k_a	0.333
K_p	5.5

Navfac DM7

1.6 Ret

1m x 200 ftg

H012-400CRS

CENTRALLY

PLACED

JOB 36 Omokoroa Road

JOB No 12509

PAGE 4

BY RF

DATE 11/1/18

Gravity Case - Stability

Active thrust, soil weight component
horizontal component
vertical component
Active thrust surcharge component
horizontal component
vertical component
Surcharge above heel

$P_a = 0.5 k_a \gamma H_1^2$ 9.72 kn/m
 P_{ah} 9.13 kn/m
 P_{av} 3.32 kn/m
 $P_{as} = S_g k_a H_1$ 0.00 kn/m
 P_{ash} 0.00 kn/m
 P_{asv} 0.00 kn/m
 $P_w = S_g L_{heel}$ 0.00 kn/m

Factored moment from horizontal active pressure
about bottom of toe
Moment from vertical active pressure
Moment from surcharge above heel
Factored moment from Self weight of wall and soil
Resultant moment

OTM 8.22 kn-m
RM 3.32 kn-m (-ve)
RM 0.00 kn-m
RM 11.57 kn-m
RM-OTM 6.68 kn-m

Ultimate factored horizontal load gravity case
Vertical load on footing (wall and soil)
Line of action from toe
effective footing width
Bearing pressure gravity case

$1.5 P_a + 1.5 P_{as}$ 13.70 kn/m
 V_{total} 19.74 kn/m
0.34 m
0.68 m
29.18 kPa

Gravity Case - Sliding

Weight of soil under footing
Passive resistance
horizontal component
vertical component
Friction under footing
Factored Gravity Sliding Resistance

W_{slide} 0 kn/m
 $P_p = 0.5 k_p \gamma T_{found} + D_{key}^2 + 2c' T_{found} D_{key} k_p^{0.5}$ 1.98 kn/m
 P_{ph} 1.86 kn/m
 P_{pv} 0.68 kn/m
 $H_s = (W_{slide} + V_{total} - P_{pv}) \tan \delta + C' \times B'$ 6.94 kn/m
 $P_p \phi_p + H_s \phi_s$ 6.48 kn/m

sliding Ngood

Bending moment in wall gravity case

Active thrust, soil weight component
Active thrust surcharge component
Factored moment from horizontal active pressure
about top of footing (wall design)
Depth of section
Distance to centre of tension steel
Width of section
Area of steel mm²/m
Steel yield strength
Concrete compressive strength
Flexure strength reduction factor

$P_a = 0.5 k_a \gamma H_w^2$ 7.68 kn/m
 $P_{as} = S_g k_a H_w$ 0.00 kn/m
OTM 6.14 kn-m
 D 190 mm
 d 95 mm
 B_w 1000 mm
 a_s 282 mm²
 f_y 500 Mpa
 f_c 12 Mpa
 a 14 mm
 ϕ 0.85
 ϕM_n 10.56 Kn-m

Gravity BM in wall ok

(ok restrained
by slab)

Seismic Parameters

Passive earth coefficient Eq

Seismic coefficient C(0)
Wd factor
Horizontal acceleration coefficient
Wall is a flexible wall and Mononobe- Okabe equation
used to calculate the earth pressure
Eq Active thrust increment flexible wall
horizontal component
vertical component
Eq Active thrust surcharge component
horizontal component
vertical component
Surcharge above heel
Moment from horizontal EQ active pressure about
bottom of toe
Moment from structure inertia forces (including soil
above the heel)
Moment from vertical Eq pressure
Moment from surcharge above heel
Factored moment from Self weight of wall and soil
Resultant moment

Ultimate horizontal load Eq case
Vertical load on footing (wall and soil)
Line of action from toe
effective footing width
Bearing pressure Eq case

Earthquake Case - Sliding short term

Passive resistance
Friction under footing
Factored EQ Sliding Resistance

Bending moment in wall Eq case

Eq Active thrust increment
Eq Active thrust increment surcharge component
Moment from structure inertia forces
Factored moment from horizontal Eq thrust about
base of wall
Depth of section
Distance to centre of tension steel
Width of section
Area of steel mm²/m
Steel yield strength
Concrete compressive strength
Flexure strength reduction factor

KP eq	1
CH(0) Z R	0.224
Wd	1 wall displacement factor
Kh=CH(0) Z R wd	0.224
K _{AE}	0.49
P _{ae} =0.5 K _{ae} γ Ht ²	14.31 kn/m
P _{ah}	13.45 kn/m
P _{av}	4.90 kn/m
P _{aes} =S _g K Ht	0.00 kn/m
P _{ash}	0.00 kn/m
P _{asv}	0.00 kn/m
P _w =S _{gs} L _{heel}	0.00 kn/m
OTM	8.07 kn-m
OTM	3.12 kn-m
RM	4.90
RM	0.00 kn-m
RM	12.86 kn-m
RM-OTM	6.57 kn-m
	17.54 kn/m
V _{total}	23.14 kn/m
	0.28 m
	0.57 m
	40.75 kPa

P _p =0.5 k _{peq} γ(T _{found} +D _{key}) ² +2 S _u D ^{key}	0.36 kn/m
H _s =s _u 'b'	28.39 kn/m
P _p φ _p +H _s φ _{sl}	25.73 kn/m
	sliding ok

P _a =0.5 k _{ae} γ Hw ²	11.31 kn/m
P _{as} =S _g k _h Hw	0.00 kn/m
OTM	1.38 kn-m
OTM	7.41 kn-m
D	190 mm
d	95 mm
B _w	1000 mm
a _s	282 mm ²
f _y	500 Mpa
f _c	12 Mpa
a	13.82 mm
φ	0.85
φM _n	10.56 K _N -m

EQ BM in wall ok

Beam Design

Beam 1

Location: Floor beam over rumpus

Span = 2.00 m

Short Term Load Factor, $\psi_s = 0.7$

Long Term Load Factor, $\psi_L = 0.4$

UDL

Self Weight : 0.20 kN/m

	Trib(m)	G	Q	W	W_G	W_Q	W_W
Roof	4.00 m	0.40 kPA	0.25 kPA		1.60 kN/m	1.00 kN/m	
wall	2.40 m	0.40 kPA	0.00 kPA		0.96 kN/m	0.00 kN/m	
Floor	1.00 m	0.50 kPA	1.50 kPA		0.50 kN/m	1.50 kN/m	
Deck	0.00 m	0.50 kPA	2.00 kPA		0.00 kN/m	0.00 kN/m	
Misc	0.00 m	0.00 kPA			0.00 kN/m	0.00 kN/m	
Wind	0.00 m			-1.01 kPA			0.00 kN/m
TOTAL					3.26 kN/m	2.50 kN/m	0.00 kN/m

UDL (ULS), kN/m

$$1.2G+1.5Q = 7.66$$

$$0.9G+W_u = 2.93$$

UDL (SLS), kN/m

$$G+\psi_s Q = 5.01$$

$$G+\psi_L Q = 3.86$$

$$W_s = 0.00$$

no roof live load

Point Load

At Position A= 1.50 m

(Measured from LHS)

	Trib(m ²)	G	Q	W	W_G	W_Q	W_W
Roof	0.00 m ²	6.70 kPA	3.30 kPA		0.00kN	0.00kN	
ceiling	0.00 m ²	0.40 kPA	0.00 kPA		0.00kN	0.00kN	
beam	0.00 m ²	0.00 kPA	0.00 kPA		0.00kN	0.00kN	
Deck	0.00 m ²	0.00 kPA	0.00 kPA		0.00kN	0.00kN	
Misc	0.00 m ²	0.00 kPA	0.00 kPA		0.00kN	0.00kN	
Wind	0.00 m ²			-1.01 kPA			0.00kN
TOTAL					0.00kN	0.00kN	0.00kN

$$1.2G+1.5Q = 0.00$$

$$0.9G+W_u = 0.00$$

$$G+\psi_s Q = 0.00$$

$$G+\psi_L Q = 0.00$$

$$W_s = 0$$

no roof live load

Bending Moment

Load Case

Mu*

$$1.2G+1.5 = 3.83 \text{ kNm}$$

$$0.9G+W_u = 1.47 \text{ kNm}$$

Critical Bending Moment = 3.83 kNm

Try Timber Section

Width (b) = 90 mm
Depth (d) = 190 mm

$L_{ay} = 1.20 \text{ m}$

Grade : SG8 Dry

NZS3603

$$\varphi M_n = \varphi k_1 k_4 k_5 k_6 f_b Z_{xx}$$

$$= 4.85 \text{ kNm}$$

> M_u^* therefore O.K

$\phi_1 = 0.8$ CL 2.5
 $k_1 = 0.8$ Table 2.4
 $k_2 (\text{defl}) = 2.0$ Table 2.5
 $k_4 = 1$ Table 2.7
 $k_5 = 1.000$ Eq 2.5
 $k_6 = 1.00$ Table 2.8
 $f_b = 14 \text{ MPa}$
 $E = 6.7 \text{ GPa}$
 $S_1 = 6.72$ Eq 3.5

Deflection :
Dead = 2.0 mm = Span / 1015
 $G + \psi_s Q = 3.0 \text{ mm}$ = Span / 660
 $G + \psi_L Q = 4.7 \text{ mm}$ = Span / 429
 $W_s = 0.0 \text{ mm}$ = Span / #DIV/0!

Try Steel Section

Section 150 PFC 17.7
 $I_{xx} = 8.34 \times 10^6 \text{ mm}^4$
 $Z_{xx} = 129 \times 10^3 \text{ mm}^3$

NZS3404

$$\varphi M_{sx} = \varphi Z_{xx} f_y$$

$$= 37.15$$

> M_u^* therefore O.K

$f_y = 320 \text{ MPa}$
 $\phi_f = 0.9$ Table 3.3(1)
 $E = 200 \text{ GPa}$
 $\alpha_s = 0.726$ CL 5.6.1.1.2(c)
 $\alpha_m = 1.130$ CL 5.6.1.1.1(b)
FF End Restraint Table 5.6.3(1)
 $k_1 = 1.00$ Twist restraint factors Tb 5.6.3 (1)
 $k_r = 1.00$ Rotation restraint factors Tb 5.6.3 (3)
 $k_i = 1.00$ Load height factors Tb 5.6.3 (2)

Segment Length 2.00 m $L_e = k_1 k_r k_i L$ 2.00 m

$$\varphi M_{bx} = 37.15 \text{ kNm}$$

$$\varphi M_{bx} = \alpha_m \alpha_s M_{sx} \leq M_{sx} 30.49 \text{ kNm}$$

$$> M_u^* \text{ therefore O.K}$$

Deflection :
Dead = 0.4mm = Span / 4912
 $G + \psi_s Q = 0.6 \text{ mm}$ = Span / 3196
 $G + \psi_L Q = 0.5 \text{ mm}$ = Span / 4148
 $W_s = 0.0 \text{ mm}$ = Span / #DIV/0!

Reactions	LHS	RHS	Footing
			Using square footing of size= 0.50 m
			$\phi_{bc} = 0.5$
			$q_u = 200 \text{ kPa}$
			LHS RHS
Dead (kn) =	3.3kN	3.3kN	$f_q (\text{wkg}) \text{ kPa} = 23.0 \text{ kPa}$ 23.0 kPa
Live (kn) =	2.5kN	2.5kN	$f_q (\text{ULS}) \text{ kPa} = 30.6 \text{ kPa}$ 30.6 kPa
Wind (kn) =	0.0kN	0.0kN	
Rult (1.2G+1.5Q) =	7.7kN	7.7kN	
(0.9G+Wu)=	2.9kN	2.9kN	

Summary

Beam Location: Floor beam over rumpus

Beam Size: 150 PFC 17.7
Supports: Blockwall / beam 6
RC Pad:
Reinforcement:

Span 2.00 m



SPECIFICATION

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

MacDonald Alterations

MacDonald Project Specification

36 Omokoroa Road, Omokoroa, New Zealand

Project Ref: GCG 2118

Printed: 30 October 2018

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1220 PROJECT

1 GENERAL

This general section describes the project including:

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

1.1 READ ALL SECTIONS TOGETHER

Read all general sections together with all other sections.

1.2 DESCRIPTION OF THE WORK

New Ensuite, Alter Bedrooms and Bathrooms

1.3 RESTRICTED BUILDING WORK

This project includes Restricted Building Work.

Design Construction Safety

1.4 DESIGN CONSTRUCTION SAFETY MATTERS

The project has the following unusual or atypical features, which a reasonably experienced contractor may not be aware of, that may present an unexpected hazard or risk during a typical construction process.

ITEM	COMMENT
Asbestos wall cladding	Removal of existing cladding

Provide particular health and safety procedures and methods to mitigate these hazards or risks, and specifically include them as well as any other health and safety matters in the site Health and Safety Plan (refer to section 1260 PROJECT MANAGEMENT for Plan requirements). The Contractor is still required to undertake its own assessment, to determine if they consider there are further safety matters and provide for these in carrying out the construction of the work.

Principal's Health & Safety Matters

1.5 PRINCIPAL'S KNOWN SITE HAZARDS

Site hazards known to the principal are:
Asbestos based wall cladding

1.6 PRINCIPAL'S SITE HEALTH AND SAFETY PLAN

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

Site

1.7 SITE

The site consists of: a 697 sqm residential site
As shown on drawing: Sheet 1 of Drawings GCG 2118

1.8 LEGAL DESCRIPTION

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

1.9 EXISTING BUILDINGS

Existing buildings consist of: existing 3 storey dwelling
Refer drawing(s): Sheet 1 of Drawings GCG 2118

1.10 EXISTING SERVICES

The following are the network utility services:

Electrical:

Communications:

Water:

Stormwater: existing to soak holes

Foul water: existing

The services are also shown on the drawings. Sheet 1 of Drawings GCG 2118

Site environment - Durability

1.11 EXPOSURE ZONE

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

The site zone is: High

Site environment - Wind

1.12 WIND DESIGN PARAMETERS - NON SPECIFIC DESIGN

The design wind pressures are to [NZS 3604](#), Table 5.4 Determination of wind zone, up to and including Extra High Wind Zone.

Building wind zone High (refer to [NZS 3604](#), table 5.4)

Site environment - Seismic

1.13 EARTHQUAKE ZONE - NON SPECIFIC DESIGN

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

The earthquake zone Zone 1
is:

Archaeological discovery

1.14 REPORT FINDING ANY ANTIQUITIES AND ITEMS OF VALUE

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

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

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

1232 INTERPRETATION & DEFINITIONS

1 GENERAL

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

Definitions

1.1 DEFINITIONS

Hold point:	A stage of the construction where the contract administrator and any other nominated person requires notice to be given that particular work is to be carried out. Work may not proceed on that particular part until the contract administrator and any other nominated person has advised that work can continue. A notice period of 2 Working Days is required unless stated otherwise.
Notification point:	A stage of the construction where the contract administrator and any other nominated person requires notice to be given that particular work is to be carried out. Work may continue and the contract administrator and any other nominated person may choose whether or not they wish to witness the particular work being carried out. A notice period of 2 Working Days is required unless stated otherwise.
Product:	A thing or substance produced by natural process or manufacture.
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.
Required:	Required by the documents, the New Zealand Building Code or by a statutory authority.
Review:	Review by the contract administrator and other consultants 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

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
OSH	Occupational Safety and Health
PCBU	Person Conducting a Business or Undertaking (under Health and Safety at Work Act 2015)
RBW	Restricted Building Work
SARNZ	Scaffolding and Rigging New Zealand Inc
SED	Specific Engineering Design
TA	Territorial Authority
TNZ	Transit New Zealand (Transit New Zealand is now New Zealand Transport Agency NZTA - some specifications are still prefixed TNZ)

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.

1232S1 EXPLANATION OF SCHEDULE SECTIONS

1 GENERAL

This General section provides an explanation of Schedule sections and their relationship to General sections and Work sections. Specific Schedule sections contained within this specification are also identified.

1.1 EXPLANATION OF SCHEDULE SECTIONS

A schedule section identifies Work sections that contain common requirements, as identified in the title of the Schedule section. For example 1235S1 SCHEDULE OF SHOP DRAWINGS identifies Work sections that have requirements for shop drawings. Details of the requirements are contained in the identified Work sections with additional requirements contained in the General section 1235 SHOP DRAWINGS.

A Schedule section is identified by the 4 digit CBI (Co-ordinated Building Information) number of the General section that it relates to, followed by the letter "S" followed by a numeral (1-9). The numeral allows for multiple schedule sections to be associated with the same General section.

1.2 SCHEDULE SECTIONS

The following Schedule sections are contained within the specification:

1237S1	Schedule of Warranties
1270S1	Schedule of Samples & Prototypes
1270S2	Schedule of Spares & Maintenance Products

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 F5/AS1	Construction and demolition hazards
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 3012	Electrical installations - Construction and demolition sites
NZS 3109	Concrete construction
NZS 3114	Specification for concrete surface finishes
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 4210	Masonry construction: Materials and workmanship
AS/NZS 5131	Structural steelwork - Fabrication and erection
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 at Work (Hazardous Substances) Regulations 2017	
Health and Safety in Employment Regulations 1995	
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
WorkSafe NZ	Scaffolding in New Zealand - Good Practice Guidelines

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
- Branded work sections
- Care of construction documents
- Confidentiality of documents
- Receipt of construction documents

Building Consent Authority documentation

1.1 BUILDING CONSENT

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

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 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

1.6 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 (PS1) - Design
- Producer Statement (PS3) - Construction from the applicator / installer
- Producer Statement (PS4) - 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.

1.7 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.

Residential building contract

1.8 CHECKLIST

If requested provide evidence of the prescribed checklist given to the residential client.

1.9 DISCLOSURE STATEMENT

If requested provide evidence of the disclosure statement given to the residential client.

1.10 BUILDING CONTRACT

If requested provide evidence of the written building contract that the residential customer has signed.

1.11 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**1.12 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.

1.13 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified products and systems listed in a section unless specified otherwise. If a product is not available then immediately contact the contract administrator for direction.

1.14 PROPOSED SUBSTITUTIONS

Substitution of products or systems contained within branded work sections is not allowed. The contractor may propose substitutions to products within non branded work sections, when the contractor has determined that the proposed substitution is an alternative to the specified product. The Contract administrator is not bound to accept any substitutions. Submit a draft proposal detailing the substitution to the contract administrator before proceeding with full notification.

1.15 NOTIFICATION OF SUBSTITUTIONS

Notify the contract administrator of 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

1.16 ACCEPTANCE OF SUBSTITUTIONS

Acceptance of any proposed substitutions will be given in writing by the contract administrator.

Amendments to issued Building Consent

1.17 CONTRACTOR AMENDMENTS 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 amendment.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans.

1.18 PRINCIPAL AMENDMENTS 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**1.19 MANUFACTURER'S AND SUPPLIER'S INSTALLATION REQUIREMENTS**

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

1.20 CONTRACTOR TO OBTAIN CURRENT DOCUMENTATION

Where manufacturer's installation, application and execution requirements are referred to in this specification, the Contractor must ensure they 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.

1.21 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**1.22 BRANDED PRODUCTS / SYSTEMS**

Where branded products and systems are specified, all products and components of the system must be as per the specification.

1.23 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.

Care of construction documents**1.24 CONSTRUCTION ISSUE**

Take receipt of the plans, specifications and other documents issued "for construction". Keep at least one copy on site available for use by all on site workers. Keep a record of copies provided to others including subcontractors. Protect the documents as appropriate. Obtain replacement copies for documents that have become damaged.

1.25 REVISIONS TO CONSTRUCTION ISSUE

Where revised plans and other documents are issued ensure that superseded documents are deleted from the working sets. Ensure that subcontractors are provided with amended documents. Delete superseded documents by either:

- removing them from the working copy of the construction issue; or
- marking them as superseded

1.26 RETURN DOCUMENTS ISSUED FOR CONSTRUCTION

On completion of the contract works:

- Keep such copies of the plans, specification and other documents as reasonably required for contractor's record purposes.
- Retrieve all other copies no longer required by parties.
- Agree method of disposal of such documents with the Contract Administrator.

The Contract Administrator will advise whether such documents shall be:

- delivered to the Contract Administrator/Owner; or
- disposed of by normal waste disposal methods; or
- disposed of by secure document disposal methods.

Confidentiality of documents**1.27 CONFIDENTIALITY OF DOCUMENTS**

Documents shall not be given or copied to others who do not require them for carrying out services required for the construction of the works. Documents are only to be used for the contract. Maintain confidentiality of documents.

2 SELECTIONS**Receipt of construction documents****2.1 INITIAL ISSUE & REVISIONS - HARD COPIES**

Initial issue: 1 at full size, 1 at reduced size
 Revisions: 1 at full size, 1 at reduced size

2.2 DOCUMENT RECEIPT - HARD COPIES

Hard copies of plans, specifications and other documents issued for construction shall be collected from GCG Design Ltd. 79b Beach Rd, Otumoetai, Tauranga

2.3 DOCUMENT RECEIPT - ELECTRONIC DOCUMENTS

Electronic documents issued for construction shall be

- Obtained as an email attachment sent to an agreed address.

1237 WARRANTIES

1 GENERAL

This general section refers to the requirements for warranties/guarantees, referred to within this specification and 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.

1.1 SCHEDULE SECTION

Refer to 1237S1 SCHEDULE OF WARRANTIES for work sections contained in this specification that have requirements for warranties.

Warranties

1.2 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.

1.3 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.

1.4 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

1.5 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.

1.6 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.

1.7 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)"

1.8 WARRANTIES - SUBMISSION NZS3910:2013 CONTRACT

Refer to [NZS 3910](#) Conditions of Contract for building and civil engineering construction, clauses 11.5 and 11.6 for requirements relating to the time for submission of warranties and guarantees. Submit all warranties/guarantees to the engineer no later than the date that the contractor notifies that it believes the contract works qualify for practical completion.

2 SELECTIONS**Project warranties / guarantees****Guarantees - Contractor - Master Build Services Ltd****2.1 MASTER BUILD SERVICES LTD - 10 YEAR KIWI GUARANTEE**

Provide a 10 Year Kiwi Guarantee, include all costs in the contract price. Detach the guarantee application form from the guarantee agreement. Complete the form, obtain all required signatures (builder and owner). Send the completed form to Master Build Services for approval along with a copy of the building contract (include a full scope of work for any addition/alteration work), prior to any work commencing. Obtain the Master build Services acceptance letter and provide this to the owner along with the guarantee document. On completion of the building work complete the notice of practical completion form, obtain all required signatures (builder and owner) and forward the form to Master Build Services.

Weathertightness and watertightness warranty**2.2 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.

1237S1 SCHEDULE OF WARRANTIES

1 GENERAL

This schedule section identifies work sections in the specification that have requirements for warranties.

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- 1237 WARRANTIES
- Identified Work Sections

Warranties

1.2 WARRANTIES

Refer to the following sections:

4131A	Ardex Damp-Proof Membranes
4161T	Thermakraft Underlays, Foils & DPC
4231HH	James Hardie® Hardieflex™ Sheet Cladding
4521	Aluminium Windows & Doors
4610MR	Metro Performance Glass - Residential Glazing
4710K	Knauf Insulation Systems
4711KB	Koolfoam Black Pearl Thermal Insulation
6700R	Resene Painting General
7123KP	KemPex Hot & Cold Water System
7421MO	Marley Optim DWV Sanitary System
7701	Electrical Basic

1.3 PROJECT WARRANTIES

Refer to section 1237 WARRANTIES for project warranties.

1.4 WARRANTIES - ADDITIONAL ITEMS

Refer to separate documentation for warranties not contained within this specification.

1270 CONSTRUCTION

1 GENERAL

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

- Quality control and assurance
- Noise and nuisance
- Set-out and tolerances
- Common execution requirements
- Qualifications
- Common product requirements
- Common requirements for samples and prototypes
- Common requirements for spare and maintenance products
- Cleaning during the works
- Removal of protection
- Completion requirements
- Commissioning
- Practical completion submission
- Defects period submissions
- Completion submissions

1.1 SCHEDULE SECTION

Refer to 1270S1 SCHEDULE OF SAMPLES & PROTOTYPES for work sections contained in this specification that have requirements for samples and prototypes.

Refer to 1270S2 SCHEDULE OF SPARES & MAINTENANCE PRODUCTS for work sections contained in this specification that have requirements for spares and maintenance products.

Quality control and assurance

1.2 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.

1.3 PROVIDE QUALITY PLAN

Prepare a quality plan for the execution of the contract works and submit a copy of the quality plan to the Contract Administrator within 10 Working Days of the date of award of the contract. The quality plan shall describe the procedures for meeting the requirements of the contract in respect of:

- Materials and workmanship
- Monitoring and maintaining subcontractors' performance
- Record keeping
- The level of documentation for signing off the contract works as complete
- Procedures to ensure that all persons engaged in undertaking the contract works are qualified, experienced and trained for the work they are undertaking
- Inspection and testing required by the contract
- Auditing the quality plan

1.4 REVIEW OF QUALITY PLAN

Within 5 working days of the contractor submitting a quality plan to the contract administrator for review, the contract administrator may advise that:

- they have completed their final review, or
- that they have undertaken a review and require resubmission of the quality plan.

Review by the contract administrator of the quality plan does not make the quality plan a contract document. The contractor at all times remains responsible for the construction of the Works. If resubmission of a quality plan is required, the contract administrator will give their reasons. The contractor shall take account of the reasons and resubmit a revised quality plan within a period of 5 working days.

1.5 COMMENCEMENT OF WORK

Do not commence any part of the contract works, other than establishment, setting out and site preparation until the contract administrator has completed their final review of the quality plan.

1.6 NOTICE

Give notice to the contract administrator and any other nominated person of hold points and notification points. Refer to work sections and 1260 PROJECT MANAGEMENT for hold points and notification points required.

1.7 NOTIFIABLE WORK

Lodge notice of the intention to commence any notifiable work and any work that will at any time include any notifiable work, in accordance with [Health and Safety in Employment Regulations 1995](#).

Noise and nuisance

1.8 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 1995](#) clause 11.

1.9 ACCEPTABLE NOISE LEVELS

Refer to [NZS 6803](#) Tables 2 and 3 for the upper limits of construction work noise received in residential zones, dwellings in rural areas, industrial areas and commercial areas, note also the allowed adjustments. Do not exceed these limits or any limits imposed by regional councils or territorial authorities.

1.10 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](#), table 2 and table 3, cease the noise generating operation and remedy the problem.

1.11 INCONVENIENCE TO OTHERS

When the works are to be carried out in or around occupied premises, ascertain the nature and times of occupation and use. Carry out the works in a manner to minimise inconvenience, nuisance and danger to occupants and users.

1.12 ROADWAY AND FOOTPATH

Keep the adjacent footpath and road clear at all times. Where work must be carried out in the roadway or footpath, obtain required consents from the territorial authority. Where temporary use is made of the footpath or roadway for deliveries and the like ensure that public safety is protected and the goods and materials moved as soon as practicable. Sweep, wash and otherwise clean the roadway/footpath and restore it to its previous condition.

1.13 VEHICLE CROSSING

Make good damage that has occurred as a result of carrying out the contract works. Where there has been significant damage, contact the territorial authority and obtain instructions for making good. Pay the territorial authority costs associated with making good.

1.14 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.

1.15 DAMAGE AND NUISANCE

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

1.16 SMOKE FREE REQUIREMENTS

In accordance with the Smoke Free Environments Act 1990 smoking is not allowed on site.

1.17 RESTRICTIONS

Do not:

- light rubbish fires on the site.
- bring dogs on to or near the site.
- bring radios/audio players on to the site.

Set-out and tolerances**1.18 SURVEY INFORMATION**

Locate and verify survey marks and datum points required to set out the works. Where these do not exist or cannot be located advise the contract administrator who will arrange for the required points to be established.

Record and maintain their position. Re-establish and replace disturbed or obliterated marks.

1.19 DATUM

Establish a permanent site datum to confirm the proposed levels and their relationship to all other existing and new levels.

1.20 SET-OUT

Set out the work to conform with the drawings.

1.21 USE OF SET-OUT INSTRUMENTS

Permit without charge, the use of instruments already on site for checking, setting out and levels.

1.22 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.

1.23 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 3404.1:1997 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

1.24 EXAMINE PREVIOUS WORK

Before commencing any part of the work carefully examine the previous work on which it depends, to ensure it is of the required standard.

1.25 REPORT DEFECTIVE PREVIOUS WORK

Refer defects to the contractor to be remedied, if the remedy is outside the scope of the contract documents the contractor shall obtain direction from the contract administrator. Do not carry out work over previous work that is defective and will affect the required standard.

1.26 EXECUTION GENERALLY

Construct the work in accordance with the documents issued for construction including any direction that may have been given by the contract administrator that varies the construction document.

1.27 EXECUTION - NO DETAIL IS PROVIDED

The documents issued for construction will not include all details relating to every material, junction and interface with other materials.

Where the detail provided is of a general nature, or where no detail is provided, refer to the manufacturer's documents for information relating to installation and execution of that part of the work.

Where there is more than one method or detail appropriate to the part of the work in question, refer the options to the Contract Administrator for direction as to which detail or method to use.

1.28 EXECUTION - ACCEPTABLE SOLUTION IS REFERRED TO

Where a NZBC Acceptable Solution is referred to in the specification but not shown on the plans, obtain a copy of that Acceptable Solution and make it available to the workers carrying out that part of the work.

1.29 MINIMISE DELAYS DUE TO WEATHER

Use appropriate techniques and methods to prevent damage and minimise delays due to weather.

Defective or damaged work

1.30 DEFECTIVE OR DAMAGED WORK

Repair defective, damaged and marked elements, or replace them where repair is not possible or will not be acceptable. Adjust operation of equipment and moving parts not working correctly. Refer to individual work sections for any special requirements.

Qualifications

1.31 QUALIFICATIONS GENERALLY

The work is to be carried out by workers (trades people, installers and applicators) who are experienced, competent and familiar with the materials and the techniques specified. Workers must also be familiar with the manufacturers' and suppliers' installation and application instructions and standard details provided by them in relation to the use of the products for this project. If requested provide evidence of qualification / experience.

1.32 QUALIFICATIONS – RESTRICTED BUILDING WORK

Where restricted building work forms part of the contract works, workers, or supervisors of that work must be licensed building practitioners holding current licenses for the particular restricted building work.

1.33 QUALIFICATIONS – APPROVED/LICENSED APPLICATORS/INSTALLERS

Where required by a manufacturer or supplier, applicators/installers must be specifically trained /approved / accredited / registered / licensed / certified by them. Refer to individual work sections for details.

1.34 QUALIFICATIONS – WORKERS LICENSED UNDER STATUTE

Where workers or supervisors of work are required to be licensed, registered or similar under legislation, they must have a current license before they start the work and maintain currency until their part of the work has been completed and all documentation that is required has been provided.

1.35 QUALIFICATIONS – PRODUCER STATEMENTS

Where producer statements are required for parts of the work, ensure that person is suitably qualified and authorized to issue such producer statements.

1.36 REPLACEMENT OF PERSON

Should it be necessary to replace a person, ensure that records of work, producer statements, warranties and the like required for the part of the work they have carried out are obtained.

Ensure that the replacement person takes responsibility for the work they carry out and that they are able to provide such records of work, producer statements, warranties and the like required as a condition of the contract and the building consent.

Products**1.37 NEW PRODUCTS**

Products to be new unless stated otherwise, of the specified standard, and complying with all cited documents.

1.38 COMPATIBILITY OF PRODUCTS

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.

1.39 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Protect products during transit and delivery on site and / or off site. Reject and replace goods that are defective or damaged or will not provide the required finish.

Handle products carefully to avoid damage and distortion and in accordance with codes of practice and the manufacturer's or supplier's requirements. Avoid any contact with potentially damaging surfaces or conditions.

Store products to avoid visual damage, environmental damage, mechanical damage and distortion. Store in accordance with codes of practice and the product manufacturer's or supplier's requirements. Maintain the proper condition of any protective packaging, wrapping and support.

Refer to individual work sections for any special requirements.

1.40 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.

1.41 INSTALLING PRODUCTS

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.

1.42 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.

1.43 CONDITION OF PRODUCTS

To be in perfect condition when incorporated into the work.

1.44 INCOMPATIBLE PRODUCTS

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**1.45 SAMPLES FOR REVIEW**

Where specified in the work sections submit samples and any nominated supporting documentation to the named reviewer and notify the contract administrator of the submission. Where no person is named as the reviewer, submit to the contract administrator.

Samples for review may be described as a portable sample for review, portable control sample, fixed sample for review or fixed control sample. A portable sample refers to a sample that is easily movable, convenient for carrying. A fixed sample refers to a sample that is not portable. If the location of a fixed sample is not defined in the work section, obtain direction from the contract administrator.

For samples that are located on site, or by agreement with the contract administrator are located off site, notify the reviewer and contract administrator of their location and availability for review.

Timing for the provision and review of samples is to be included in the contract programme. Where no time is stated in a work section allow 10 working days for each review. Allow for such resubmission and further review as may be required. No extension of time will be allowed for resubmission and further review.

Obtain written instructions in relation to the samples from the contract administrator. Do not proceed further with related work items until advised to continue.

Samples may be incorporated in the finished work if confirmed in writing by the contract administrator, otherwise allow to completely remove any fixed samples. Remove from the site any rejected samples.

Refer to SAMPLES clauses in work sections for further detail.

1.46 CONTROL SAMPLES

Samples become control samples if an instruction is given by the contract administrator to that effect. Control samples will be used for comparison purposes throughout the contract. Control samples may be portable or fixed in place, refer to SAMPLES clauses in work sections for further detail.

Control samples that are to remain on site, or otherwise in the care of the contractor, are to be maintained in original condition.

If confirmed by the contract administrator, fixed control samples may be incorporated in the finished work, otherwise allow to remove fixed control samples from site when instructed by the contract administrator.

1.47 OTHER SAMPLE REQUIREMENTS

Where specified in the work sections obtain samples for the purposes described.

Prototypes

1.48 PROTOTYPES - TESTING

Where specified in the work sections provide and test prototypes. Timing for the provision, testing, disassembling, re-assembling, retesting and review of prototypes and test results is to be included in the contract programme. Where no time is stated in a work section allow 10 working days for each review of test results. Submit test results to the named reviewer and to the contract administrator. Where no person is named as the reviewer submit test results to the contract administrator.

Obtain written instructions in relation to the prototype from the contract administrator. Do not proceed further with related work items until advised to continue.

Refer to PROTOTYPES - TESTING clauses in work sections for further detail.

1.49 PROTOTYPES - REVIEW

Where specified in the work sections provide prototypes for review. Timing for the provision, disassembling, re-assembling and review of prototypes is to be included in the contract programme. Where no time is stated in a work section allow 10 working days for review by the named reviewer. Where no person is named as the reviewer notify the contract administrator for direction.

Obtain written instructions in relation to the prototype from the contract administrator. Do not proceed further with related work items until advised to continue.

Refer to PROTOTYPES - REVIEW clauses in work sections for further detail.

1.50 PROTOTYPES - GENERAL

Refer to the PROTOTYPES - TESTING and PROTOTYPES - REVIEW clauses in work section for details on what is to happen after the review and or testing of the prototype is complete. Where no information is provided refer to the contract administrator for direction.

Prototypes may become control samples if an instruction is given by the contract administrator to that effect.

Spares & maintenance products**1.51 SPARES & MAINTENANCE PRODUCTS**

Collect, protect, package, label and store safely all spares and maintenance products specified in the work sections. Give the contract administrator an inventory of all spares and maintenance products.

If no instruction is given within a work section for the location of spares and maintenance products, then deliver to the owner ~.

If no instruction is given within a work section for timing in relation to the provision of spares and maintenance products, then provide at practical completion.

Refer to SPARES & MAINTENANCE PRODUCTS clauses in work sections for further detail.

Cleaning during the works**1.52 PERIODIC SITE CLEANING**

Carry out periodic site cleaning during the contract period. Place waste material in appropriate storage pending removal from the site. Keep food waste separate from construction waste.

1.53 TRADE CLEANING

Keep the work area clean, remove of all debris, unused and temporary materials and elements from the site as work progresses and on completion. Refer to individual work sections for any specific requirements.

1.54 SPECIAL SITE CLEANING

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Remove protection

1.55 REMOVE PROTECTION

Remove all temporary markings, labels, packaging and coverings to products unless instructed otherwise, or where they are required for protection.

Maintain temporary protection until removal is required by the manufacturer/supplier, the execution of the work or the requirements of individual work sections. Re-establish protection as necessary.

Remove temporary protection and special protection immediately prior to practical completion or before when there is no further risk of damage.

Refer to individual work sections for any special removal requirements.

Completion**1.56 SPECIAL REQUIREMENTS**

Refer to individual work sections for any special completion requirements.

1.57 LEAVE WORK

Leave work to the standard required for the following procedures.

1.58 COMPLETION - TESTS & CERTIFICATION

Carry out tests as detailed in the work sections. If testing identifies a failure to meet performance requirements, notify the contract administrator and any nominated recipient, identify and correct the cause of failure and repeat the test. Submit test results and certification documentation to the contract administrator and any nominated recipient.

1.59 REMOVE CONSTRUCTION WASTE

Remove all debris, unused materials and the like from the site. Arrange for material to be recycled to be collected or delivered to the recycler.

1.60 COMPLETE ALL SERVICES

Ensure all services are complete and operational, with all temporary labelling removed, required labelling fixed and service instructions provided.

1.61 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. Do not use metal scrapers that may 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**1.62 SPECIAL REQUIREMENTS**

Refer to individual work sections for any special commissioning requirements.

1.63 MOVING PARTS

Adjust, ease and lubricate all doors, windows, drawers, hardware, appliances, controls and all moving parts to give easy and efficient operation.

1.64 COMMISSIONING - TESTS & CERTIFICATION

Carry out tests as detailed in the work sections. If testing identifies a failure to meet performance requirements, notify the contract administrator and any nominated recipient, identify and correct the cause of failure and repeat the test. Submit test results and certification documentation to the contract administrator and any nominated recipient.

1.65 INSTRUCTION AND DEMONSTRATION

Provide instruction and demonstration to the owner/occupier to the extent that is listed below and as required for them to reasonably occupy and use the building. This is to include at least the following:

- Location and isolation of all services connections.
- Operation of all emergency systems.
- Locking and security arrangements.
- Operation of basic building services including lighting, heating, mechanical ventilation, air conditioning and security.
- Special cleaning requirements and procedures.
- Any other features that the owner/occupier needs to know about.

1.66 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.

Practical completion submission**1.67 ADDITIONAL PRACTICAL COMPLETION INFORMATION**

In addition to requirements in the contract and contained elsewhere in the specification provide the following information submissions for practical completion:

- All documents which the contractor has obtained on behalf of the owner/occupier.
- Information required by the owner/occupier to be able to use the building.
- Advice that NUO accounts in the contractor's name have been closed and as appropriate changed to be in the name of the owner/occupier.
- A list of persons to be contacted to carry out any emergency or remedial work including 24 hour/7 day contact details.

Defects period submissions**1.68 DEFECTS REMEDIATION - SUBMISSIONS**

Provide the following at periods required by the contract administrator, where no period is stated, provide this information monthly:

- A copy of the contractor's check list identifying remaining defects and omissions to be completed recording progress made in completing and correcting the items.
- A copy of lists issued by the principal/employer identifying omissions and defects recording progress made in completing and correcting the items.
- A copy of lists issued by the contract administrator identifying omissions and minor defects recording progress made in completing and correcting the items.

Completion submissions**1.69 FINAL COMPLETION - SUBMISSIONS**

In addition to requirements in the contract and contained elsewhere in the specification provide:

- Contractors advice that all defects have been corrected and omissions and deferred work completed.
- All documents which the contractor has obtained on behalf of the owner/occupier.

1270S1 SCHEDULE OF SAMPLES & PROTOTYPES

1 GENERAL

This schedule section identifies work sections in the specification that have requirements for:

- The submission of samples
- The submission of prototypes for review
- The provision and testing of prototypes

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- 1270 CONSTRUCTION
- Identified Work Sections

Samples

1.2 SAMPLES

There are no work section requirements.

1.3 SAMPLES - ADDITIONAL ITEMS

Refer to separate documentation for sample requirements not contained within this specification.

Prototypes

1.4 PROTOTYPES - REVIEW

There are no work section requirements.

1.5 PROTOTYPES - TESTING

There are no work section requirements.

1.6 PROTOTYPES - ADDITIONAL ITEMS

Refer to separate documentation for prototype requirements not contained within this specification.

1270S2 SCHEDULE OF SPARES & MAINTENANCE PRODUCTS

1 GENERAL

This schedule section identifies work sections in the specification that have requirements for spares and maintenance products.

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- 1270 CONSTRUCTION
- Identified Work Sections

Spares & maintenance products

1.2 SPARES & MAINTENANCE PRODUCTS

There are no work section requirements.

1.3 SPARES & MAINTENANCE PRODUCTS - ADDITIONAL ITEMS

Refer to separate documentation for sample requirements not contained within this specification.

3101 CONCRETE WORK - BASIC

1 GENERAL

This section relates to formwork, reinforcement, concrete mixes and the placing of concrete.

1.1 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

Documents

1.2 DOCUMENTS

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

NZBC B1/AS1	Structure
NZBC B1/VM1	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

Requirements

1.3 QUALIFICATIONS

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

1.4 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](#), and 500E mesh to [AS/NZS 4671](#) as modified by NZS B1/VM1.

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](#) as modified by NZS B1/VM1, Class E, minimum to B1/AS1 - Grade 500E, 2.27kg/m² (1.14kg/m² 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.

Provide laps only where indicated on the drawings. Tie all lapping bars to each other. Plain bars lapped splices must be hooked.

Wire mesh laps to [NZS 3101](#).1, 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 PRE-PLACEMENT INSPECTION

Do not place concrete until all excavations, boxing and reinforcing have been inspected and passed by the Building Consent Authority.

3.12 SURFACE FINISHES

To [NZS 3114](#), 105, Specification of finishes, as scheduled or as denoted on the drawings.

3.13 CONCRETE SURFACE TOLERANCES

To [NZS 3114](#), 104, Surface tolerances and [NZS 3114](#), 105, Specification of finishes, with the suggested tolerances becoming the required tolerances.

3.14 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.

3.15 COMPACTION

Use power operated vibrators on foundations, vertical constructions and beams.

3.16 FLOOR SLABS TO NZS 4229

Generally for slabs on ground to [NZS 4229](#) as modified by [NZBC B1/AS1](#) and [NZBC E2/AS3](#). Construct to [NZS 4229](#), 6, **Footings** and [NZS 4229](#), 7, **Foundation walls and concrete slab-on-ground** as modified by [NZBC B1/AS1](#), 2.0 **Masonry**. 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 18m centres to [NZS 4229](#), 7.8.5.3 **Free joints**.

3.17 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).

3.18 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

3.19 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.

3.20 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.

3.21 CLEAN OUT

Clean out saw cuts. Fill with cement grout where the floor will be covered with carpet or vinyl.

3.22 REMOVE

Remove all unused materials and all concrete and reinforcing debris from the site.

4 SELECTIONS**4.1 DAMP-PROOF MEMBRANE**

Brand/type: .250 Micron Dampathene

4.2 REINFORCEMENT LAPS

Where reinforcement laps are not shown on the drawings, lap as follows:

Bar diameter	Grade 300E deformed
10mm	400mm
12mm	500mm
16mm	650mm

4.3 NORMAL CONCRETE

Normal concrete:

25 MPa: for floors and footings

4.4 SURFACE FINISHES FLOOR SLABS

Surface finish class to [NZS 3114](#): table 2, Classes of floor, exterior pavement and invert finishes.

Finish class	Location
U3	new floor slabs

3321F FIRTH CONCRETE MASONRY

1 GENERAL

This section relates to the laying, reinforcing and grouting of **Firth** hollow concrete masonry. It includes:

- **Firth** hollow block masonry
- **Firth** HotBloc®
- including mortar, reinforcement and ready-mix grout

1.1 ABBREVIATIONS AND DEFINITIONS

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

The following definitions apply specifically to this section:

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

1.2 DOCUMENTS

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

NZS 3104	Specification for concrete production
NZS 3109	Concrete construction
NZS 3112.1	Methods of test for concrete - Tests relating to fresh concrete
NZS 4210	Masonry construction - Materials and workmanship
AS/NZS 4455.1	Masonry units, pavers, flags, and segmental retaining wall units - Masonry units
AS/NZS 4671	Steel reinforcing materials
CCANZ CP 01	Code of Practice for Weathertight Concrete and Concrete Masonry Construction

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Firth Industries documents relating to work in this section are:

Firth Masonry Homes Construction Manual
Firth Cantilever Masonry Retaining Walls Manual
Firth Hollow Masonry Document
Firth Energy Efficiency Masonry Construction
Firth Masonry Insulation Solutions
Firth Design Masonry Control Joint Specification

Manufacturer/supplier contact details

Company:	Firth Industries
Email:	info@firth.co.nz
Web:	www.firth.co.nz
Telephone:	0800 800 576
Facsimile:	0800 800 530

Requirements

1.4 NO SUBSTITUTIONS

Substitutions are not permitted to any specified **Firth** hollow concrete masonry or associated products.

1.5 QUALIFICATIONS

All work to be installed or supervised by a licensed building practitioner: Licensed for Bricklaying and Blocklaying 2: Structural Masonry.

1.6 CONSTRUCTION OBSERVATION BY ENGINEER

Where required as a condition of the building consent, advise the engineer when inspections are required.

Obtain the producer statements required from the engineer relating to the masonry construction and keep with the building consent documentation.

1.7 QUALITY RECORDS

Keep accurate records relating to strength and quality of materials used in the construction, and make the information available to the Building Consent Authority inspector on request.

1.8 SELECTED MASONRY

Refer to the drawings for areas of masonry, which require select quality blocks to both sides, self-insulating masonry, water resistant masonry or mortarless masonry.

1.9 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.

Performance - tests**1.10 TESTS**

Carry out all required tests to [NZS 4210](#): appendix 2A, Compressive strength tests for mortar and grout.

1.11 RECORDS OF TESTS

To [NZS 4210](#) and kept on site:

- spread of grout tests
- grout supplier's test certificates.
- mortar

1.12 TESTING PROCEDURES

Provide advance notice of cell filling work. If requested maintain on site all equipment necessary for taking and preparing samples for test. Retain records of test results and supply on request.

1.13 SPREAD OF GROUT

If requested, carry out tests to [NZS 3112.1](#), to the requirements of [NZS 4210](#).

1.14 COMPRESSIVE STRENGTH OF GROUT

If requested, carry out tests to [NZS 4210](#): appendix 2A, Compressive strength tests for mortar and grout, with 3 specimens per test.

1.15 COMPRESSIVE STRENGTH OF MORTAR

If requested, carry out tests to [NZS 4210](#): appendix 2A, Compressive strength tests for mortar and grout, with 3 specimens per test.

1.16 EXPANSION OF GROUT

If requested, carry out tests to [NZS 4210](#): appendix 2C, Test for expansion of grout.

2 PRODUCTS**Materials****2.1 MASONRY**

Firth masonry blocks to [AS/NZS 4455.1](#). Use appropriate masonry for intermittently filled construction where vertical reinforcement is placed prior to laying of masonry. Refer to SELECTIONS for type, size and bond.

2.2 REINFORCEMENT

To [AS/NZS 4671](#), deformed mild steel except for ties in plain round mild steel.

Accessories

2.3 MORTAR
Dricon Trade Mortar to [NZS 4210](#): 2.2 Mortar. Refer to SELECTIONS for colour.

2.4 FINE AGGREGATE GROUT
Firth Certified ready-mixed grout to [NZS 4210](#): 2.3 and [NZS 3104](#).
Strength: 17.5 MPa (unless subject to seaspray zone)
Aggregate: 4.75mm to 6mm maximum

3 EXECUTION

Conditions

3.1 COMPLIANCE
Comply with [NZS 4210](#).

3.2 TOLERANCES
Construct within the tolerances set out in [NZS 4210](#): clause 2.6.5, Tolerances and clause 2.7, Laying the units, unless specified otherwise on the drawings or in this specification. Lay blocks with jointing of consistent thickness throughout.

Lay masonry to an even, plane surface with no deviation exceeding 3mm in 3 metres on any surface in view in the finished work.

3.3 CHECK BASE
Check that the base concrete on which masonry is being built is true to line and level, to ensure that work can be taken up true and plumb with 10mm thick bed and perpendicular joints. If more than 20mm thickness of mortar bed is needed to correct inaccuracies obtain written direction on remedial action.

3.4 CONSTRUCTION JOINTS
Ensure the structural integration of all masonry with adjacent concrete work by providing well roughened, retarded construction joints at all junctions.

Vertical joints between masonry and concrete to achieve full structural integration across the joints. Allow to construct concrete work first with prepared vertical construction joints at block junctions the same as for horizontal construction joints. Lay masonry so that all courses have open ends abutting the existing concrete work.

3.5 COVER
All cover shall be in accordance with [NZS 3109](#): 3.8 Cover and 3.9 Tolerances for reinforcement.

3.6 STARTER POSITIONS
Check the location of starter reinforcement before block laying commences, or by a dry trial lay up of the first course. Do not attempt to correct misplacement by cranking bars. Where misplacement exceeds the location tolerance obtain written directions before proceeding further.

3.7 MOISTURE CONTENT
Ensure that blocks are air-dry prior to laying. If necessary to reduce excess absorption of water from the mortar, some dampening of the surface is permissible but no surface water may be present at the time of placing mortar. Keep masonry on the pallet and protected from the weather prior to use.

3.8 PROTECTION
Keep fair face block walls clean of mortar droppings, grout splashes, or stains of any kind as the work proceeds and before any droppings set and protected from weathering prior to sealing to avoid instances of efflorescence and staining.

3.9 WEATHER PRECAUTIONS
When extreme temperatures prevail, either below 4°C or above 27°C, make adjustments to construction as listed in [NZS 4210](#): clause 2.18, Cold weather construction, and clause 2.19, Hot weather construction. Do not use expansive grout for filling in temperatures below 5°C.

Application

3.10 SELECTION

For fair face walls select blocks for consistent colour, texture and lack of imperfections. Refer to clause PROTECTION.

3.11 BONDING PATTERN

Unless specifically shown or described otherwise in SELECTIONS/drawings, lay masonry in stretcher bond with full masonry bonding at intersections.

3.12 OPEN-ENDED DEPRESSED WEB MASONRY

Use open-ended depressed web masonry throughout all courses in fully grouted walls.

3.13 CUTTING

Cut using a masonry saw to provide clean, accurate cuts.

3.14 FACE SHELL BEDDING

Lay masonry on full mortar beds under face shells only where fully grouted.

3.15 BOTTOM COURSE

For fully grouted walls use inverted open-end depressed web bond beam masonry for the first course, to permit clean-out of grout space at the base.

3.16 CLEAN OUT HOLES

Use special clean-out masonry or saw off a 100mm x 200mm high section of face shell at the base of all cells containing reinforcement, to form clean out and inspection holes.

3.17 GROUT SPACE

Ensure that grouting cells at reinforcement locations are continuously clear by removal of projecting mortar.

3.18 TIE REINFORCING STEEL

Tie vertical reinforcing steel to starter bars. Lay and tie horizontal bars as the work proceeds.

3.19 REINFORCEMENT LAPS

Lap at 40 diameters for 300 grade and 70 diameters for 500 grade, except as noted otherwise on the drawings.

Plain bars lapped splices must be hooked.

For shrinkage control joint reinforcing refer to clause CONTROL JOINTS.

3.20 BRACING

Provide temporary lateral bracing to the wall where necessary to ensure stability and until final supporting construction is in place.

3.21 NON EXPOSED MASONRY

To be laid to the same tolerances as fair face masonry. Joints to be tooled and struck off flush.

3.22 TOOLED JOINTS

Finish joints on exposed masonry by tooling to produce a neat, tight joint. Refer to the drawings for details.

3.23 CONTROL JOINTS

Refer to [NZS 4210](#): clause 2.10, Methods of controlling wall movements, generally and to clause 2.10.2, Vertical control joints, for location; not more than 6 metres apart.

Debond reinforcement passing through control joints 150mm each side for single walls and 300mm one side for 2 walls. Rake out and prime adhesion faces of vertical control joints between masonry and between masonry and concrete as required by the sealant manufacturer. Use masking tape to avoid over-run of sealant onto the block face. Provide a backing strip to limit sealant depth to 10mm, and insert sealant, all to the manufacturer's requirements. Construction of control joints to [NZS 4210](#).

Grouting of bond beams at control joint locations to be discontinuous unless specifically noted otherwise.

Application - grouting

3.24 INSPECTION

Inspect clean-out holes prior to grouting. Ensure that cells are clean and reinforcement is correctly placed. Mortar back the clean-out hole shell. If holes are covered in the completed work, boxing across the face may replace the shell infill. Brace hole infills to prevent blowouts during grouting.

Notify when work is ready for inspection.

3.25 GROUTING, LOW LIFT

Fill masonry walls to [NZS 4210](#): clause 2.14, The low lift grouting method, up to a maximum height of 1200mm. Consolidate by rodding and then prepare a construction joint to [NZS 4210](#): clause 2.16, Horizontal construction joints, before repeating the sequence.

3.26 LIMIT RATE

Limit rate of pour to avoid hydrostatic blowouts.

Application - ancillary work**3.27 HOLES AND CUT MASONRY**

Provide all necessary holes, pockets and chases. Cut blocks when non-standard shapes are required. When cut masonry units are used, ensure vertical joints in adjacent courses are no closer than 100mm. Subsequent cutting away of masonry to form holes is not permitted.

3.28 BUILT IN ELEMENTS

As the work proceeds, mortar in place elements such as sills, copings, lintels, and steps.

3.29 BUILT IN FIXINGS

Build in all necessary plugs, bolts, ties, metal flashings, dowels, fastenings and fixings required by this and other work sections. Co-operate with others to meet this requirement. Fixings only permitted into filled cells.

3.30 ELECTRICAL WORK

Ensure that provision for and fitting of boxes, conduit and pre-wiring are made and done as the work proceeds under the direction of the electrician.

Completion**3.31 PROGRESSIVE CLEANING**

Clean off mortar splashes and grout spills as they occur.

3.32 FINAL CLEANING

At completion, clean down block work, remove efflorescence and remove waste materials from adjoining surfaces and floors.

3.33 REPLACE

Replace damaged, cracked or marked elements.

3.34 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

For further details on selections go to www.firth.co.nz.

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

4.1 FIRTH - STANDARD MASONRY UNITS

Brand:	Firth
Series:	20
Type/size:	390mm x 190mm x 190mm
Bonding pattern:	Stretcher bond

4.2 MORTAR

Type/colour:	Dricon Trade Mortar
Colour:	Natural

4.3 FIRTH MASONRY BLOCKFILL

Type:	Firth	Fine aggregate grout.
Strength:	25MPa	
Aggregate:	Fine aggregate grout 4.75mm to 6mm maximum. Refer to the design engineer for advice.	

3410 STRUCTURAL STEEL

1 GENERAL

This section relates to the fabrication, erection and specialist coating of structural steelwork of a general nature, for Construction Category CC1 or CC2 (to [AS/NZS 5131](#)).

Refer to SELECTIONS for project Construction Category.

1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

AESS:	Architecturally Exposed Structural Steelwork
CC:	Construction Category
NDE:	Non-Destructive Examination

1.2 DOCUMENTS

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

NZBC F5/AS1	Construction and demolition hazards
AS 1111.1	ISO metric hexagon bolts and screws - Product grade C - Bolts
AS/NZS 1163	Cold-formed structural steel hollow sections
AS/NZS 1214	Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series)
AS/NZS 1252.1	High-strength steel fastener assemblies for structural engineering - Bolts, nuts and washers - Technical requirements
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS/NZS 1554.1	Structural steel welding - Welding of steel structures
AS/NZS 1554.2	Stud welding (steel studs to steel)
AS/NZS 1594	Hot-rolled steel flat products
AS 1627.4	Metal finishing - Preparation and pretreatment of surfaces - Abrasive blast cleaning
AS 1627.9	Metal finishing - Preparation and pretreatment of surfaces - Pictorial surface preparation standards for painting steel surfaces
AS/NZS 2312:2002	Guide to the protection of iron and steel against atmospheric corrosion by the use of protective coatings
NZS 3404.1:1997	Steel Structures Standard
AS 3597	Structural and pressure vessel steel – Quenched and tempered plate
AS/NZS 3678	Structural steel - Hot-rolled plates, floorplates and slabs
AS/NZS 3679.1	Structural steel - Hot-rolled bars and sections
AS/NZS 3679.2	Structural steel - Welded I sections
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
AS/NZS 5131	Structural steelwork - Fabrication and erection
GANZ:	Galvanizing Association of New Zealand - After-Fabrication Hot Dip Galvanizing. A practical reference for designers, specifiers, engineers, consultants, manufacturers and users

Requirements

1.3 QUALIFICATIONS

Welding operators (and supervisors) to be experienced, competent workers, qualified to [AS/NZS 5131](#), Table 7.4, to suit relevant Construction Category and weld category.

1.4 TOLERANCES

To [AS/NZS 5131](#) Section 12 and Appendix F, Tolerance Class 1.

1.5 VERIFY DETAILS AND DIMENSIONS

Refer to drawings to ensure all required details and fixings are provided for in the structural steelwork. Verify dimensions against site measurements prior to fabrication.

1.6 TESTS

To [AS/NZS 5131](#), Section 13, Inspection, Testing And Correction and [AS/NZS 5131](#) Appendix I, Inspection of Welding and Bolting (New Zealand Only), as follows:

- Welds: Non-destructive examinations (NDE)

2 PRODUCTS

2.1 STRUCTURAL STEEL

Comply with New Zealand, Australian, British or Japanese Standards for steel as required by [NZS 3404.1](#), section 2, including, type, category, and suppression of brittle fracture. Also to [AS/NZS 5131](#), Section 5.

Steel members and sections steel grade table

Component	Conforming to	Grade
Hot rolled steel sections	AS/NZS 3679.1	300; 350
Plates and flats	AS/NZS 3678 ; AS/NZS 1594 ;	250; 300; 350; 400; 450; WR350
Plates and flats	AS/NZS 1594 ; TS 102	HA250; HA300; HA350; HA400; HW350
Circular hollow sections	AS/NZS 1163 ; TS 102	C250L0; C350L0; C450L0
Square hollow sections	AS/NZS 1163 ; TS 102	C350L0; C450L0
Rectangular hollow sections	AS/NZS 1163 ; TS 102	C350L0; C450L0
Welded beams and columns	AS/NZS 3679.2 ; TS 102	300; 400
Shear studs (composite slab to steel)	AS/NZS 1554.2	380
Quench & tempered plate	AS 3597	500; 600; 700; 900; 1000
Purlins and girts	AS 1397	G250; G300; G350; G450; G500; G550, Z350, Z450

2.2 WELDING

Electrodes to comply with and be selected for the grade of steel being welded as required by [AS/NZS 1554.1](#). Welding wire as required by the wire manufacturer for the materials to be joined and the welding position. Welding flux to be dry and used from sealed containers. Material for arc stud welding to comply with [AS/NZS 1554.1](#) and [AS/NZS 1554.2](#).

2.3 BOLTS, NUTS AND WASHERS

Grade 4.6, screws AS 1111.2 and bolts to AS 1111.1. Grade 4.6 nuts to comply with AS 1112.1. Property Class 8.8 bolts and equivalent nuts and washers (high strength structural quality only) to comply with [AS/NZS 1252.1](#). Hot-dip galvanize to [AS/NZS 4680](#) (and AS/NZS 1214), bolts, nuts and washers forming a permanent part of a structure subject to a protective coating.

Bolt Categories and tensioning

Bolting category	Bolt standard	Property Class	Tension method	Tensioned joint type
4.6/S	AS 1111.1	4.6	Snug tight	
8.8/S	AS/NZS 1252.1	8.8	Snug tight	
8.8/TB	AS/NZS 1252.1	8.8	Full tension	Bearing
8.8/TF	AS/NZS 1252.1	8.8	Full tension	Friction

In bearing type connections where the thread position relative to the shear plane is to be controlled.

N - threads included in shear plane

X - threads excluded from shear plane

F - friction type joints - prepare faying surfaces

2.4 GROUT

To [AS/NZS 5131](#), 5.8.

3 EXECUTION

Preparation, assembly and Fabrication

3.1 GENERALLY

To [AS/NZS 5131](#), Section 6.

3.2 SURFACE FINISH

Grind off all burrs and sharp arrises.

3.3 CUTTING

To [AS/NZS 5131](#), Section 6.5.

3.4 HOLING

To [AS/NZS 5131](#), Section 6.7

Do not use slotted holes for connections, other than those documented.

Welding

3.5 WELDING GENERALLY

To [AS/NZS 5131](#), Section 7 and [AS/NZS 1554.1](#). Equipment to comply with [AS/NZS 1554.1](#), clause 1.8.2.

Site weld only when correct alignment and preset or camber have been achieved.

Weld types as documented elsewhere or on drawings

Weld categories not documented elsewhere or on drawings to be Category GP.

3.6 NON-DESTRUCTIVE WELD EXAMINATION

Non-destructive weld examination (NDE) to [AS/NZS 5131](#), clause 13.6.2 and [AS/NZS 5131](#) Appendix I, Inspection of Welding and Bolting (New Zealand Only).

If non-visual NDE is required, use a third party testing authority.

Repair any welds revealed as faulty by NDE and repeat the examination.

Mechanical fastening

3.7 MECHANICAL FASTENING GENERALLY

To [AS/NZS 5131](#).

Connection contact surfaces to [AS/NZS 1554.1](#), 8.4.1.

Category 8.8/TF bolting to be clean, as rolled and free from applied finishes.

For washers, place one washer under the part rotated during tightening process (nut or bolt head).

Permanent bolt only when correct alignment and preset or camber have been achieved.

3.8 TENSIONING BOLTS

For tensioning of bolting categories 8.8/TB and 8.8/TF, use part-turn method or a direct tension indicator device. Ensure clear thread run out beneath the nut after tensioning is to New Zealand requirement of [AS/NZS 1554.1](#), 8.2.2.

3.9 THREADS EXCLUDED FROM SHEAR PLANE

Select length of bolts such that the threaded portion does not occur within the shear plane between joined parts.

Erection of structural steel

3.10 ERECTION GENERALLY

To [AS/NZS 5131](#), Section 11.

Make sure every part of the structure has sufficient design capacity and is stable under construction loads produced by the construction procedure.

Comply with [NZBC F5/AS1](#): Construction and demolition hazards, and the WorkSafe NZ publication: [Guidelines for the provision of facilities and general safety in the construction industry](#).

3.11 BOLTS AND ANCHORAGES

For each group of anchor bolts, provide a template with set-out lines clearly marked for positioning the bolts when casting in.

Start erection only when the holding down bolts and anchorages have been cast-in-place long enough to achieve sufficient strength.

3.12 TEMPORARY WORK

Provide temporary bracing, propping and restraint as required to make structure safe. Fix any temporary members so as not to weaken or deface permanent steelwork. Leave temporary bracing and restraint in place until the erection is sufficiently advanced to allow safe removal of temporary bracing.

3.13 SITE WORK

Other than work shown on the shop detail documentation as site work, do not fabricate, modify or weld structural steel on-site.

3.14 GROUTING SUPPORTS

Before grouting steelwork supported by concrete or masonry, set steelwork on packing or wedges as follows:

- Permanent packing or wedges - Form with solid steel or grout of similar strength to the permanent grout.
- Temporary packing or wedges - Remove before completion of grouting.

Grout at supports before constructing supported floors, walls and roofing.

Do not grout if the base plate or the footing surface temperature are outside the range 3°C to 35°C or to manufacturer's requirements.

Fill the space beneath the base plate with grout, if necessary hammered in tight to ensure complete filling of space.

3.15 DRIFTING

Use drifting only to bring members into position, without enlarging holes or distorting components.

Finishing - preparation

3.16 ENCASED STEELWORK

Clean the steelwork to be encased in concrete to remove all loose mill scale, rust, dirt and other matter affecting bond with concrete. Achieve this by wire brushing and the use of suitable solvents.

3.17 POWER TOOL CLEANING

To [AS/NZS 5131](#), Section 9.

Remove oil and grease by the use of solvents. Scrape, wire brush and power tool clean to a minimum Class 2 finish to AS 1627.9. Clean to bright metal, but avoid producing a polished surface.

Check that no burrs or sharp arrises remain which may prevent the full coating thickness being attained.

Finishing - paint and protective coatings

3.18 UNPAINTED SURFACES

Do not paint:

- faying face of high strength friction grip bolted joints
- areas for site welding, keeping 75mm clear all round
- surfaces being embedded in concrete.

Where steel is only partly encased then extend priming 50mm minimum into the concrete encasement area.

3.19 PRIMING GENERALLY

Coat steelwork, unless specifically noted otherwise, with the specified priming paint, including patch priming on site after erection.

3.20 PATCH PRIMING

Clean areas of damaged priming and areas left clear for site jointing to a standard comparable with that specified for shop cleaning. Wash off chemical deposits from welding fumes. Apply priming coats to the same standard as shop primers, ensuring thorough coating of bolts, nuts and connection areas. Reprime if more than 4 weeks elapse before the final coating system is applied.

3.21 COATING SYSTEMS

Apply all coatings in accordance with the coating manufacturer's requirements. Apply coatings to steel within 4 hours of cleaning and before condensation or light rusting can occur. Ensure steel is dry and atmospheric conditions warm and dry, with an air temperature of greater than 12°C and relative humidity less than 85%.

3.22 TOUCH-UP

Touch up primer. Apply protective coatings as specified.

Repairs & removal of temporary work**3.23 TEMPORARY CONNECTIONS**

Remove temporary elements on completion and restore the surface.

3.24 GENERAL REPAIRS

Repair finishes to restore the full integrity of any coating.

Completion**4 SELECTIONS****4.1 CONSTRUCTION CATEGORY**

Construction category (to AS/NZS 5131)	Location
CC 1	Door lintel to Ensuite

Finishing - preparation**4.2 STEEL PREPARATION**

Item: Lintel Beam
Preparation: Power tool clean

3820 CARPENTRY

1 GENERAL

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

1.1 RELATED WORK

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

1.2 DOCUMENTS

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

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

1.3 QUALIFICATIONS

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

1.4 DIMENSIONS

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

2 PRODUCTS

2.1 TIMBER FRAMING, TREATED

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

2.2 ENGINEERED WOOD

LVL members to [AS/NZS 4357.0](#), to required sizes and lengths and the manufacturer's design properties.

Treatment to [NZS 3640](#) and [AS/NZS 1604.4](#).

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, noggs, openings and other items as required by other trades.

3.4 MOISTURE CONTENT

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

Framing at erection:	24% maximum
Framing at enclosure:	20% maximum
Framing at lining:	16% maximum

3.5 SET-OUT

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

3.6 FRAMING SUB-FLOOR

Frame up off foundation walls and piles, all fabricated, fastened and braced to [NZS 3604](#), section 6.10, **Framed subfloor walls**.

3.7 FRAMING FLOORS

Framed and fastened to [NZS 3604](#), section 7, **Floors**.

3.8 FRAMING WALLS

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

3.9 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**.

3.10 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**.

3.11 INSTALLING WALL UNDERLAYS

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.12 FIT CAVITY BATTENS

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

3.13 DPC TO LOSP TREATED TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section.

3.14 DPC TO TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section.

4 SELECTIONS

4.1 SUB-FLOOR FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Bearers (protected):	Radiata pine	SG8	H3.2
Ground floor joists:	Radiata pine	SG8	H1.2

4.2 FLOOR FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Mid floor joists:	Radiata pine	SG8	H1.2
Boundary joists:	Radiata pine	SG8	H1.2

4.3 EXTERIOR WALL FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Exterior walls:	Radiata pine	SG8	H1.2
Jamb battens:	Radiata Pine	Merch	H3.1

4.4 CAVITY BATTENS

Cavity battens	Species	Grade	Treatment
Timber - Non Structural:	Radiata pine	Merchantable	H3.1
Cavity closer:	Manufacturer James Hardie	Type uPVC Cavity Closure	Reference Sheet 12

4.5 ROOF FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Rafters:	Radiata pine	SG8	H1.2
Ceiling joists and battens:	Radiata pine	SG8	H1.2
Enclosed flat roof framing:	Radiata pine	SG8	H1.2

4.6 INTERIOR FRAMING - RADIATA PINE

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

4.7 LAMINATED VENEER LUMBER (LVL)

Member	Brand/type	Treatment
Roof Beam	CHH hySPAN	H1.2

4.8 NAILS

Location	Type	Material	Finish
Exposed Structural	90/75x3.15	Stainless Steel	
Concealed Structural	90/75x3.15	Bright Steel	

4.9 BOLTS AND SCREWS

Location	Type	Material	Finish
Exposed Structural	M12 Bolts	Stainless Steel	
Concealed Structural	M12 Bolts	Galvanised Steel	

4.10 NAIL PLATES

Location	Type	Material	Finish
Exposed Structural	Tylok Frame fixings	Stainless Steel	
Concealed Structural	Tylok Frame fixings	Galvanised Steel	

4.11 CONNECTORS

Location	Type	Material	Finish
Exposed Structural	Lumberlok cleats	Stainless Steel	
Concealed Structural	Lumberlok cleats	Galvanised Steel	

4131A ARDEX DAMP-PROOF MEMBRANES

1 GENERAL

This section relates to the application of the following **ARDEX** damp-proof membranes:

- ARDEX WPM 3000X (Shelterseal) self adhesive SBS modified bituminous membrane
- ARDEX WPM 5000HD (Shelterseal HD) self adhesive SBS modified bituminous membrane

1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

SBS Styrene-butadiene-styrene rubber

Documents

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS.

Documents 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:

ARDEX Waterproofing Manual

ARDEX Below Ground Manual

ARDEX WPM 3000X Datasheet and Safety Data Sheet

ARDEX WPM 5000HD Datasheet and Safety Data Sheet

[BRANZ Appraisal 462](#) - Shelterseal Damp-Proof Membranes

Copies of the above literature are available from:

Company: **ARDEX New Zealand Limited**

Web: www.ardex.co.nz

Email: ardexspec@ardexnz.com

Telephone: 0800 2 ARDEX (27339)
09 636 0005 Auckland
04 568 5949 Wellington
03 373 6900 Christchurch

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years: For walls only
20 years: For wall, footing and slab

- Provide this warranty on the ARDEX 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.

For project specific warranty requirements contact ARDEX.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years: For wall, footing and slab application

- ARDEX approved installer to provide this warranty on the ARDEX 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 NO SUBSTITUTIONS

Substitutions are not permitted to any specified ARDEX materials, or associated products, components or accessories.

1.7 QUALIFICATIONS

Application to be carried out by an ARDEX approved installer with experience in installation of self-adhesive membranes, and to be strictly in accordance with current ARDEX technical literature and to [BRANZ Appraisal 462](#) - Shelterseal Damp-Proof Membranes.

NOTE: An LBP is required to carry out RBW. An LBP must do or supervise this work. They must work within the scope of their licence class.

1.8 SYSTEMS ARDEX PROJECT

Contact ARDEX with any relevant key dates and for a list of approved applicators. The contractor is to contact ARDEX prior to starting the contract.

Web: www.ardex.co.nz
 Email: ardexspec@ardexnz.com
 Telephone: 0800 2 ARDEX (27339)
 09 636 0005 Auckland
 04 568 5949 Wellington
 03 373 6900 Christchurch

2 PRODUCTS

Materials

2.1 ARDEX WPM 3000X

Peel-and-stick modified bituminous membrane protected by a cross laminated high-density polyethylene film.

Thickness: 1.5mm

2.2 SURFACE PRIMER

Primer compatible with the sheet membrane and adhesive system, formulated to prepare the substrate for optimum application of the membrane.

Primer:

ARDEX WPM 240	Solvent based bitumen modified primer.
ARDEX WPM 247	Water-based bitumen modified primer. For use on Polystyrene blockwork
ARDEX WPM 300	Two component water-based epoxy polyamide membrane / coating. Used as primer for wet or fresh concrete.
ARDEX WA 98	Adhesive/Primer, solvent based contact adhesive, can be used as primer in difficult drying conditions. (Winter Primer)

2.3 ARDEX DRS 10 GC PREFABRICATED DRAINING PROTECTION MEMBRANE

Ardex DRS 10 GC is a profiled, rot proof, fluted thermoplastic protection sheet, used to protect membrane from damage (particularly from backfill).

Provides effective drainage, both ventilation and hydrostatic relief. Effectively protects against heavy pressure loads i.e. backfill

Accessories

2.4 MASTIC

ARDEXbituminous sealant is a one-component sealant with bitumen-based solvents.

3 EXECUTION

Conditions

3.1 COMPLY

Comply with all ARDEX requirements and instructions.

3.2 STORE

Store membranes 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 WEATHER CONDITIONS

Apply damp-proof membranes only in fair weather with air temperature above 5°C.

3.4 CHECK SUBSTRATE

Check that the substrate will allow work of the required standard. Complete any remedial work identified before commencing any work.

3.5 CURING OF NEW CONCRETE

Allow concrete and masonry to dry to ARDEX requirements before applying membranes.

Recommended minimum curing of new concrete and concrete-filled masonry: 28 days. Alternatively use WPM 300 primer for wet or fresh concrete.

3.6 CONCRETE SLAB-ON-GROUND

Membrane must be laid on minimum 75mm thick site concrete.

Application - Preparation**3.7 ENSURE SUBSTRATE**

Ensure all surfaces are free from voids, spalled areas, loose particles, and sharp protrusions.

Ensure no projections of sharp materials exist that will cause damage to membrane. Check that concrete block joints are struck off flush.

Ensure form oils or release agents and curing compounds are completely removed.

3.8 PREPARE SUBSTRATE

Remove projections, wire-brush and remove all debris, leaving the surface dust-free, oil-free and clean, with nothing that could diminish the adhesion of primers. Fill tie holes flush and smooth with mortar. Grind off steps or sharp protrusions caused by formwork joints.

3.9 TURN UPS

Where damp-proofing is turned up against hardened concrete, ensure the surface is smooth and free of all sharp projections. Fill internal corners with a fillet of latex-modified cement mortar, or epoxy mortar.

3.10 TURN DOWNS

Where damp-proofing is turned over an external corner, first grind the corner to produce a smooth 25mm radius or chamfer.

3.11 CLEAN SURFACES

Clean surfaces with a broom or oil free compressed air to remove dust, loose particles and material that could affect bonding.

3.12 REMOVE OTHER FORMWORK

Ensure that formwork has been removed or partially removed from the other face(s) to the membrane face, to the extent that it allows moisture to escape from the concrete to ensure no vapour pressure develops beneath the membrane.

3.13 PRIMING

Ensure concrete or masonry substrates are sufficiently cured and dry to permit the intended performance of the primer. Apply ARDEX-approved primer by brush, roller or airless spray at a maximum coverage rate of 5m² per litre.

Apply water borne WPM 247 primer to polystyrene blocks. Ensure that the surface is clean.

3.14 CONTROL JOINTS

Where control or construction joints are formed in the substrate, ARDEX must be consulted for use of the membranes over these joints.

Application

3.15 SINGLE LAYER APPLICATION METHOD

Apply the damp-proofing membrane in a single layer with laps and joints to provide a waterproof construction.

3.16 INSTALLATION GENERALLY

Apply from the lowest point to allow laps to shed water. All sheet edges must be overlapped by a minimum of 60mm. End laps must be a minimum of 100mm, with upper sheets lapped over lower sheets. Internal and external corners to be reinforced with an extra layer of membrane 300mm wide.

Ensure that the membrane is properly adhered to the surface at perimeters or around penetrations.

3.17 ADDITIONAL THICKNESS

Provide a double layer of membrane around pipes and penetrations and at all changes of direction. Seal edges to manufacturer's requirements.

3.18 SECTIONAL COMPLETION

As sections of the damp-proofing are completed, arrange for inspection of the work before covering with protective sheets, walls, or slabs.

3.19 TERMINATION OF MEMBRANE

Finish membrane to the details in the ARDEX Technical literature.

Application - protection**3.20 PROTECT VERTICAL SURFACES**

After inspection protect the vertical damp-proofing from damage with protective sheets.

3.21 PROTECT HORIZONTAL SURFACES

Protect the horizontal damp-proofing from damage during laying by ensuring applicators wear soft soled shoes. Except for inspection purposes do not allow traffic on the membrane after installation and before protection sheets have been laid.

3.22 INSTALL ARDEX CORFLUTE PROTECTION SHEETS

Neatly scribe and fit sheets, spot fixing them with adhesive and taped over joints, all to the membrane manufacturer's requirements for this work, to fully protect the whole of the damp-proofing as backfill is placed.

3.23 COVER HORIZONTAL SURFACES

The structural concrete slab placed over the membrane must be a minimum of 100mm thick.

Completion**3.24 CLEAN UP**

Clean up as the work proceeds.

3.25 LEAVE

Leave this work in a sound, coherent, voidless and impermeable smooth condition, completely waterproof, free of any defect and with protection sheets firmly in place.

3.26 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

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

4.1 WPM 3000X - ARDEX DAMP-PROOFING SYSTEM

Location:	to block retaining walls
System:	ARDEX WPM 3000X Self Adhesive SBS Membrane
Layers:	One
Substrate:	Masonry
Primer:	Ardex WPM 300 - Primer for fresh or wet concrete

4.2 SEALER FOR ADDITIONAL THICKNESS

Location: internal/external corners
Product: Check any special requirements with ARDEX.

4.3 ARDEX PROTECTION MEMBRANE

Manufacturer: ARDEX
Brand: ARDEX DRS 10 GC prefabricated drainage protection membrane

4161T THERMAKRAFT UNDERLAYS, FOILS & DPC

1 GENERAL

This section relates to the application of **Thermakraft Ltd**, DPC, DPM, wall underlays, roofing underlays and accessories.

1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

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

1.2 DOCUMENTS

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

NZBC C/AS1-AS7	Protection from fire
NZBC E2/AS1	External moisture
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
NZS 4214	Methods of determining the total thermal resistance of parts of buildings
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

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Thermakraft documents relating to work in this section are:

Thermakraft product manual and technical data sheets.

[BRANZ Appraisal 329](#) - Supercourse 500™ Damp-Proof Course and Concealed Flashing

[BRANZ Appraisal 651](#) - Thermakraft Covertex™ 407 Fire Retardant Self-Supporting Roof Underlay

[BRANZ Appraisal 695](#) - Watergate-Plus 295™ Fire Retardant Wall Underlay

[BRANZ Appraisal 743](#) - Thermakraft Covertex 405™ Plus Fire Retardant Self-Supporting Roof Underlay

[BRANZ Appraisal 867](#) - Thermakraft Steelwrap 290™ Fire Retardant Wall Underlay

[BRANZ Appraisal 878](#) - Thermakraft Aluband™ Window Flashing Tape

[BRANZ Appraisal 912](#) - Thermakraft 220™ Wall Underlay

[BRANZ Appraisal 917](#) - Thermakraft Covertex 403™ Plus Fire Retardant Roof Underlay

[BRANZ Appraisal 918](#) - Thermakraft Covertex 403™ Plus Fire Retardant Wall Underlay

[BRANZ Appraisal 919](#) - Thermakraft Aluband™ Acrylic Window Flashing Tape

[BRANZ Appraisal 942](#) - Multi-Fit Penetration Seals

[BRANZ Appraisal 943](#) - Thermakraft 401™ Roof Underlay

[BRANZ Appraisal 947](#) - Aluband XTREME Flashing Tape

[BRANZ Appraisal 962](#) - The Thermakraft One Wrap System

[BRANZ Appraisal 1000](#) - Thermakraft Thermabar 397 Light Diffusing Reflective Underlay

[Code Mark Certificate 30069](#) - Thermakraft Covertex 403™ Plus Absorbent Breathable Roof Underlay

[Code Mark Certificate 30030](#) - Thermakraft Covertex 405™ Absorbent Breathable Roof Underlay

[Code Mark Certificate 30028](#) - Thermakraft Covertex 407™ Absorbent Breathable Roof Underlay

Manufacturer/supplier contact details

Company:	Thermakraft Ltd
Web:	www.thermakraft.co.nz
Email:	info@thermakraft.co.nz
Telephone:	0800 806 595

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this work under normal environmental and use conditions against failure of materials and execution. Thermakraft Ltd warrant performance of products if design and installation complies with relevant technical literature, NZBC, and recognised industry Codes of Practice. Copy of Thermakraft™ Product Warranty available on request.

Requirements

1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any specified materials, or associated products, components or accessories.

1.6 INSTALLATION SKILL LEVELS

Installers to be experienced in the installation of Thermakraft™ products and familiar with Thermakraft™ technical literature and the related documents listed in this design i.e. [NZMRM CoP](#) NZ metal roof and wall cladding Code of Practice.

2 PRODUCTS

Materials

DPC

2.1 EMBOSSED POLYETHYLENE

Supercourse 500™ hi-impact polyethylene film to [AS/NZS 2904](#) and embossed on both sides.

Thickness 500 microns minimum, manufactured for use as a damp-proof course and concealed flashings around doors and windows and to [BRANZ Appraisal 329](#). Refer to SELECTIONS for type of jointing tape.

DPM**2.2 DAMP-PROOF MEMBRANE - MEDIUM DUTY, BLACK**

Thermathene Black™, a minimum of 250 microns polyethylene film. Complies with [NZS 3604](#), 7.5.4, Damp-proof Membrane, to [NZBC E2/AS1](#). Refer to SELECTIONS for type of jointing tape.

Wall underlays**2.3 SYNTHETIC BREATHER TYPE FILM COATED WALL UNDERLAY**

Watergate-Plus™ 295, absorbent breathable spun bonded non-woven polyolefin type building membrane, coated with a water resistant vapour permeable film. A fire retardant membrane, with Flammability Index of ≤ 5, when tested to AS 1530.2. The product has a BRANZ Appraisal 695.

Accessories**2.4 WINDOW AND DOOR SEALING TAPE - ALUBAND™**

Thermakraft Aluband™ Window Sealing Tape system consists of synthetic faced reinforced bituminous window sealing tape, in widths of 75mm, 150mm and 200mm, Thermakraft Aluband™ Corner Moulding™ piece, used in conjunction with the Thermakraft Aluband™ Hand Tool to ensure good adhesion and a tight fit into corners. Refer to Thermakraft Data Sheet for installation details and [BRANZ Appraisal 878](#).

2.5 WINDOW AND DOOR SEALING TAPE - ALUBAND™ ACRYLIC

Thermakraft Aluband™ Acrylic Window Sealing Tape system is a high strength pressure sensitive acrylic adhesive on a Polyolefin film, in widths of 75mm, 150mm and 200mm, ideal for use when in contact with sealants, used in conjunction with Thermakraft Aluband™ Corner Moulding™ piece and Thermakraft Aluband™ Hand Tool to ensure good adhesion and a tight fit into corners. Refer to Thermakraft Data Sheet for installation details and [BRANZ Appraisal 919](#).

2.6 WINDOW AND DOOR SEALING TAPE - ALUBAND™ XTREME

Thermakraft Aluband™ Xtreme Flashing Tape window sealing tape system is a high strength thin section pressure sensitive co-polymer adhesive tape, in widths of 75mm, 150mm and 200mm, ideal for use when in contact with sealants, used in conjunction with Thermakraft Aluband™ Corner Moulding™ piece, and the Thermakraft Aluband™ Hand Tool to ensure good adhesion and a tight fit into corners. Refer to Thermakraft Data Sheet for installation details and [BRANZ Appraisal 947](#).

2.7 MULTI-FIT SEALS FOR UNDERLAY PENETRATIONS

Thermakraft™ Multi-Fit seals are a UV resistant EPDM material which forms a weathertight air seal for pipes and penetrations with a high strength acrylic adhesive suitable for use on all underlay systems. Available for use with pipes 15-110mm and cables 7-22mm both are pre-punched ensuring a tight accurate fit. No special tools required for installation.

2.8 STUD STRAPS - POLYETHYLENE

Thermastrap™ 201, 19mm wide polyethylene straps.

2.9 STUD STRAPS - POLYPROPYLENE

Thermakraft StudStrap™, 25mm wide polypropylene strap.

2.10 TAPE

Thermakraft™ tapes to compliment the underlay. Pressure sensitive aluminium foil tapes for joining foil insulation and vapour barriers. These include:

- Thermakraft™ White General Purpose Underlay Tape
- Thermakraft™ Foil Tape 150
- Thermakraft™ Window Sealing Tapes, used to repair damaged bituminous underlays

3 EXECUTION**Conditions****3.1 GENERAL REQUIREMENTS**

Design application and installation of Thermakraft Building products to [NZBC E2/AS1](#), BRANZ Appraisals, Thermakraft Technical Literature and Industry Codes of Practice.

3.2 STORAGE

Store building 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 building construction phase will allow work of the required standard. Carry out remedial work identified before laying underlay.

Application DPC

3.4 DPC TO LOSP/CCA TREATED TIMBER

Lay Supercourse 500™ DPC under LOSP or CCA treated bottom plate of all timber framed walls on concrete, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

3.5 DPC TO TIMBER / STEEL

Lay Supercourse 500™ DPC under the bottom plate of all timber / steel framed walls on concrete, in a single layer with 50mm overlaps at joints to provide a waterproof barrier. Refer to SELECTIONS for type.

3.6 DPC TO MASONRY AND BRICK VENEER

Lay Supercourse 500™ DPC along based of cavity and fix top edge to studs with galvanized clouts. Turn DPC out over concrete rebate under bottom course of veneer.

Application - DPM

3.7 DPM TO CONCRETE FLOOR

Lay DPM under concrete floor substrate over sand blinding, in a single layer with 150mm overlaps at joints to provide a waterproof barrier. Refer to SELECTIONS for type. Tape all joints and penetrations with Thermakraft™ White GP Tape 60mm.

Application - wall underlay

3.8 WALL UNDERLAY

Fix horizontally to outside face of framing in true alignment, with succeeding sheets overlapping 150mm to NZBC E2/AS1, 9.1.7, Wall underlay, and refer to Thermakraft™ for requirement for fastenings. Fix to Thermakraft™ Technical Data specifications. 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 Thermastrap 201™ 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 Thermakraft™ Supercourse 500 DPC as a separator between the timber and metal cladding.

Completion

3.11 CLEAN UP

Clean up as the work proceeds.

3.12 LEAVE

Leave work to the standard required by following procedures.

3.13 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

For further details on selections go to www.thermakraft.co.nz. Substitutions are not permitted to the following, unless stated otherwise.

Damp Proof Course

4.1 THERMAKRAFT - SUPERCOURSE 500™ DPC

Location: between timber framing and masonry/concrete
 Type: Supercourse 500™ DPC
 Jointing tape: Thermakraft™ window sill tape 75mm Aluband™

Damp Proof Membrane

4.2 THERMATHENE BLACK™

Location: under new floor slabs
 Type: Thermathene Black™
 Jointing tape: Thermakraft™ White General Purpose Underlay Tape

Wall Underlays

4.3 THERMAKRAFT WATERGATE-PLUS™ 295

Location: to new/ relined exterior walls
 Type: Thermakraft Watergate-Plus™ 295
 Jointing tape: Thermakraft™ white GP tape 60mm

Window / Door Sealing System

4.4 THERMAKRAFT - ALUBAND™ ACRYLIC™

Location: window surrounds
 Sill/head tape: 150mm Thermakraft Aluband™ Acrylic (for 90mm framing)
 Sill second layer: 75mm Thermakraft Aluband™ Acrylic (on top of sill over first layer)
 Sill corners: Thermakraft Aluband™ Corner Moulding™
 Butterfly corners: 75mm Thermakraft Aluband™ Acrylic (across head corners)

Stud Straps

4.5 THERMASTRAP

Location: to new/ relined exterior walls
 Type: Thermastrap™ 20x19mm blue polypropylene tape

4221TP TIMSPEC RADIATA PINE HORIZONTAL WEATHERBOARDS

1 GENERAL

This section relates to the supply and fixing of **Timber Specialists Ltd** (Timspec) **CertClad®**, horizontal radiata pine weatherboard cladding systems over drained cavity. It includes:

- Bevel back weatherboards
- Rusticated weatherboards
- Weatherboard trim
- Cavity batten systems
- Fixings
- Flashings
- Pre-finishing

1.1 RELATED WORK

Refer to 4161 UNDERLAYS, FOILS & DPC for wall underlays

Refer to 3821 TIMBER FRAMING for wall framing and cavity battens

Refer to 6700 PAINTING GENERAL & 6711 PAINTING EXTERIOR for on-site finishes to weatherboard cladding.

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:

FSC	Forest Stewardship Council
NASH	National Association of Steel Framed Housing
PEFC	Programme for the Endorsement of Forest Certification Schemes

Documents

1.3 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
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
BRANZ BU 582	Structurally fix cavity battens
NASH Standard	Residential and low-rise steel framing Part 1: Design Criteria & Part 2: Light steel framed buildings

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Timspec CertClad® documents relating to this part of the work:
 Timspec CertClad® Bevel Back Cavity System, Radiata Pine Installation Manual - V3
 Timspec CertClad® Rusticated Cavity System, Radiata Pine Installation Manual - V3
 FSC and PEFC Forestry Sustainable Certification - contact Timspec CertClad®
[CodeMark CMA-CM40053](#)- Timspec CertClad® Rusticated Cavity System
[CodeMark CMA-CM40010](#)- Timspec CertClad® Bevel Back Weatherboards
[Branz Appraisal 524](#) - Cavibat Cavity Battens

Manufacturer/supplier contact details

Company: **Timber Specialists Ltd** (Timspec)
 Contacts: Auckland - Chris Wiffen or Jonathan Rugg (09 620 0260)
 Christchurch - Gareth Goodman Jones or Stephen Norris (03 341 0242)
 Web: www.certclad.co.nz
www.timspec.co.nz
 Email: sales@timspec.co.nz
 Telephone: 09 620 0260 Auckland
 03 341 0242 Christchurch

Requirements

1.5 QUALIFICATIONS

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

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.7 COMPLIANCE - RUSTICATED WEATHERBOARDS

To meet the requirements of the CodeMark certificate [CodeMark CMA-CM40053](#):-

- Risk Score to E2/AS1 no greater than 20
- Wind zone to [NZS 3604](#) no greater than Very High (without special provisions).
- Installation to; Timspec CertClad® Rusticated Cavity System, Radiata Pine Installation Manual.

Performance

1.8 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed cladding system, including all penetrations. To [NZBC B2](#)/AS1 Durability and [NZBC E2](#)/AS1 External moisture.

Performance - Wind (design by contractor)

1.9 DESIGN PARAMETERS WIND - DESIGN BY CONTRACTOR

Design the installation to the manufacturer's requirements and as appropriate for the project wind design stated in the general section 1220 PROJECT.

2 PRODUCTS

Materials

2.1 TIMBER SPECIES - RADIATA PINE

Timspec CertClad® Radiata pine, grading to [NZS 3602](#), [NZS 3631](#), treatment H3.1 or H3.2 to [NZS 3602](#), table 2, reference 2A.1, Requirements for wood-based building components to achieve a 15-year durability performance. Weatherboards in long lengths, with all knots excluded.

Timspec CertClad® Radiata pine is supplied from New Zealand forest sources, a mixture of FSC certified and non-contentious resources.
 Refer to Timspec CertClad® details.

2.2 WEATHERBOARD PROFILE - RUSTICATED

Timspec CertClad® profiles P67 or P68 Radiata pine and additional profiles P835 - P839.

Weatherboards in lengths relevant to profile selection and application, with all unsound and open split knots excluded by cross cut removal prior to fixing into position. Refer to SELECTIONS.

2.3 COVER BOARDS, MOULDINGS AND SCRIBERS

To Timspec CertClad® profiles as detailed, with species and grading to [NZS 3602](#), but with all unsound and open split knots excluded by cross cut removal prior to fixing into position. To [NZS 3602](#), table 2, reference 2A.3, Requirements for wood-based building components to achieve a 15-year durability performance.

2.4 WALL UNDERLAYS

For flexible wall underlays and rigid wall underlays, refer to the appropriate separate section(s).

2.5 CAVITY BATTENS - TIMBER NON-STRUCTURAL

Non-Structural Fixing: Radiata pine minimum H3.1 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. Treatment to [NZBC E2/AS1](#) and [NZS 3602](#), table 1, reference 1D.10, **Requirements for wood-based building components to achieve a 50-year durability performance.**

2.6 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

Aluminium with upstands. Upstand one side 10mm and the other 75mm. Length and width to suit cavity. To [NZBC E2/AS1](#): clause 9.1.8.3 and figure 66.

Components

2.7 NAILS, STAINLESS STEEL

Timspec Jolt Head, Annular Grooved Shank Grade 316 Stainless steel fixings to [NZBC E2/AS1](#) Table 24. Refer to **Timspec CertClad®** construction details for fixing details and to SELECTIONS for fixing sizes.

2.8 FLASHINGS

To [NZBC E2/AS1](#), 4.0 **Flashings**. Material, grade and colour as detailed and scheduled and to [NZBC E2/AS1](#); Table 21: **Compatibility of materials in contact** and Table 22: **Compatibility of materials subject to run-off**. Ensure that materials used for flashings are compatible with the window frame materials and fixings and cladding materials and fixings.

Adhesives / sealants

2.9 ADHESIVE

Two-part epoxy adhesive, suitable for exterior use with timber, metals and plastics.

2.10 SEALANT

Polyurethane or silane terminated polymers (PU-hybrid technology) construction sealant.

Finishes

2.11 FACTORY PRE-FINISHING - OIL BASED PRIMER & UNDERCOAT

Factory spray application of selected solvent based oil primer and undercoat (only) on to timber surface.

Refer to SELECTIONS for brand and type.

Top coat site applications to manufacturer's specifications. Refer to painting sections.

3 EXECUTION

Conditions

3.1 GENERALLY

Execution to Timspec CertClad® CodeMark, [NZBC E2/AS1](#): 3.0 **Weathertightness risk factors**, and 9.0 **Wall claddings**, 9.1.8 **Drained cavities** and 9.4 **Timber weatherboards**.

3.2 STORAGE

Take delivery of Timspec CertClad® timber products, dry, unmarked and undamaged from freight and handling (Grade characteristics excluded). Store on site to Timspec requirements, laid flat and true under cover.

3.3 SUBSTRATE - TIMBER

Before starting fixing ensure that the substrate conforms with [NZS 3604](#), section 2, table 2.1, **Timber framing tolerances** and the requirements of [NZS 3604](#), section 6, **Foundation and subfloor framing** and [NZBC E2/AS1](#), governing support for timber board cladding. Ensure wall studs are a maximum of 600mm centres.

Application - cavity battens

3.4 DRAINED CAVITY / NON STRUCTURAL

Refer to timber framing work section for installation details. Ensure Installation includes 20mm minimum thickness drained cavity to [NZBC E2/AS1: 9.0 Wall claddings](#). The battens are fixed by the cladding fixings which will penetrate the wall framing studs over the wall underlay. The top of the cavity must be sealed and cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc). if necessary use cavity spacers where fixing is required between cavity battens.

Application - preparation

3.5 DOCKING DEFECTS

Before coating or installing boards check for any defects and dock out. Ensure any cut ends or exposed timber is primed or coated according to selected finish.

Application - fixing

3.6 FIXING - GENERAL

Install level, true to line and face, to [NZBC E2/AS1: 9.4 Timber weatherboards](#). Prime all cut ends before fixing. Pilot drill all fixings slightly smaller than gauge of fixing to ensure a snug fit and to minimise risk of moisture entry. Punch all fixings and spot prime all nail holes, raw and exposed timber surfaces. Using an appropriate filler, fill all nail holes flush with board surface.

3.7 FIXING -SCARF JOINS (WITHIN-BOARD JOINS)

Scarf joints (within-board joints) to occur over battens, random stagger within-board / scarf joints across adjacent boards. Orientate scarf joints to face away from prevailing winds and weather. Do not place adjacent to another scarf joint, junction, corner or penetration. Maximum of one scarf joint permitted in any length of weatherboard. Cut board at min 30° angle. Use appropriate adhesive to bond boards together and nail overlapping board only. Refer to appropriate Timspec CertClad®, Radiata Pine Installation Manual.

3.8 RUSTICATED WEATHERBOARDS - FIXING

Installation to CodeMark certificate [CodeMark CMA-CM40053](#) and Timspec CertClad® Rusticated Cavity System, Radiata Pine Installation Manual.

Install level, true to line and face, to [NZBC E2/AS1: 9.4 Timber weatherboards](#). Provide a 2mm expansion gap between successive boards, position of nail 30mm - 35mm from bottom edge of board, hand-drive nail on a slightly upward slope. Single nail weatherboards to every fixing point, just clear of the lapped board below. Pilot drill all fixings slightly smaller than gauge of fixing to ensure a snug fit and to minimise risk of moisture entry. Refer to Timspec CertClad®, Radiata Pine Installation Manual for nail fixing. Ensure weatherboards are set-out to achieve correct overlap at join and maintain a 1-2mm expansion gap between boards at rear of profile.

3.9 RUSTICATED WEATHERBOARDS - EXTERNAL BOXED CORNERS

Install external corner back flashings if required. Fit coverboards and rustic plug to external corners, ensuring a minimum 50mm overlap to the weatherboard. Seal between coverboards with specified sealant. Ensure any cut ends or exposed timber is primed or coated according to selected finish. Refer to drawings and Timspec CertClad®, Radiata Pine Installation Manual for construction detail.

3.10 RUSTICATED WEATHERBOARDS - INTERNAL CORNER MOULDING

Install internal corner back flashing. Trim weatherboard ends to butt up tightly to a D4S 40x40mm or 20x20mm moulding. Seal between weatherboards and moulding with specified sealant. Ensure any cut ends or exposed timber is primed or coated according to selected finish. Refer to drawings and Timspec CertClad®, Radiata Pine Installation Manual for construction detail.

3.11 INSTALL FLASHINGS

Install flashings, covers and soakers as detailed on the drawings or Timspec CertClad®, Radiata Pine Installation Manual and to [NZBC E2/AS1](#). Ensure minimum flashing cover to weatherboards is maintained depending on corner option selected.

3.12 PRE-FINISHED BOARDS - FINAL COAT

All pre-finished boards and trim will require a final finishing coat to the manufacturer's specifications. Allow to touch up and repair any damage before the final coating is applied.

3.13 COMPLETE

Ensure the work is complete with all flashings, finishings and trim properly installed so the cladding system is completely weathertight.

Completion**3.14 ROUTINE CLEANING**

Carry out routine trade cleaning of this part of the work including periodic removal of all debris, unused and temporary materials and elements from the site.

3.15 DEFECTIVE OR DAMAGED WORK

Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures.

4 SELECTIONS

For further details on selections go to www.certclad.co.nz.

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

Weatherboards and trim**4.1 TIMSPEC CERTCLAD - WEATHERBOARDS - RUSTICATED**

Location:	as noted on plans
Species:	Timspec CertClad® Radiata Pine
Grade:	Radiata Pine No 2 clears grade
Treatment:	H3.2 CCA.
Profile:	check to match existing
Cover dimensions:	165mm-check to match existing
Thickness:	19mm-check to match existing
Moisture content:	14 - 18% at fixing
Pre-finish:	oil based primer and undercoat, acrylic finish coat (with primer & undercoat)

4.2 TIMSPEC CERTCLAD - TRIMS AND SCRIBERS

Location:	Soffit moulds and window scribes
Species:	Timspec CertClad® Radiata Pine
Grade:	Radiata Pine No 2 clears grade
External corners:	Boxed corner with coverboards P101 70x19mm & P102 90x19mm
Internal corners:	Rusticated D4S moulding 19x19mm
Other trims:	scotia
Pre-finish:	oil based primer and undercoat, acrylic finish coat (with primer & undercoat)
Moisture content:	14 - 18% at fixing

4.3 FIXINGS - RUSTICATED

Nails:	75 x 3.15mm jolt head stainless steel, annular grooved shank, punched and filled
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4.4 FIXINGS - TRIMS

Nails: Stainless steel headless nail gun brad

Flashings and accessories**4.5 CAVITY BATTENS**

Type: Timber non-structural - Radiata Pine min H3.1 min 45x20mm

Note: Refer to timber framing specification

4.6 CAVITY CLOSER/VERMIN-PROOFING

Material: Aluminium

Note: Refer to timber framing section for details.

4.7 TIMSPEC CERTCLAD - INTERNAL AND EXTERNAL CORNER BACK FLASHINGS

Type: 75x75mm internal corne

Material: Aluminium

Sealants & Adhesives**4.8 SEALANT**

Type/brand: Sikaflex 11FC

4.9 ADHESIVE

Type/brand: Two-part epoxy adhesive,

Finishes - factory applied**4.10 FACTORY PRE-FINISH COAT - OIL BASED PRIMER AND UNDERCOAT**

Brand/ type: DULUX Ultra Prime (both coats)

Coating process: Spray Application

Primer colour: TIMSPEC Beige

Undercoat colour: TIMSPEC Beige

Factory coats - Primer: One

Factory coats - Undercoat: One

On-Site manual coats: Refer to FACTORY FINISH COAT - ACRYLIC FINISH COAT clause

Finishes - site applied only**4.11 SITE COATING - ACRYLIC PAINT FINISH COATS**

Brand/type: Refer to painting section/s

4231HH JAMES HARDIE® HARDIEFLEX™ SHEET CLADDING

1 GENERAL

This section relates to the supply and fixing of James Hardie® HardieFlex™ Sheet cladding systems.

1.1 RELATED WORK

Refer to painting section/s for the protective coating required to meet the NZBC durability requirements.

Documents

1.2 DOCUMENTS

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

NZBC E2/AS1	External moisture
AS/NZS 1170.2	Structural design actions - Wind actions
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

James Hardie® documents relating to this part of the work:
HardieFlex™ Sheet technical specification
James Hardie® Fire and Acoustic Design Manual

Manufacturer/supplier contact details

Company: James Hardie® New Zealand
Web: www.jameshardie.co.nz
Email: info@jameshardie.co.nz
Telephone: Ask James Hardie™ on 0800 808 868.

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years: For James Hardie® HardieFlex™ Sheet cladding
(refer to James Hardie® product warranty)

15 year: For accessories supplied by James Hardie® (refer to James Hardie® product warranty)

From: Date of purchase

- Provide this warranty on the manufacturer's standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 NO SUBSTITUTIONS

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

1.6 SAFE WORKING

To James Hardie® requirements for safe working practices with James Hardie® products, particularly with regards to cutting and drilling.

1.7 INFORMATION FOR OPERATION AND MAINTENANCE

Provide relevant James Hardie® maintenance requirements at completion of the work.

Performance

1.8 PERFORMANCE - WIND

The design wind speeds/zones are to [NZS 3604](#), up to and including Extra High Wind Zone. James Hardie® Technical Specifications are suitable for these conditions.

2 PRODUCTS

Materials

2.1 WALL UNDERLAY

For flexible wall underlays and rigid wall underlays, refer to the appropriate separate section(s).

2.2 EXTERIOR CAVITY BATTENS

Radiata pine battens, minimum 45mm wide x 18mm thick, H3.1 treated, height to match timber framing studs. To [NZS 3602](#), Table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.

2.3 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

Perforated uPVC, with upstands.

2.4 HARDIEFLEX™ SHEET

James Hardie® HardieFlex™ Sheet, medium density autoclaved sheet, 7.5mm and 6mm thick manufactured from treated cellulose fibre, Portland cement, sand and water. Cured by high pressure autoclaving and manufactured to [AS/NZS 2908.2](#).

Components

2.5 FASTENER TYPE

Fasteners to minimum durability requirements of the NZBC. Refer to [NZS 3604](#), section 4, **Durability**, for requirements for fixing's material to be used in relation to the exposure conditions.

Refer to [NZBC E2/AS1](#), Table 20, Material selection for fixing material, and [NZBC E2/AS1](#), Table 21, Compatibility of materials in contact, for selection of suitable fixing materials and their compatibility with other materials.

Zone	Fixings Material
Zone D, Zone E / Microclimates (incl. Geothermal)	Grade 316 Stainless
Zone B, Zone C	Hot-dipped galvanized
Bracing - All zones	Grade 316 Stainless

Check against SED (specific engineering design) requirements for microclimate conditions.

2.6 GALVANIZED NAILS

Hot-dip galvanized HardieFlex™ nails for HardieFlex™ Sheet
60mm x 3.15mm diameter or 40mm x 2.8mm diameter.

2.7 STAINLESS STEEL NAILS

316 Stainless steel HardieFlex™ nails for HardieFlex™ Sheet fixing
60mm x 3.15mm diameter or 40mm x 2.8mm diameter.

2.8 JOINTERS AND CAPPING MOULDS

Extruded uPVC jointer, 2 way jointer, capping and scotia mould.

Accessories

2.9 FLASHING TAPES

Inseal® 3259, 1.5mm thick x 50mm wide black compressible medium density closed cell foam tape.

2.10 SEALANT

Sika AT Facade sealant or similar. Refer to the sheet manufacturer's technical literature for selection and use requirements.

3 EXECUTION

Conditions**3.1 STORAGE**

Take delivery of products dry and undamaged on pallets, and keep on pallet. Protect edges and corners from damage and covered to keep dry until fixed.

3.2 HANDLING

Avoid distortion and contact with potentially damaging surfaces. Do not drag sheets across each other, or across other materials. Protect edges, corner and surface finish from damage.

3.3 SUBSTRATE

Do not commence work until the substrate is of the standard required for the specified finish; plumb, level and in true alignment. Moisture content of timber framing must not exceed the requirements specified by [NZS 3602](#) to minimise shrinkage and movement after sheets are fixed.

3.4 SEAL EDGES

Seal site cut sheet edges prior to installation. Seal sheet edges around window and door openings, meter boxes and at other penetrations.

Application - particular installations**3.5 FIRE RESISTANCE RATING, FIBRE CEMENT**

Install mineral fibre insulation or glass fibre insulation fitted tightly in the timber framing cavity. Apply fire retardant wall underlay to the exterior face of the framing and fix fibre cement cladding and lining sheets, direct or on cavity. Refer to project drawings for FRR system construction details and James Hardie® Fire and Acoustic Design Manual for further information.

3.6 BRACING SYSTEM

Fix sheets in accordance with James Hardie® Bracing Design Manual.

Application - generally**3.7 INSTALL CAVITY BATTENS**

Install 18mm minimum thick cavity battens to [NZBC E2/AS1: 9.0 Wall claddings](#), where required. Fix vertical cavity battens to wall framing studs. The battens are fixed by the cladding fixings which will penetrate the wall framing studs over the WALL UNDERLAY. Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc). Do not use continuous horizontal cavity battens at nogs or at bottom plate. Use cavity spacers where fixing is required between cavity battens.

3.8 PENETRATIONS AND FLASHINGS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:

- Wall underlay appropriately incorporated with penetration and junction flashings.
- Materials lapped in a way that water tracks down to the exterior face of the wall underlay.
- Wall underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- Required holes in cladding accurately formed and cut to James Hardie® requirements, ensure (if required) services penetration grommets/sleeves/seals/tapes are in place prior to cladding installation.
- Claddings neatly finished off to all sides of openings
- Installation of flashings (those required to be installed prior to installation of penetrating elements).

Install HardieFlex™ Sheets**3.9 SHEET LAYOUT**

All sheet edges must be supported by the framing. Fix HardieFlex™ Sheet vertically.

3.10 VERTICAL JOINT

Joint HardieFlex™ Sheets to James Hardie® technical specification.

3.11 HORIZONTAL JOINT

Provide a horizontal joint at floor joist levels to accommodate the movement resulting from timber joist shrinkage and settlement.

For HardieFlex™ Sheet use a James Hardie® uPVC 'h' mould complete with 'h' mould jointer, or a purpose made 'z' flashing to form a horizontal joint.

3.12 INTERNAL CORNER JOINT

Internal corner mould

- Install James Hardie® internal corner mould for HardieFlex™ Sheet. Fix sheets and mould to corner framing 12mm minimum from edge of HardieFlex™ Sheet with HardieFlex™ nails. Seal HardieFlex™ Sheet edges before fixing. Refer to HardieFlex™ Sheet technical specification.

Tape/Underflashing

- Use 80mm wide Inseal tape or James Hardie® uPVC corner underflashing to form a sealant filled internal corner. Refer to HardieFlex™ Sheet technical specification.

Timber battens

- Timber weather groove battens refer to HardieFlex™ Sheet technical specification.

3.13 EXTERNAL CORNER JOINT

External corner mould

- Install James Hardie® external corner mould for HardieFlex™ Sheet. Fix sheets to corner framing 35mm minimum from corner in one direction and 40mm minimum from corner in the other direction with HardieFlex™ nails. Seal HardieFlex™ Sheet edges before fixing. Refer to HardieFlex™ Sheet technical specification.

Tape/Underflashing

- Use 80mm wide Inseal tape or James Hardie® uPVC corner underflashing to form a sealant filled internal corner. Refer to HardieFlex™ Sheet technical specification.

Timber battens

- Timber weather groove battens refer to HardieFlex™ Sheet technical specification.

3.14 HORIZONTAL CONTROL JOINT

Install horizontal uPVC 'h' mould control joint flashing to HardieFlex™ Sheet technical specification details.

3.15 FASTENER - SIZE AND LAYOUT

Fix HardieFlex™ Sheet to framing using the fixings specified in James Hardie® HardieFlex™ Sheet technical specification, Table 3 Sheet fixing, and in accordance with the following requirements:

- Nails must have a minimum clearance of 12mm from sheet edges and a minimum of 75mm vertically and 150mm horizontally from sheet corners.
- Nails must finish flush with sheet surface.

3.16 FIXING - DIRECT FIXED TO FRAME

Fix with 40mm x 2.8mm HardieFlex™ nails. Fix sheet at 200mm centres at all sheet edges as well as all intermediate framing

3.17 FIXING - CAVITY CONSTRUCTION

Fix with 60mm x 3.15mm HardieFlex™ nails. Fix sheet at 200mm centres at all studs and at 150mm centres at top plate and bottom plate.

3.18 GUN NAILING

HardieFlex™ Sheet can be fixed using nail guns. The gun nails used must have a full round head to provide the required holding power. The length and gauge of nails must at a minimum be as specified in the James Hardie® HardieFlex™ Sheet technical specification.

3.19 SEALANTS

Apply and use of sealants to manufacturer's instructions. Check with sealant manufacturer prior to coating over sealants.

3.20 PAINTING

Refer to painting section/s for protective coating system.

Completion

3.21 REPLACE

Replace all damaged or marked elements.

3.22 LEAVE

Leave work to the standard required for following procedures.

3.23 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

For further details on selections go to www.jameshardie.co.nz.

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

4.1 CAVITY BATTENS

Timber species: Radiata pine

Treatment: H3.1

4.2 JAMES HARDIE® HARDIEFLEX™ SHEET CLADDING PANELS

Brand/type: James Hardie® HardieFlex™ Sheet

Thickness: 7.5mm

Fastener type: 60mm x 3.15mm HardieFlex™ nail

Fastener finish: Stainless Steel

Vertical jointer: uPVC,

Finishing**4.3 PAINTING**

Refer to painting section/s for details.

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 New 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 6.
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)

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

5 years: For fabrication

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

2 years: For installation

- Provide this warranty in the installer/applicator standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS

Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

1.7 COMPLIANCE

Windows and doors to be manufactured and installed to [NZBC E2/AS1](#).

1.8 CERTIFICATION

Provide evidence of a certificate by a laboratory accredited by International Accreditation of New Zealand that the windows and doors offered comply with the requirements of [NZS 4211](#).

Performance**1.9 PERFORMANCE - WINDOWS AND DOORS**

To [NZS 4211](#), including:

- deflection, opening sashes, air infiltration, water penetration, ultimate strength, torsional strength of sashes, marking.

Refer to SELECTIONS.

1.10 PERFORMANCE - STRUCTURAL/WEATHER-TIGHTNESS

The structural and weather-tight performance of the completed joinery, the glazing and infill panels is the responsibility of the window manufacturer.

Performance - Wind (design by contractor)**1.11 WIND - NON SPECIFIC DESIGN**

Design the installation to the wind zone parameters of [NZS 3604](#), table 5.4.
Refer to SELECTIONS for wind zone.

Finishes**1.12 CERTIFY COATINGS - POWDER COATING**

Certify on request, compliance with this specification and support with control and sampling records.
Test for film thickness to BS 3900, part C5, method No. 4, using method (b) or to AS/NZ 1580.108.1 for certifying thickness and method (a) where any dispute arises as to the thickness provided.
The coating should be applied by an applicator who can certify that the coating has been applied in accordance with the specification.

2 PRODUCTS**Materials****2.1 WINDOWS**

Refer to SELECTIONS for type and finish.

2.2 DOORS

Refer to SELECTIONS for type and finish.

2.3 ALUMINIUM EXTRUSIONS

Alloy designation to comply with [AS/NZS 1866](#). Branded and extruded for anodising or powder coating.

2.4 ALUMINIUM SHEET AND STRIP

Complying with [AS/NZS 1734](#) of suitable thickness. Rolled for anodising or powder coating.
Alloy designation: 5251 - H16 or 5005 - H16

2.5 STAINLESS STEEL SHEET AND STRIP

Type: 316 austenitic steel
Finish grade: 2B (satin lustre)

2.6 GLASS

Refer to the glazing section for glass types and installation.

2.7 REVEALS - TIMBER PAINTED

Timber reveals for paint finish with all sides primed grooved for wall linings or flush finished for architraves.

2.8 FLASHINGS GENERALLY

To [NZBC E2/AS1](#), 9.1.10 **Windows and Doors**. Material, grade and colour of head flashings to match the window frames. Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

Components - for direct fix systems

2.9 SILL PAN FLASHING

To [NZBC E2/AS1](#), 9.1.10.5 Window and Door Sills. Flashing for direct fix claddings to collect and drain water that may penetrate through the window or door unit. Size to extend from the inner most point of the aluminium frame out over the external face of the cladding.

2.10 WANZ SUPPORT ANGLE

Support angle, for use below the sill pan, for deeper claddings to transfer the weight of the window back to the frame. Size to suit cladding thickness.

Components - for cavity systems

2.11 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.

2.12 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

2.13 GLAZING GASKETS

Thermoplastic rubber. Do not stretch glazing gaskets during installation. Measure and cut gaskets 5-10% over length before installation.

2.14 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.

2.15 SAFETY STAYS

Stainless steel non releasable restrictors to limit window opening to [NZBC F4/AS1](#), Table 2, Acceptable opening sizes for barriers.

Sealants

2.16 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.

2.17 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.

2.18 FOAM TAPE

Foam tape to [NZBC E2/AS1](#), 9.1.10.7 **Closed cell foam tape**.

Finishes

2.19 POWDER COATED ALUMINIUM - EXTRA DURABLE

Polyester powder organic coating in accordance with [WANZ PQAS](#) and AS 3715.

2.20 POWDER COATED ALUMINIUM - HIGH DUTY

Polyester powder coating in accordance with [WANZ PQAS](#) and AAMA 2604.

- 2.21 POWDER COATED ALUMINIUM - SUPER DUTY
PVF² 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/m² 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 DIRECT FIX

Install to window manufacturers details and drawings including sill pans to window and door units.

3.18 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).

3.19 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.

3.20 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.

3.21 FIX HARDWARE

Fix all sash and door hardware and furniture as scheduled.

Application - jointing and sealing

3.22 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.

3.23 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.

3.24 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.

3.25 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**3.26 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.

3.27 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**3.28 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.

3.29 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.

3.30 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.

3.31 REMOVE

At the appropriate stage of the project, remove safety indicators and protective coverings and wipe down all joinery thoroughly.

3.32 REPLACE

Replace damaged, cracked or marked elements.

4 SELECTIONS**Performance****4.1 THERMAL PERFORMANCE**

R-value: 0.26 (as determined from [NZBC H1/VM1](#) or [H1/AS1](#))

Performance - Wind (design by contractor)**4.2 WIND - NON SPECIFIC DESIGN**

Building wind zone High (refer to [NZS 3604](#), table 5.4)

Window and door system**4.3 ALUMINIUM WINDOWS**

Manufacturer: to be confirmed
Type/location: Residential Suite

4.4 ALUMINIUM DOORS

Manufacturer: to be confirmed
 Type/location: Residential Suite

4.5 TIMBER REVEALS

Timber species: Radiata Pine
 Grade/treatment: H3.1
 Thickness: 19mm
 Reveals: Architraved
 Finish: Paint

Finishes

4.6 ORGANIC POWDER COATING FINISH

Type: Polyester organic powder coating Extra Durable
 System integrity: Minimum 10 years film integrity, 7 years colour integrity
 Thickness: Average of 80 microns with a minimum of 50 microns
 Colour: to be confirmed

4.7 FLASHINGS

Material/type: 5000 Grade Powdercoated Aluminium
 Pattern: Formed to suit details provided

4.8 WEATHERING SEALANT

Brand/type: MS 1-part polyurethane moisture curing, elastic joint sealant
 Colour: to match joinery

4.9 HARDWARE

	Brand/style	Material/finish
Sash fasteners:	Miro	Powder coated Aluminium
Door furniture:	Miro	Powder coated Aluminium

4610MR METRO PERFORMANCE GLASS - RESIDENTIAL GLAZING

1 GENERAL

This section relates to the supply and fixing of **Metro Performance Glass (Metro)** 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 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
EVA	Ethylene Vinyl Acetate
IGU	Insulating Glass Unit
LSG	Laminated Safety Glass
TSG	Toughened Safety Glass
TLSG	Toughened Laminated Safety Glass
MFG	Metro Frameless Glass

Documents

1.2 DOCUMENTS

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

NZBC F4/AS1	Safety from falling
NZBC F9/AS1	Means of restricting access to residential pools
NZBC H1/AS1	Energy Efficiency
AS/NZS 1170.2	Structural design actions - Wind loads
AS/NZS 2208	Safety glazing materials in buildings
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 4666	Insulating glass units
BRANZ BU 337	Protecting window glass from damage

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
Metro GlassTech Catalogue & Reference and Guide - 6th edition

Manufacturer/supplier contact details

Company:	Metro Performance Glass
Web:	www.metroglass.co.nz
Email:	info@metroglass.co.nz
Telephone:	0800 65 89 45

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years:	for GlassTech Insulating Glass Units (IGU)
10 years:	for SafeLite Laminated Safety Glass (LSG)
10 years:	for TempaFloat Toughened Safety Glass (TSG)
10 years:	for TempaScreen, TempaClad and TempaPrint digital printed glass

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of completion of this part of the contract work.

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

Performance**1.5 ENERGY EFFICIENCY**

Provide glazing to meet the energy requirements of [NZS 4218](#) and [NZBC H1/AS1](#) for housing small buildings.

Refer to SELECTIONS and schedules for location and type of glazing.

2 PRODUCTS**2.1 NO SUBSTITUTIONS**

Substitutions are not permitted to any specified Metro Performance Glass, products or systems.

Materials**2.2 LAMINATED SAFETY GLASS (LSG)**

SafeLite Grade A Laminated Safety Glass to [AS/NZS 2208](#) with PVB, EVA or CIP resin interlayer.

2.3 TOUGHENED SAFETY GLASS (TSG)

TempaFloat Grade A Toughened Safety Glass to [AS/NZS 2208](#).

Heat soaked toughened glass to [NZS 4223.1](#), Appendix E, required for critical areas.

Refer to SELECTIONS.

2.4 TINTED FLOAT GLASS

Body tinted float glass.

Materials, bath and shower screens**2.5 GLASS SCREENS BATH & SHOWER**

Proprietary shower/bath screens, and doors shall be TempaFloat TSG complete with MFG hardware.

Components, general**2.6 JOINTING, PUTTY AND SEALING MATERIALS**

Ensure jointing, putty and sealing materials are compatible with glass substrates. Confirm compatibility with laminated glass, IGUs and coatings.

Components, aluminium and uPVC glazing**2.7 GLAZING TAPE AND GASKETS**

Single/double sided pressure sensitive self-adhesive low/medium/high density foam tapes/butyl tapes selected to suit the glazing detail to window manufacturers' requirements.

2.8 SETTING BLOCKS

Santoprene/Neoprene, 80-90 Shore A hardness, set at quarter points or to detail, to support the weight of glass panes.

3 EXECUTION**Conditions**

3.1 GENERAL REQUIREMENTS

To [NZS 4223.1](#), [NZS 4223.2](#), [NZS 4223.3](#) as modified by [NZBC B1/AS1](#), 7.3.1, and [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, and [AS/NZS 4666](#) for IGUs.

3.3 GLASS CONDITION

All glass and panes shall 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 pane as required by [NZS 4223.1](#), [NZS 4223.3](#), [NZS 4223.4](#). 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.

Conditions - human impact safety requirements

3.6 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](#) as modified by [NZBC B1/AS1](#), 7.3.1, for thickness and maximum areas of panel Safety Glass.

3.7 SAFETY GLAZING MATERIAL

Use only safety glazing materials defined in [NZS 4223.3](#), as modified by [NZBC B1/AS1](#), 7.3.1, 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.

3.8 CONTAINMENT

Edge cover to comply with [NZS 4223.1](#), Section 4 Glazing, table 5. Otherwise to [NZS 4223.3](#), 2.3 Edge cover.

Assembly

3.9 WORKING OF GLASS

All working of glass as required in [NZS 4223.1](#).

3.10 EDGE WORK AND BEVELLING

All edges shall be clean cut unless specified in SELECTIONS or as shown on drawings.

3.11 SURFACE TREATMENT

Refer to SELECTIONS/drawings for finish.

3.12 SURFACE CUTTING

Refer to SELECTIONS/drawings for finish.

Application aluminium

3.13 INSTALL GLASS TO ALUMINIUM FRAMES

Install glass to [NZS 4223.1](#).

- Bead glaze to Section 4 Glazing.
- Channel glaze to Section 4 Glazing, and Section 5 for Framed, Unframed, Partly Framed Glass Assemblies.

3.14 INSTALL SAFETY GLASS

To [NZS 4223.3](#).

Application miscellaneous

3.15 INSTALL GLASS BATH & SHOWER SCREENS

Install shower and bath screens and doors to manufacturer's requirements.

Finishing**3.16 SAFETY**

Indicate the presence of transparent glass for the construction period, with tape or signs compatible with the glass type.

Completion**3.17 TRADE CLEAN**

Remove safety indicators and trade clean at completion of the building as required by the contract documents.

3.18 REPLACE

Replace damaged, cracked or marked glass that occurs during glazing.

3.19 LEAVE

Leave work to the standard required by following procedures.

3.20 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

For further details on selections go to www.metroglass.co.nz.
Substitutions are not permitted to the following, unless stated otherwise.

Performance - wind**4.1 WIND ZONE - NON-SPECIFIC DESIGN**

Building wind zone: High as determined from [NZS 3604](#), [NZS 4223.4](#) or [NZS 4211](#).

Glass by type**4.2 METRO PERFORMANCE GLASS - TINTED FLOAT GLASS**

Location:	New windows
Brand/type:	Metro Tinted Float
Tint:	Grey
Thickness:	to be confirmed

4.3 METRO PERFORMANCE GLASS - LAMINATED SAFETY GLASS (LSG)

Location:	Bathroom and windows/doors with panels over 1 sqm
Brand/type:	Safelite
Tint::	SafeLite PVB - Grey,
Thickness:	to comply with NZS 4223

Glass shower & bath screens**4.4 METRO PERFORMANCE GLASS - FRAMELESS SHOWER SCREENS AND DOORS**

Location:	shower doors and screens
Brand/type:	Metro Glass
Glass:	TempaFloat
Thickness:	10 mm
Hardware:	MFG type

4710K KNAUF INSULATION SYSTEMS

1 GENERAL

This section relates to **Knauf Insulation** thermal and acoustic glasswool insulation systems including installation.

It includes:

Earthwool® glasswool insulation

- Earthwool® glasswool insulation: wall batt
- Earthwool® glasswool insulation: ceiling batt / rolls
- Earthwool® glasswool insulation: quilted underfloor batt
- Earthwool® glasswool insulation: underfloor roll with a wind wash barrier
- Earthwool® glasswool insulation: acoustic batt
- Earthwool® glasswool insulation: DriTherm® masonry slab

Jet Stream® MAX blow-in glasswool insulation

- Jet Stream® MAX wall cavity
- Jet Stream® MAX floor
- Jet Stream® MAX ceiling
- Jet Stream® MAX skillion roof
- Jet Stream® MAX internal wall
- Jet Stream® MAX mid-floor

1.1 RELATED WORK

Refer to 4161 UNDERLAYS, FOIL AND DPC for wall underlay and roofing underlay.

Documents

1.2 DOCUMENTS

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

NZBC H1/AS1	Energy efficiency
AS 1530.1	Combustibility Test for Materials
AS/NZS 3000	Electrical installations
AS/NZS 4859.1	Materials for the thermal insulation of buildings - General criteria and technical provisions
AS/NZS 5110	Recessed Luminaire Barriers
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
NZS 4214	Methods of determining the total thermal resistance of parts of buildings
NZS 4218	Thermal insulation - Housing and small buildings
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 bulk thermal insulation in residential buildings

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Knauf Insulation Product Guide New Zealand

Earthwool® glasswool insulation: wall and ceiling roll and batt Datasheets

Earthwool® glasswool insulation: acoustic batt Datasheet

Earthwool® glasswool insulation: ceiling roll Datasheet

Earthwool® glasswool insulation: quilted underfloor batt Datasheet

Earthwool® glasswool insulation: quilted underfloor batt installation instructions

Earthwool® glasswool insulation: underfloor roll with a wind wash barrier Datasheet

Earthwool® glasswool insulation: DriTherm® masonry slab

Earthwool® glasswool insulation: Installation Instructions

Jet Stream® MAX Walls, floors and skillion roofs Datasheet

Jet Stream® MAX Walls, floors and skillion roofs Application Guidelines

Jet Stream® MAX Ceilings Datasheet

Jet Stream® MAX Ceilings Application Guidelines

[BRANZ Appraisal 648](#) - Earthwool® glasswool Insulation

[BRANZ Appraisal 975](#) - Earthwool® glasswool insulation: quilted underfloor batt

CodeMark Certificate: Jet Stream® MAX and Supafil Cavity Insulation [30067](#)

CodeMark Certificate: Jet Stream® MAX ceiling insulation [30068](#)

Manufacturer/supplier contact details

Company: Knauf Insulation New Zealand

Web: www.knaufinsulation.co.nz

Email: info.nz@knaufinsulation.com

Telephone: 0800 KNAUFI (562 834)

Technical support: tech.nz@knaufinsulation.com

Customer service: sales.nz@knaufinsulation.com

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

50 years: For unfaced Earthwool® glasswool insulation materials

15 years: For Earthwool® glasswool insulation: quilted underfloor batt

50 years: For Jet Stream® MAX glasswool materials

- 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.

Requirements

1.5 QUALIFICATIONS - EARTHWOOL® GLASSWOOL INSULATION

Work to be carried out by trades people experienced, competent and familiar with the Knauf Insulation materials and techniques specified.

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Knauf Insulation, associated products, components or accessories.

Performance - Fire properties

1.7 FIRE PROPERTIES - EARTHWOOL® GLASSWOOL INSULATION

Earthwool® glasswool insulation is non-combustible to AS1530.1. Earthwool® glasswool insulation meets the 30's Needle Flame test to [AS/NZS 60695.11.5](#).

2 PRODUCTS

Materials - thermal insulation

2.1 EARTHWOOL® GLASSWOOL INSULATION: CEILING

Earthwool® glasswool insulation: ceiling batt and rolls to [AS/NZS 4859.1](#), [NZS 4218](#), [NZS 4243.1](#) and [NZS 4220](#). Rectangular insulation ceiling batt and rolls made using recycled glass and with ECOSE® Technology.

Refer to SELECTIONS for location, type, R-value and thickness.

2.2 EARTHWOOL® GLASSWOOL INSULATION: WALL

Earthwool® glasswool insulation: wall batt to [AS/NZS 4859.1](#), [NZS 4218](#), [NZS 4243.1](#) and [NZS 4220](#). Rectangular insulation wall batt and rolls made using recycled glass and with ECOSE® Technology.

Refer to SELECTIONS for location, type, R-value and thickness.

Components - Earthwool® glasswool insulation**2.3 TAPES**

Polypropylene or similar strapping stapled across framing to retain insulation in wall and ceiling applications.

3 EXECUTION**Conditions - Earthwool® glasswool insulation****3.1 STORAGE - EARTHWOOL® GLASSWOOL INSULATION**

Accept materials undamaged and dry and store in a location that protects them from the weather and damage. Avoid distortion, stretching, puncturing and compression. Do not use damaged or wet insulation material.

3.2 HANDLING - EARTHWOOL® GLASSWOOL INSULATION

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 - EARTHWOOL® GLASSWOOL INSULATION

Before starting installation of Earthwool® glasswool insulation check that the location and framing are dry, that the cavities are not interconnected and that mesh, wall and roof underlays and vapour barriers are in place. Install when the building is enclosed and when the construction materials have achieved the maximum permitted moisture content or less.

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](#). Do not cover vents. Allow a clear gap around metal flues as recommended by the fireplace manufacturer. Refer to manufacturer's installation instructions and [NZS 4246](#) for further details.

3.5 PREPARATION - EARTHWOOL® GLASSWOOL INSULATION

Allow insulation to re-loft/relax prior to installation. Where possible lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

3.6 RECESSED LIGHT FITTINGS - CLEARANCE

Non-residential applications;

The clearance between insulation and recessed downlights

- 100mm gap to [AS/NZS 3000](#), figure 4.9.
- For Jet Stream® MAX (loose fill), provide a barrier complying with AS/NZS 5110 around recessed light fittings in accordance with [AS/NZS 3000](#), figure 4.9 and clause 4.5.2.3.3 e, unless specifically stated by the luminaire's manufacturer.
- 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
- Classification type IC and IC - F, to [AS/NZS 60598.2.2](#); insulation can abut and cover over the top of the downlight
- Classification type NON IC to [AS/NZS 60598.2.2](#); insulation cannot abut or cover the downlight. This class of downlights is banned from residential applications.
- For Jet Stream® MAX (loose fill), maintain 100mm gap and provide a barrier complying with AS/NZS 5110 around recessed light fittings in accordance with [AS/NZS 3000](#), figure 4.9 and clause 4.5.2.3.3 e, unless specifically stated otherwise by the luminaire's manufacturer.
- Provide larger clearances where required by the light manufacturer.
- In a retrofit situation where recessed downlights are unclassified or unknown, ensure 100mm clearance between insulation and downlights to [AS/NZS 3000](#), figure 4.9.

3.7 INSULATION CLEARANCES GENERALLY

Insulation may need to have a gap to some mechanical and electrical services and equipment, including ducts and chimneys. The gaps should be to the [NZS 4246](#) based tables below or to the equipment manufacturer's requirements if they require larger gaps. Smaller gaps to manufacturers requirements can be used for equipment specifically manufactured with heat shielding or similar (excludes light fittings). Installed gap not to be more than 50mm bigger than the required gap. The following tables are subject to:

- The requirements of [NZS 4246](#).
- The insulation is exposed to the source of heat or equipment etc.
- Insulation, has passed the needle flame test to [AS/NZS 60695.11.5](#) and/or is non-combustible.
- Gaps to hot surfaces may have to be increased with non-compliant insulation and plastic/polymeric type insulation (EPS, XPS, PIR, etc), check with insulation manufacturer.
- Gaps to hot surfaces may be able to be reduced with non-combustible insulation, check with equipment manufacturer.
- "Secure insulation" if required means, glue, mechanical fix, or provide fixed barriers at gap edge of insulation to hold in place. Rigid or semi rigid insulation may only need a firm friction fit (secure loose pieces).
- Jet Stream® MAX (loose fill) will require fixed barriers to [NZS 4246](#) and maintain gaps as required.

LIGHT FITTINGS

Type of fitting	Minimum insulation clearance	Comments
Unmarked recessed	100mm	New or old unmarked & unknown fittings and/or insulation. Secure insulation. For loose fill insulation, refer to NZS 4246 figure 8.
CA 80, CA 90 or CA 135 recessed	Abut in residential. 100mm in others and for loose fill insulation.	Do NOT cover the fittings. For residential loose fill insulation, refer to NZS 4246 figure 4. For Loose fill insulation, maintain 100mm clearance unless specifically stated otherwise by luminaire's manufacturer.
IC, IC-F or IC-4 recessed	Abut in residential. 100mm in others and for loose fill insulation.	Cover in residential only except for residential loose fill insulation, refer to NZS 4246 figure 7. For Loose fill insulation, maintain 100mm clearance unless specifically stated otherwise by luminaire's manufacturer. Do NOT cover in others
Independent control gear	Place on top of insulation except loose fill insulation & 50mm from fitting	If not on top allow 50mm clearance to insulation, do not cover. Includes, transformers, ballasts & drivers etc. For loose fill insulation, do not place control gear on insulation. Maintain clearance by placing guard around control gear, refer to NZS 4246 figure 15.
Surface fittings not exposed to insulation	Nil	Where surface fittings are isolated from insulation by appropriate linings. Excludes high heat fittings.
Surface fittings & exposed insulation	200mm	This is exposed insulation to any part of the exposed fitting & bulb/tube (e.g. exposed light in an unlined basement). Secure insulation. For loose fill insulation ensure guard maintains clearance.

INBUILT RECESSED HOT APPLIANCES

Appliance	Minimum insulation clearance	Comments
Electrical heaters	100mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation. For loose fill insulation ensure guard maintains clearance.
Gas appliance exposed flame	200mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Excludes uncommon appliances, refer NZS 4246 . For loose fill insulation ensure guard maintains clearance.
Gas appliance flues	75mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation. Excludes uncommon appliances refer NZS 4246 . For loose fill insulation ensure guard maintains clearance.
Oil-fired appliances and flues	230mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation. For loose fill insulation ensure guard maintains clearance.
Open fireplace opening	200mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation. For loose fill insulation ensure guard maintains clearance.
Brick masonry chimneys	50mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation. For loose fill insulation ensure guard maintains clearance.
Metal chimneys & flues	75mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation. For loose fill insulation ensure guard maintains clearance.
Solid fuel appliance	600mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation. For loose fill insulation ensure guard maintains clearance.
Solid fuel appliance flue	600mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation. For loose fill insulation ensure guard maintains clearance.

EXTRACTS, VENTS, PIPES & ROOF UNDERLAY

Application	Minimum insulation clearance	Comments
Ducted fan motors	50mm	Includes ducted rangehoods, extractors etc. Applies to the motor unit and electrical enclosures (not the ducts). For loose fill insulation ensure guard maintains clearance.
Ducted fan ducts	Abut	Excludes motor unit and electrical enclosures.
Unducted fan motors usually discharging to ceiling space	200mm	Includes unducted, rangehoods, extractors etc, discharging into roof space. To prevent debris falling into motor. Clearance may be able to be reduced, by providing a fixed barrier around the vent. For loose fill insulation ensure guard maintains clearance.
Passive vents (still in use)	200mm	To prevent debris falling through. Clearance may be able to be reduced, with more cohesive insulation, like some of the rigid plastic types or providing a fixed barrier around the vent. For loose fill insulation ensure guard maintains clearance.
Plumbing penetrations through floors	100mm	Keep gap between pipe penetration and floor insulation in case of leaks. For loose fill insulation ensure guard maintains clearance.
Roofing material/underlay	25mm	From underside of roofing or flexible roofing underlay, to prevent wicking.

3.8 CHECK WALL AND ROOF UNDERLAYS

Ensure these are dry, clean, undamaged and free of debris before being covered.

Application walls - Earthwool® glasswool insulation

3.9 FIT EARTHWOOL® GLASSWOOL INSULATION - TIMBER FRAMING

Friction fit Earthwool® glasswool insulation: wall batt between framing members and linings. Cut on site to fill cavity and provide a close even fit. When cutting to fill a void, oversize by up to 10mm to ensure a tight fit. Ensure there is a friction fit on all faces of the insulation. If cavity depth is greater than the insulation nominal thickness, fix or strap the product to secure in accordance with installation instructions. Cut into smaller pieces for smaller spaces and around penetrations to achieve efficient thermal performance. Do not fold, tuck or compress the insulation. Refer to [NZS 4246](#) for installation guidelines and Earthwool® glasswool insulation Product Data Sheets, for detailed installation instructions.

3.10 FIT EARTHWOOL® GLASSWOOL INSULATION CEILING - BETWEEN CEILING FRAMING

Friction fit Earthwool® glasswool insulation: ceiling batt between framing members. Cut across the roll to fit nogs and small spaces around penetrations. Leave no gaps and maintain full thickness of insulation over the whole of the installation. Leave gap around metal flues to the manufactures requirements.

3.11 CEILING INSULATION EDGE DETAIL

Where perimeter of ceiling space is too low to allow full depth of insulation plus the 25mm air gap to the underlay, provide reduced perimeter insulation to [NZS 4246.6.2](#) and maintain the 25mm gap.

Completion

3.12 CLEAN UP

Clean up as the work proceeds. Ensure no spare off cuts or any other materials remain behind claddings or linings.

3.13 LEAVE

Leave work to the standard required by following procedures.

3.14 REMOVE

Remove debris, unused materials and elements from the site. Earthwool® glasswool insulation packaging is recyclable.

4 SELECTIONS

For further details on selections go to www.knaufinsulation.co.nz

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

Wall insulation

4.1 EARTHWOOL® GLASSWOOL INSULATION: WALL

Location:	new and relined exterior walls
Brand:	Earthwool® glasswool
R-value:	R2.8 and R3.6
Thickness:	90mm and 140mm
Dimensions:	580mm x 1160mm

Ceiling insulation

4.2 EARTHWOOL® GLASSWOOL INSULATION: CEILING

Location:	Ensuite and refurbished existing bedroom
Brand:	Earthwool® glasswool
R-value:	R3.6
Thickness:	175mm
Dimensions:	430mm x 1160mm

4711KB KOOLFOAM BLACK PEARL® THERMAL INSULATION

1 GENERAL

This section relates to **Koolfoam** underfloor and thermal insulation range of pre-cut rigid polystyrene foam slabs.

It includes:

- **Black Pearl®** slab insulation
- **Black Pearl®** cavity insulation, for walls, roofs and floors

Documents

1.1 DOCUMENTS

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

NZBC B1/VM1	Structure
NZBC H1/AS1	Energy efficiency
AS/NZS 3000	Electrical installations
AS 1366.3	Rigid cellular plastic sheets for thermal insulation - Rigid cellular polystyrene - Moulded (RC/PS - M)
NZS 3604	Timber-framed buildings
NZS 4218	Thermal insulation - Housing and small buildings
NZS 4243.1	Energy efficiency - Large buildings - Building thermal envelope
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings
AS/NZS 4671	Steel reinforcing materials
AS/NZS 4859.1	Materials for the thermal insulation of buildings - General criteria and technical provisions
DIN 13164	Thermal insulation products for buildings - Factory made products of extruded polystyrene foam (XPS)

1.2 MANUFACTURER/SUPPLIER DOCUMENTS

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

Koolfoam Black Pearl®
 Koolfoam Black Pearl® Slab Insulation/Thermalock® jointing system
 Koolfoam Black Pearl® Cavity Insulation
 Koolfoam Black Pearl® Performance
 Koolfoam Thermal Chart
 Koolfoam Black Pearl® Roof Cavity Insulation Installation Instructions

Manufacturer/supplier contact details;

Company: Koolfoam
 Web: www.koolfoam.co.nz
 Email: koolfoam@xtra.co.nz
 Telephone: 09 279 9611/ 0800 636 767
 Facsimile: 09 277 6704

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

50 years: For **Koolfoam Black Pearl®**

- 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 WARRANTIES for additional requirements.

Requirements

1.4 QUALIFICATIONS

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

1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any of the **Koolfoam** specified systems, components and associated products listed in this section.

Performance

1.6 ENERGY EFFICIENCY

Maintain the energy efficiency requirements to [NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope](#). Install to [NZS 4218](#) for small buildings, to [NZS 4243.1](#) for large buildings and to the **Koolfoam** technical requirements.

2 PRODUCTS

Materials

2.1 BLACK PEARL INSULATION

Koolfoam Black Pearl® manufactured to AS 1366.3 and made from the raw material Neopor® with flame retardant.

3 EXECUTION

Conditions

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 manufactures requirements. Reject and replace goods that are damaged or will not provide the required finish.

3.2 PROTECT

Do not subject the polystyrene to prolonged saturation or exposure to sunlight. Do not allow the polystyrene come into contact with solvents.

Installation - generally

3.3 INSTALL INSULATION - GENERAL

Lay, install, fit and fix to [NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope](#), and to manufacturer's requirements. Install in housing to [NZS 4218](#) and [NZS 4246](#). Install in large buildings to [NZS 4243.1](#) and [NZS 4220](#). Allow insulation to re-loft/relax prior to installation. Do not cover vents. Allow a clear gap around metal flues as recommended by the fireplace manufacturer. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

3.4 RECESSED LIGHT FITTINGS – CLEARANCE

For clearance around recessed lights refer to 'Koolfoam Black Pearl® Roof Cavity Insulation Installation Instructions' and to [AS/NZS 3000](#). A clearance of 200mm is recommended between Koolfoam insulation and recessed lights.

Installation - Black Pearl® wall/roof/floor panel

3.5 INSTALL CAVITY INSULATION - WALL

Cut **Koolfoam Black Pearl®** insulating sheets to required width to ensure a friction fit between framing members. The sheets can be cut to common sizes with concertina edges on two sides, to ensure a snug fit between panels; available in either 1.2 or 2.7 metre lengths. Ensure a tight fit at sheet panel ends. Fill gaps around windows and doors with off-cuts. Insulate around vents (not over them) to allow unhindered ventilation.

Refer to [NZS 4246](#) for installation guidelines and **Koolfoam Black Pearl®** Product Data Sheets, for detailed installation instructions.

3.6 INSTALL CAVITY INSULATION - ROOF

Cut **Koolfoam Black Pearl®** insulating sheets to required width to ensure a friction fit between framing members. The sheets can be cut to common sizes with concertina edges on two sides, to ensure a snug fit between panels. Ensure a tight fit at sheet panel ends. Install flush to the underside of roof framing ensuring a minimum gap of 25mm is maintained between the insulation and the underside of the roof (or underlay) to [NZS 4246](#), 6, **Ceilings and Roofs**.

3.7 PIPES AND PLUMBING

Cut holes in the polystyrene with a sharp knife and notch around obstacles such as pipes and plumbing.

3.8 ELECTRICAL CABLES

Fit **Koolfoam Black Pearl®** behind or in front of electrical wiring and plumbing. Ensure there are no gaps or undesirable compression at edges.

Ensure there is no direct contact between PVC coated cables and the polystyrene sheets. Use extreme caution when working around electrical cables.

3.9 CHECK FOILS

Ensure foils are dry, clean, bright, undamaged and free of debris before being covered.

3.10 CHECK WALL AND ROOF UNDERLAYS

Ensure these are dry, clean, undamaged and free of debris before being covered.

3.11 CHECK VAPOUR BARRIERS

Ensure these form one homogeneous sheet vapour barrier and remain as such throughout the ensuing construction process.

Completion

3.12 ROUTINE CLEANING

Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused materials and elements from the site.

3.13 PROTECT

Protect new work from damage.

4 SELECTIONS

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

Materials

4.1 BLACK PEARL ROOF/WALL/FLOOR INSULATION

Location:	strapped block walls and ceiling below existing concrete deck
Type:	Koolfoam Black Pearl® Cavity Insulation
Size:	555mm x 2.4metres long
Thickness:	65mm and 105mm
R value:	R2.09 and R3.38

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
- GIBFix® Framing systems

1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

AWCINZ Association of Wall and Ceiling Industries New Zealand

Documents

1.2 DOCUMENTS

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

NZBC C/AS2-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 4600:2005	Cold-formed steel structures
ISO 5660.1	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method)
ISO 5660.2	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 2: Smoke production rate (dynamic measurement)
BRANZ Technical Paper P21	BRANZ Technical Paper P21: A wall bracing test and evaluation procedure (2010)
NASH	Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

- GIB® Site Guide (Dec 2014)
- 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 (2016)
- GIB Ezybrace® Bracing Software (2016)
- GIB Ezybrace® Systems (June 2011), with amendments (Dec 2014)
- GIB Ezybrace® for Steel Frame Housing (NASH) Software (2011)
- GIBFix® Framing System (2016)
- 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

[BRANZ Appraisal 928](#) (2016) - GIB Ezybrace® Systems 2016

GreenTag Certification [WWLCG001-001-A-2015](#) - GreenTag™ GreenRate/Level B for:

- GIB® Standard (10mm & 13mm)
- GIB Fyrelite® (10mm, 13mm, 16mm & 19mm)
- GIB Braceline® (10mm & 13mm)
- GIB® Noiseline® (10mm & 13mm)
- GIB Toughline® (13mm)
- GIB Wideline® (10mm & 13mm)

Copies of the above literature are available at

Company: Winstone Wallboards

Web: www.gib.co.nz

Telephone: 0800 100 442

Requirements

1.4 NO SUBSTITUTIONS

Substitutions are not permitted to any specified GIB® systems, GIB® system components, GIB® plasterboard, associated GIB® products or GIB® accessories.

1.5 INSTALLER WORK SKILLS AND QUALIFICATIONS

GIB® plasterboard fixers and plasterers to be experienced competent workers, familiar with GIB® plasterboard lining systems installation and finishing techniques. Submit evidence of experience on request. For example:

- National Certificate of Interior Systems; or
- Certified Business member of AWCINZ.

Performance

1.6 INSPECTIONS AND ACCEPTANCE

Allow for inspection of the finished plasterboard surface:

- before applying sealer and
- before applying finish coatings or decorative papers,

so that after assessment of the type and/or angle of illumination and its effect on the completed decorative treatment, group approval and acceptance of the surface can be given.

1.7 BRACING REQUIREMENTS

Braced wall systems to [NZS 3604](#) when tested to BRANZ Technical Paper P21, using:

- GIB Ezybrace® Systems (2016) and/or GIB Ezybrace® Bracing Software (2016)
- GIB Ezybrace® Systems (2011)
- GIB Ezybrace® for Steel Frame Housing (NASH) Software 2011 (to NASH Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria)

Refer to drawings for location and type.

2 PRODUCTS

Materials

2.1 GIB® PLASTERBOARD

Gypsum plaster core encased in a face and backing paper formed for standard and water resistance use to [AS/NZS 2588](#). Refer to SELECTIONS for location, type, thickness and finish.

GIB® Standard plasterboard

GIB Wideline® plasterboard

GIB Ultraline® high quality surface plasterboard

GIB Fyrelime® fire resistant plasterboard

GIB Braceline® & GIB® Noiseline® dual purpose wall bracing & noise control plasterboard

GIB Aqualine® wet area plasterboard

GIB Toughline®

GIB Superline®

Components

2.2 CEILING BATTENS

GIB® Rondo® metal ceiling battens, batten joiners and perimeter channel.

2.3 GIBFIX® ANGLES

GIBFix® Angles, 45mm x 45mm angles, 2.4m or 2.7m long.

2.4 SCREWS

GIB® Grabber® drywall type screws as follows:

Grabber® type	Used for fixing:
High Thread	GIB Ezybrace® or Standard systems to timber
Self Tapping	Standard systems to light gauge steel or timber
Dual Thread Screws	GIBFix®, GIB Ezybrace®, or Standard systems, to light gauge steel or timber
Wafer Head Needle Tip	Light gauge metal to timber not directly under plasterboard
Pancake Head Drill Tip	Light gauge metal to light gauge metal directly under plasterboard

Refer to GIB® requirements for appropriate details.

2.5 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

GIB® plastic smooth control joints.

GIB® plastic W-profile control joints.

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 FRAMING - GIBFIX® FRAMING SYSTEM

Ensure that the timber framing is to the manufacturers requirements for the GIBFix® Framing System.

If GIB EzyBrace® systems are used in conjunction with GIBFix® Framing System, ensure that the positioning of the GIB HandiBrac® panel hold-down brackets are to the manufacturers recommended placements for the GIBFix® Framing System.

3.6 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).

3.7 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

3.8 INSTALL CEILING BATTENS

Install to GIB® Rondo® Ceiling Batten Systems requirements.

3.9 INSTALL GIBFIX® ANGLES

Install GIBFix® Angles to the wall and ceiling junctions to the GIBFix® Framing System requirements. Install GIBFix® Angles before installation of GIB® plasterboard linings. Run GIBFix® Angles as continuous lengths between framing members. If joints are necessary for the GIBFix® Angles, overlap the angles by a minimum of 300mm and fix as per manufacturers requirements. When jointing GIBFix® Angles, locate the shorter section at the top of the stud.

3.10 LINING WALLS AND CEILINGS GENERALLY

Form to GIB® Site Guide (Dec 2014). Ensure bulk insulation thickness shall not exceed that of the wall framing.

3.11 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.

3.12 BOARD INSTALLATION FOR GIBFIX® SYSTEM

Fix the GIB® plasterboard to the GIBFix® Angle side over the stud first and then fix the GIB® plasterboard to the GIBFix® Angle only side (not over the stud). If the GIBFix® Angle only side must be fastened off first, provide additional fixings for the GIBFix® Angle to the stud, to the manufacturers requirements.

3.13 FORM WET AREA SYSTEMS

Form to GIB Aqualine® Wet Area Systems requirements.

3.14 FORM BRACING SYSTEMS

Form bracing systems to:

- GIB Ezybrace® Systems (2016)
- GIB Ezybrace® Systems (2011)

3.15 FORM CONTROL JOINTS

Form control joints to GIB® Site Guide (Dec 2014) requirements.

3.16 INSTALL TAPE-ON TRIMS

Install to GIB® Goldline™ Tape-on trims literature and/or GIB® Ultraflex high impact corner mould literature.

Finishing**3.17 FINISHING GENERALLY**

To GIB® Site Guide (Dec 2014) and [AS/NZS 2589](#).

Completion**3.18 REPLACE**

Replace damaged sheets or elements.

3.19 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.

3.20 REMOVE

Remove debris, unused materials and elements from the site.

3.21 LEAVE

Leave work to the standard required by following procedures.

4 SELECTIONS**Plasterboard**

4.1 GIB® STANDARD SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
new and relined existing walls	GIB® Standard plasterboard	10mm	4

4.2 GIB® WATER RESISTANT SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Ensuite, Bathroom and Ldry	GIB Aqualine® plasterboard	10mm	4

4.3 GIB® STANDARD SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
as noted on plans	GIB® Standard plasterboard	13mm	4

4.4 GIB® WATER RESISTANT SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Ensuite and Bathrooms	GIB Aqualine® plasterboard	13mm	4

4.5 GIB® BRACING SYSTEMS

Refer to:

- GIB Ezybrace® Systems (2016)
- GIB Ezybrace® Systems (2011)

For bracing element location refer to drawn documentation.

Accessories

4.6 GIB® RONDO® CEILING BATTENS

Brand/type: GIB® Rondo® Ceiling battens

4.7 GIBFIX® FRAMING SYSTEM COMPONENTS

Brand/type: GIBFix® Angles

Fixings: GIB® Grabber® Dual Head Screws

4.8 GIB® TAPE ON EDGE OR CORNER TRIMS

Brand/type: Gib Goldline

6700R RESENE PAINTING GENERAL

1 GENERAL

This section relates to the general matters related to **Resene** painting work.

1.1 RELATED WORK

Refer to 6721R RESENE PAINTING INTERIOR
 Refer to 6711R RESENE PAINTING EXTERIOR
 Refer to 6721RE RESENE ENVIRONMENTAL PAINTING INTERIOR
 Refer to 6711RE RESENE ENVIRONMENTAL PAINTING EXTERIOR

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

MPNZA	Master Painters New Zealand Association Inc.
SIPDS	Surface Information & Preparation Data Sheets

Documents

1.3 DOCUMENTS

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

Health and Safety at Work Act 2015	
AS/NZS ISO 9001	Quality management systems - Requirements
MPNZA	Health and Safety Programme

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this section are:

Resene	Surface Information & Preparation Data Sheets (SIPDS) (hard copy or at www.resene.co.nz)
Resene	Product Data Sheets (hard copy or at www.resene.co.nz)
Resene	Putting your safety first

Copies of the above literature are available from Resene
 Telephone: 0800 RESENE (0800 737 363)

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this work under normal conditions of use against failure referring to the Resene Promise of Quality in the Resene One-Line specifications and product data manual.

Requirements

This painting specification is written based on information available at the time of writing.

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Resene coating system, or associated components and products. Do not combine paints from different manufacturers in a paint system.

If in the applicator's own expertise and judgement an amendment to this specification is required, or where a substrate preparation, or required painting system is not covered in this specification, this shall be brought to the attention of the contract administrator and any amendment agreed before work proceeds any further.

1.7 QUALIFICATIONS

Painters to be experienced competent workers, familiar with the materials and the techniques specified and with the Resene coating systems and be members of the Master Painters New Zealand Association Inc.

The applicator is to have the necessary skill, experience and equipment to undertake the work. The applicator remains responsible for ensuring proper completion of the work.

Painters to be selected from the Resene Eco.Decorator programme. The Resene Eco.Decorator programme is designed to recognise a nationwide network of environmentally responsible, quality focussed painting contractors.

Refer to www.resene.co.nz/ecodecorator.htm for a list of Eco.Decorators in your area.

1.8 PRIOR TO WORK COMMENCING

Before any work commences painters should verify, with Architects or specifying authority, that their paint matches a previously supplied standard card or panel. Differently coloured paints will vary in price, opacity and durability. Resene normally only specify two coats of colour but with certain colours, such as yellows and oranges, three coats may be needed. Refer to SELECTIONS for location and type.

1.9 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of the following general operation and maintenance information as electronic PDF format documents:
Maintenance guide for Resene paint finishes www.resene.co.nz/comn/services/maintenance.htm.
Provide this information prior to practical completion.

1.10 HEALTH AND SAFETY

Refer to and comply with the requirements of the [Health and Safety at Work Act 2015](#) including the obligation to:

- Eliminate hazards and if hazards cannot be eliminated or isolated, then minimise the hazards in this work by using the proper equipment and techniques as required by the MPNZA Health and Safety Programme.
- Supply protective clothing and equipment.
- Inform the contractor as well as the employees and others on site of those hazards and put in place procedures for dealing with emergencies.

1.11 SAFETY DATA SHEETS

Obtain from Resene (phone 0800 RESENE, or www.resene.co.nz) the safety data sheet for each product used and comply with the required safety procedures. Keep sheets on site.

Performance

1.12 RESENE INSPECTION

Permit representatives of Resene to inspect the work in progress and to take samples of their products from site if requested. Resene will take care when inspecting the work, but does not accept any responsibility for the proper completion of the work before or after such inspection.

1.13 INSPECTION OF THE WORK

Inspection of the whole of the work at each of the stages set out in SELECTIONS may be made. Agree on a programme that will facilitate such inspection, including notification when each part and stage of the work is ready for inspection.

2 PRODUCTS

Materials

2.1 MATERIALS GENERALLY

Do not combine paints from different manufacturers in a paint system.

Use only Resene products (which are guaranteed for consistency and performance under [AS/NZS ISO 9001](#) and APAS) prepared, mixed and applied as directed in the Resene One-Line Specifications and Product Data Manual. This specification has been written using where practical and available both low/no VOC and Environmental Choice approved products.

2.2 DARK COLOURS

Darker colours in areas of high sun exposure place significant stress on the coating and substrate. Resene 'CoolColour' technology reduces heat absorption of a wide range of colours. Contact your local Resene Representative or visit www.resene.co.nz for more information or visit www.resene.co.nz/coolcolour. View a list of Resene colours that can be made using Resene CoolColour technology at www.resene.co.nz/colourlibrary.

2.3 THINNERS/ADDITIVES

Use only if and when expressly directed by Resene for their particular product in a particular application. Always wear gloves when handling any solvents including turpentine as harmful chemicals may be absorbed into the body through the skin.

Accessories

2.4 ACCESSORIES

Contact your local Resene ColorShop for a full range of accessories and usage advice.

3 EXECUTION

Conditions

3.1 EXECUTION

To conform to required trade practice, which shall be deemed to include those methods, practices and techniques contained in the Master Painters New Zealand Association Inc. Specification manual.

3.2 TREATED SURFACES

Where surfaces have been treated with preservatives or fire retardants, check with the treatment manufacturer that coating materials are compatible with the treatment and do not inhibit its performance. If they are not compatible, obtain instructions before proceeding.

3.3 BACK PAINTING

Co-ordinate with cladding and/or lining installer as to who will do the work and timing.

Exterior

For exterior cladding and trim that require on site finishing, paint the back and exposed bottom edges at the base of the cladding (generally, bottom plate overhang and horizontal flashings) to the manufacturer's requirements, but at least to 150mm up from base. Coating to match front finish, generally apply 2 coats or 1 coat if pre-primed.

Refer to appropriate exterior paint sections SELECTION clauses for claddings to be back painted.

Interior

For lining and trim that require on site finishing and/or back painting (usually wet areas), paint the back and exposed bottom edges at the base of the lining, to the manufacturer's requirements, but at least to 150mm up from base. Coating to match front finish, generally apply 2 coats or 1 coat if pre-primed, or if no front finish, seal to manufacturer's requirements.

Refer to appropriate interior paint sections SELECTION clauses for linings to be back painted.

3.4 ANCILLARY SURFACES

The descriptions of areas in schedules and elsewhere are of necessity simplified. Coat ancillary exposed surfaces to match similar or adjacent materials or areas, except where a fair-faced natural finish is required or items are completely prefinished. In cases of doubt obtain written instructions before proceeding.

3.5 HARDWARE

Do not paint hinges or hardware that cannot be removed. Before commencing work carefully remove hardware, fixtures and fittings, set aside where they cannot be damaged or misplaced and replace on completion. Refer to SELECTIONS for hardware, fixtures and fittings for removal.

3.6 PROTECTION

Supply, lay and fix drop sheets, coverings and masking necessary to protect adjoining, fixtures, fittings and spaces from paint drops, spots, spray and damage.

Application - preparatory work

3.7 SURFACE PREPARATION

Refer to the Resene Surface Information & Preparation Data Sheets (SIPDS) and product data manual for surface preparation sheets (or obtain them by phoning 0800 RESENE, or at www.resene.co.nz) listed in the materials systems schedule clauses. Carry out the preparatory work required by them for each of the substrates.

3.8 LEAD-BASED PAINT, ASBESTOS

Handle cautiously lead-based paint and asbestos, if present, as outlined in the Resene SIPDS Surface Information & Preparation Data Sheets 3:4B/3 Cement and Roofing Claddings containing asbestos or SIPDS Surface Information & Preparation Data Sheet 2:1/3 Note V Lead containing paints, and the Putting your safety first brochure.

3.9 SHARP EDGES, CRACKS AND HOLES

Remove and/or repair sharp edges, cracks and holes if present, as outlined in the preamble of the Resene One-Line specifications and product data manual.

Elastomeric sealants, if used, should not be painted. The paint film will not match the flexibility of the sealant and may severely limit its effectiveness.

3.10 REMEDIAL WORK

If any substrate or surface, that even with the preparation work called for in this section, cannot be brought up to a standard that will allow painting or clear finishing of the required standard then do not proceed until remedial work is carried out.

3.11 GAP FILLING

Make good cracks, holes, indented and damaged surfaces. Use suitable gap fillers to match the surface being prepared. Any special priming requirements of the fillers must be satisfied. Allow to dry or set before sanding back level with the surface. Prime or seal timber before using putty.

Exterior and wet areas: Use only Portland cement base or water-insoluble organic base gap fillers.

3.12 OFF-SITE WORK

Carry out this work under cover in a suitable environment with suitable lighting. Store items, both before and after coating, in a clean, dry area protected from the weather and mechanical damage, properly stacked and spaced to allow air circulation and to prevent sticking. Specific instructions for transport to site to avoid damage to the factory applied paint system may be required particularly for metallic top coat paints.

3.13 PRIMING JOINERY

Pre-treat any cut surfaces of preservative treated timber before priming. Ensure L.O.S.P. treated joinery has dried sufficiently to lose solvent odour. Pre-treat bare timber with Resene TimberLock (see Data Sheet D48) to improve the durability of subsequent coats.

Liberal coat end grain, allow to soak in and then recoat.

3.14 CONCEALED JOINERY SURFACES

Where off-site coatings are specified they must be applied to surfaces including those concealed when incorporated into the building.

3.15 CONCEALED METAL SURFACES

Apply primer to suit the coating system to surfaces which will be concealed when incorporated into the building.

3.16 EXTERNAL DOORS

Prime or seal and paint bottom edges before hanging.

3.17 BEAD GLAZING

Stained, varnished, or painted joinery to have the first two coats of a suitable primer and one undercoat, applied to rebates and beads before glazing.

3.18 PUTTY FRONTING - LINSEED GLAZING PUTTIES

According to the putty manufacturer's instructions allow putty to set, then prime with Resene Wood Primer (see Data Sheet D40) or Resene Enamel Undercoat (see Data Sheet D44). Fully protect the putty by completing the Resene coating system as soon as it is sufficiently firm.

Glazing putties not based on linseed oil to be over coated according to the putty manufacturer's instruction.

Application - generally

3.19 PAINTING GENERALLY

Comply with the Resene SIPDS Surface Information & Preparation Data Sheets or Resene One-Line specifications and product data manual data sheets and the additional requirements of this work section.

Ensure large wall areas that require more than one container of paint per coat, have enough paint boxed (mixed) together to complete the final coat. This will not apply if a single factory batch of paint, rather than shop tinted paint, is applied.

3.20 MIXING

Although generally supplied ready to use, all paints must be thoroughly mixed to lift any settled pigment and ensure the paint is homogeneous.

3.21 ENVIRONMENT

Defer painting of exterior surfaces until weather conditions are favourable - warm dry days without frost or heavy dews. Avoid painting in direct sunlight any surfaces that absorb heat excessively. As far as possible apply paint in the temperature range 15°C to 25°C. If temperatures fall outside the range of 10°C and 35°C do not paint unless paints with the necessary temperature tolerance have been specified. Resene Hot Weather Additive can be added to most Resene waterborne top coats to extend open time when application is undertaken at elevated temperatures or conditions that will cause rapid loss of water from the applied wet film. Do not apply solvent borne paint if moisture is present on the surface.

3.22 SEQUENCE OF OPERATIONS

Painting work to generally follow the following sequences:

- Back painting and pre-installation painting, then post-installation exposed-face painting
- Complete surface preparation before commencing painting.
- Apply primers, sealers, stains, undercoats, paints and clear coatings in the sequences laid down by Resene.
- Allow the full drying time between coats laid down by Resene.
- Do not expose primers, undercoats and intermediate coats beyond Resene's recommendations before applying the next coat.
- Finish broad areas before painting trim.
- Ensure batch numbers of tins are matched for whole areas.
- Internally, paint ceilings before walls and walls before joinery, trim and other items.

3.23 APPLICATION

Select brush, roller, or pad and apply coatings to the requirements of Resene to obtain a smooth, even coating of the specified thickness, uniform gloss and colour.

3.24 LIGHTLY SAND

Lightly sand primers, sealers, undercoats and intermediate coats to remove dust pick-up, protruding fibres and coarse particles. A more thorough sanding to provide a mechanical key for the new paint system may be required depending upon the condition or age of the existing paint system..

3.25 DEFECTIVE WORK

Correct defective work immediately and recoat as required, following precisely the Resene system being applied. The same applies to transportation damage to site of factory painted items.

3.26 EACH COAT

Each coat of paint and the completed paint system to have the following qualities and properties:

- Uniform finish, colour, texture, sheen and hiding power and the proper number of coats applied.
- No blemishes such as runs, sags, crinkling, fat edges, entrained paint skins, hairs, dust, bare or starved patches, cracks, significant brush marks, ladder marks and blistering.
- Proper covering of corners, crannies, thin edges, cracks, end grain and other difficult places of application.

Completion

3.27 CLEAN

Clean adjoining surfaces, glass and fittings of any paint contamination. Clean off glass indicators at the completion of the building works. Clean glass inside and out to a shining finish. Use the Resene Washwise on site 'paint equipment clean-up water' reclamation system to minimise the environmental impact of cleaning paint application tools.

3.28 LEAVE

Leave the whole of this work uniform in gloss and colour, of correct thickness, free from painting defects, clean and unmarked and to the standard required by following procedures.

3.29 REMOVE

Remove drop sheets, coverings and masking to leave surrounding surfaces and areas clean, tidy and undamaged. Remove debris, unused materials and elements from the site.

3.30 REPLACE

Replace hardware without damage to it or the adjoining surface and leave hardware properly fitted and in working order.

3.31 DISPOSAL OF PAINTS AND THINNERS

Note: The use and disposal of paint and thinners represents a significant environmental hazard. Ensure all paint and thinners are disposed of in the following manner:

- When requested hand over part used paint containers to client for maintenance touch ups.
- Recycle leftover paint at a Resene ColorShop as part of the Resene "Paintwise programme". Contact your local Resene ColorShop for details or view information online at www.resene.co.nz/paintwise.htm.
- Donate left over paint to local community groups.
- Solvent based paints, paint thinners, turpentine, mineral spirits and solvents require special disposal procedures. Do not pour down sewer or stormwater drains, sinks or into the ground. If they cannot be recycled they must be disposed of in a refuse dump licensed to take toxic waste.

3.32 MAINTENANCE

Good maintenance of coating systems involves a routine of regular cleaning as well as regular inspections. Regular inspections of the coating systems are recommended to identify breakdown, accidental damage to or undesirable deterioration of the paint.

Wash down of exterior coatings should be undertaken on an annual basis using Resene Paint Prep and Housewash (see Data Sheet D812).

Refer the Resene Caring for your paint finish brochure and the Resene website, www.resene.co.nz/comn/services/maintenance.htm.

4 SELECTIONS**4.1 SELECTIONS**

Refer to 6711R RESENE PAINTING EXTERIOR and 6721R RESENE PAINTING INTERIOR for selections.

Refer to 6711RE RESENE ENVIRONMENTAL PAINTING EXTERIOR and 6721RE RESENE ENVIRONMENTAL PAINTING INTERIOR for selections.

6711R RESENE PAINTING EXTERIOR

1 GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing exterior substrates using **Resene** architectural and decorative coating systems.

Related work

1.1 RELATED WORK

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.
Refer to 6721R RESENE PAINTING INTERIOR for interior paint systems.
Refer to 6721RE RESENE ENVIRONMENTAL PAINTING INTERIOR for interior paint systems.

2 PRODUCTS

Materials

2.1 PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES

Refer to 6700R RESENE PAINTING GENERAL for product clauses.

3 EXECUTION

Conditions

3.1 EXECUTION

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

4 SELECTIONS

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

Paint system schedules

Resene exterior paint systems

Exterior cementitious - new

4.1 RESENE NEW EXTERIOR IN-SITU CONCRETE – WEATHERTIGHT MEMBRANE

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 3/1
1st coat	Resene Concrete Primer D405, Acrylic Concrete Primer
2nd coat:	Resene X-200 D62, Acrylic Weathertight Membrane
3rd coat:	Resene X-200 D62, Acrylic Weathertight Membrane

4.2 RESENE NEW EXTERIOR CONCRETE BLOCK/MASONRY- WEATHERTIGHT MEMBRANE

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 2/1
1st coat	Resene X-200 D62, Acrylic Weathertight Membrane
2nd coat:	Resene X-200 D62, Acrylic Weathertight Membrane
3rd coat:	Resene X-200 D62, Acrylic Weathertight Membrane

Exterior cementitious - existing

4.3 RESENE EXISTING EXTERIOR CONCRETE BLOCK/MASONRY

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 2/3
Spot prime:	Resene Sureseal D42, Solvent borne pigment sealer (NEC)
1st coat	Resene Lumbersider D34, Low Sheen Acrylic
2nd coat:	Resene Lumbersider D34, Low Sheen Acrylic

Exterior timber - new

4.4 RESENE NEW EXTERIOR TIMBER, WEATHERBOARDS - FACTORY PRIMED

Surface Prep:	Resene SIPDS No2 and Spec Sheet 2: 2/1
1st coat:	Resene Wood Primer D40, Solvent-borne Primer (NEC)
2nd coat:	Resene Sonyx 101 D30, Semi-Gloss Acrylic
3rd coat:	Resene Sonyx 101 D30, Semi-Gloss Acrylic

4.5 RESENE NEW EXTERIOR PINE TIMBER DECK

Surface Prep:	Resene SIPDS No2 and Spec Sheet 2: 6/1
1st coat:	Resene Wood Primer D40, Solvent-borne Primer (NEC)
2nd coat:	Resene Walk-On Flooring & Paving Paint – D322, Waterborne
3rd coat:	Resene Walk-On Flooring & Paving Paint – D322, Waterborne

Exterior timber - existing**4.6 RESENE EXISTING EXTERIOR TIMBER, PLYWOOD, WEATHERBOARDS**

Surface Prep:	Resene SIPDS No2 and Spec Sheet 2: 1/3
Spot Prime:	Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat
1st coat:	Resene Sonyx 101 D30, Semi-Gloss Acrylic
2nd coat:	Resene Sonyx 101 D30, Semi-Gloss Acrylic

4.7 RESENE EXISTING EXTERIOR PINE DECK

Surface Prep:	Resene SIPDS No2 and Spec Sheet 2: 6/3
Spot Prime:	Resene Wood Primer D40, Solvent-borne Primer (NEC)
1st coat:	Resene Walk-On Flooring & Paving Paint – D322, Waterborne
2nd coat:	Resene Walk-On Flooring & Paving Paint – D322, Waterborne

Exterior fibre cement cladding - new**4.8 RESENE NEW EXTERIOR FIBRE CEMENT CLADDING**

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 4/1
1st coat:	Resene Concrete Primer D405, Acrylic Concrete Primer (NEC)
2nd coat:	Resene Lumbersider D34, Low Sheen Acrylic
3rd coat:	Resene Lumbersider D34, Low Sheen Acrylic

4.9 RESENE NEW EXTERIOR FIBRE CEMENT SOFFITS

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 4/1
1st coat:	Resene Concrete Primer D405, Acrylic Concrete Primer
2nd coat:	Resene Sonyx 101 D30, Semi-Gloss Acrylic
3rd coat:	Resene Sonyx 101 D30, Semi-Gloss Acrylic

Exterior fibre cement cladding - existing**4.10 RESENE EXISTING EXTERIOR FIBRE CEMENT CLADDING**

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 4/3
Spot Prime:	Resene Concrete Primer D405, Acrylic Concrete Primer
1st coat:	Resene Lumbersider D34, Low Sheen Acrylic
2nd coat:	Resene Lumbersider D34, Low Sheen Acrylic

4.11 RESENE EXISTING EXTERIOR FIBRE CEMENT SOFFITS

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 4/3
Spot Prime:	Resene Concrete Primer D405, Acrylic Concrete Primer
1st coat:	Resene Sonyx 101 D30, Semi-Gloss Acrylic
2nd coat:	Resene Sonyx 101 D30, Semi-Gloss Acrylic

6721R RESENE PAINTING INTERIOR

1 GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing interior substrates using **Resene** architectural and decorative coating systems.

Related work

1.1 RELATED WORK

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.

Refer to 6711R RESENE PAINTING EXTERIOR for exterior paint systems.

Refer to 6711RE RESENE ENVIRONMENTAL PAINTING EXTERIOR for exterior paint systems.

2 PRODUCTS

Materials

2.1 PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES

Refer to 6700R RESENE PAINTING GENERAL for product clauses.

3 EXECUTION

Conditions

3.1 EXECUTION

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

4 SELECTIONS

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

4.1 HARDWARE

Hardware for removal: Door Hardware

Resene interior paint systems

Plasterboard - new

4.2 RESENE NEW INTERIOR PLASTERBOARD, WALLS - DRY AREAS (LEVEL 4 FINISH)

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating:	Group 1-S. Test Report FH4967
1st coat	Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen
3rd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen

4.3 RESENE NEW INTERIOR PLASTERBOARD, WALLS - WET AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1A: 1/1
Fire rating:	Group 1-S. Test Report 7-593235-CO
1st coat:	Resene Sureseal D42, solvent-borne Pigmented Sealer (NEC)
2nd coat:	Resene SpaceCote Low Sheen Kitchen & Bathroom D311K Waterborne Enamel
3rd coat:	Resene SpaceCote Low Sheen Kitchen & Bathroom D311K Waterborne Enamel

4.4 RESENE NEW INTERIOR PLASTERBOARD, CEILINGS - DRY AREAS (LEVEL 4 FINISH)

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating:	Group 1-S, Test Report FH4967
1st coat:	Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat:	Resene Ceiling Paint D305, Waterborne Flat
3rd coat:	Resene Ceiling Paint D305, Waterborne Flat

Where durable easily cleaned coating is required substitute 2nd & 3rd coats with:

4.5 RESENE NEW INTERIOR PLASTERBOARD, CEILINGS - WET AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1A: 1/1
Fire rating:	Group 1-S, Test Report 7-593235-CO
1st coat:	Resene Sureseal D42, solvent-borne Pigmented Sealer (NEC)
2nd coat:	Resene SpaceCote Flat Kitchen & Bathroom D314K, Waterborne Enamel
3rd coat:	Resene SpaceCote Flat Kitchen & Bathroom D314K, Waterborne Enamel

Plasterboard - existing**4.6 RESENE EXISTING INTERIOR PLASTERBOARD, WALLS - DRY AREAS**

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/3
Spot Prime:	Resene Broadwall D403, Waterborne Wallboard Sealer
1st coat:	Resene Zylone Sheen D302, Waterborne Low Sheen
2nd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen

4.7 RESENE EXISTING INTERIOR PLASTERBOARD, WALLS - WET AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1A: 1/3
Spot Prime:	Resene Sureseal D42, solvent-borne Pigmented Sealer (NEC)
1st coat:	Resene SpaceCote Low Sheen Kitchen & Bathroom D311K, Waterborne Enamel
2nd coat:	Resene SpaceCote Low Sheen Kitchen & Bathroom D311K, Waterborne Enamel

4.8 RESENE EXISTING INTERIOR PLASTERBOARD, CEILINGS - DRY AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/3
Spot Prime:	Resene Broadwall D403, Waterborne Wallboard Sealer
1st coat:	Resene Ceiling Paint D305, Waterborne Flat
2nd coat:	Resene Ceiling Paint D305, Waterborne Flat

4.9 RESENE EXISTING INTERIOR PLASTERBOARD, CEILINGS - WET AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1A: 1/3
Spot Prime:	Resene Sureseal D42, solvent-borne Pigmented Sealer (NEC)
1st coat:	Resene SpaceCote Flat Kitchen & Bathroom D314K, Waterborne Enamel
2nd coat:	Resene SpaceCote Flat Kitchen & Bathroom D314K, Waterborne Enamel

Interior timber - new**4.10 RESENE NEW INTERIOR TIMBER JOINERY - SKIRTING**

Surface Prep:	Resene SIPDS No2 and Spec Sheet 2: 9/1
1st coat:	Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat
2nd coat:	Resene Lustacryl D310, Waterborne Enamel
3rd coat:	Resene Lustacryl D310, Waterborne Enamel

Interior timber - existing

4.11 RESENE EXISTING INTERIOR TIMBER JOINERY, SKIRTING

Surface Prep:	Resene SIPDS No2 and Spec Sheet 2: 9/3
Spot Prime:	Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat
1st coat:	Resene Lustacryl D310, Waterborne Enamel
2nd coat:	Resene Lustacryl D310, Waterborne Enamel

Note: This section assumes the existing coating is enamel (which must be thoroughly abraded)

7123KP KEMPEX HOT & COLD WATER SYSTEM

1 GENERAL

This section relates to the KemPex PEX Hot and Cold Water Piping Systems from **MM Kembla NZ Ltd** (hereafter referred to as Kembla), for domestic, commercial and industrial applications.

It includes:

- KemPex PEX piped cold water distribution from the network utility supply authority water main to designated points and appliances
- KemPex PEX piped hot water distribution to other appliances and the installation of hot water heating appliances, the installation of valves and other accessory items to complete the system
- KemPress™ Copper piped hot water distribution pipe work for hot water re-circulating systems and larger diameter pipe sizes, the installation of valves, pipe clamps, pipe insulation and other accessory items to complete the piping system
- Flow and return KemPress™ Copper piping to any solar water heating system or uncontrolled heat source (e.g. wood fired), and around hot water cylinders for a minimum of 1metre prior to the installation of the KemPex piping system. Refer to Kembla for the connection fitting systems.

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
NZBC H1/AS1	Energy Efficiency
AS 1432	Copper tubes for plumbing, gas fitting and drainage applications
AS 1530.3	Method for fire tests on building materials, components and structures - Simultaneous determination of ignitability, flame propagation, heat release and smoke release
AS/NZS 2492	Cross-linked polyethylene (PE-X) pipes for pressure applications
AS/NZS 2537.2	Mechanical joining fittings for use with cross linked Polyethylene (PE-X) for pressure applications - Plastics piping systems for hot and cold water installations - Cross linked Polyethylene (PE-X) - Fittings
AS/NZS 2845.1	Water supply - Backflow prevention devices - Materials, design and performance requirements
AS 2845.3	Water supply - Backflow prevention devices - Field testing and maintenance
AS/NZS 3500.1:2015	Plumbing and drainage - Water services
AS/NZS 3500.4:2015	Plumbing and drainage - Heated water services
AS/NZS 3500.5	Plumbing and drainage - Housing installations
AS 3688	Water supply and gas systems - Metallic fittings and end connectors
NZS 4305	Energy efficiency domestic type hot water systems
NZS 4607	Installation of thermal storage electric water heaters: valve vented Systems
NZS 4617	Tempering (3-port mixing) valves
AS/NZS 4859.1	Materials for the thermal insulation of buildings - General criteria and technical provisions
AS/NZS 5601.1	Gas installations - general installations
SAI Global	Watermark Certificate WMK 25757 - KemPex Pipe
SAI Global	Watermark Certificate WMK 25717 - KemPex Fittings
SAI Global	Watermark Certificate WMK A0945 - KemPress™ AS 1432 Copper Tube
Australian Cert Services Watermark Certificate 23087 - KemPress™ Copper Fittings	
Gas (Safety and Measurement) Regulations 2010	
Plumbers, Gasfitters and Drainlayers Act 2006	
NZ Backflow Testing Standard:	NZ Backflow Testing Standard 2011, Field testing of backflow prevention devices and verification of air gaps

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

- KemPex Slide™ (Sliding Sleeve) Product Catalogue
- KemPex Crimp™ (Copper Crimp) Product Catalogue
- KemPress™ Copper Press Fit Design & Installation Guide
- Kembla Plumbers Handbook

Manufacturer/supplier contact details

Company: **MM Kembla NZ Ltd**
 Web: www.kembla.co.nz
 Email: sales@kembla.co.nz
 Telephone: 09 274 0111

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Kembla warrants that the KemPex and KemPress™ pipe fitting systems are free from manufacturing defects, including materials and workmanship, and are suitable for use in potable hot and cold water systems (Black Pex), underfloor central heating (Pink Pex), recycled water (Lilac Pex) and rainwater (Green Pex) for a period of 25 years, with the following conditions:

- KemPex and KemPress™ products must be inspected by the installer on site before installation to determine that no damage has occurred whilst in transit, stored or during installation.
- KemPex and KemPress™ products have been installed in strict accordance with the manufacturer's documents, copies of which are available from all Kembla distributors together with the practices and procedures contained in [AS/NZS 3500.1](#), [AS/NZS 3500.4](#), [AS/NZS 3500.5](#).

Warranty period: 25 years, against faults caused by defective manufacture of the KemPex and KemPress™ tube and fittings (does not cover faults arising from incorrect installation)

From: Date of completion of system testing.

Requirements

1.5 TRAINING & SITE SUPPORT

Kembla requires that prior to any work undertaken on site the appropriate training shall be carried out by one of Kembla's qualified trainers. KemPex and KemPress® Certificates of Training are issued to each trained installer.

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified KemPex and KemPress™ brand products, components or accessories.

1.7 QUALIFICATIONS

Installers to be experience competent trades people, 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

Pipework layouts to be in accordance with the manufacturer's documents and with [AS/NZS 3500.1](#) and [AS/NZS 3500.4](#), or [NZBC G12/AS1](#).

1.9 DURABILITY

To achieve a durability of 50 years, the design and installation work covered by this part of the specification must comply with [NZBC B2/AS1](#), table 1.

Performance

1.10 SYSTEM DESIGN

Planning, installation and commissioning to comply with [AS/NZS 3500.1](#), [AS/NZS 3500.4](#), [AS/NZS 3500.5](#) and to KemPex and KemPress™ technical information. Size the pipe branches and straight runs to deliver the acceptable flow rate at each outlet to [NZBC G12/AS1](#): Water supplies, table 3, acceptable flow rates to sanitary fixtures. Allow for the expected concurrent use of adjoining fixtures and size the piping layout to eliminate loss of pressure at any point by simultaneous draw off.

1.11 TESTING

Testing method and compliance to [AS/NZS 3500.1](#), section 18. Supply potable water and the apparatus needed. Flush system of all foreign material, pressure test the water filled system (without air pockets) at 1500kPa for 30 minutes.

2 PRODUCTS

Materials

2.1 KEMPEX PE-XA PN20 POLYETHYLENE PIPE

To [AS/NZS 2492](#), cross-linked HD Polyethylene, designated as PE-Xa, complete with dezincification resistant (DZR) brass fittings to AS 3688 and accessories brand matched to the pipe manufacturer's requirements with durability to [NZBC B2/AS1](#), table 1 and [NZBC G12/AS1](#), table 1.

KemPex hot and cold water pipes are suitable for use in potable water and heating, in residential and commercial applications. The working pressure and temperature for the KemPex is 1 MPa or 10 bar at 70°C. The maximum short-term temperature in case of malfunction is 100°C. Hot water systems to operate with a tempering valve to limit the maximum operating pressure of 10 bars at 70°C for a period of 50 years for the PN20 PE-Xa system.

KemPex piping classified as follows:

KemPex Black	PE-Xa with an outer black PE layer for UV protection for hot and cold water services
KemPex Conduit	PE-Xa Black pipe in plastic HDPE conduit allows for easy removal of the pipe when installed under a concrete slab and for long term UV protection
KemPex Lilac	PE-Xa with a Lilac PE layer to identify for re-cycled water systems
KemPex Pink	PE-Xa with an oxygen layer for underfloor heating, cooling and central heating systems
KemPex Green	PE-Xa with a Green PE layer to identify for rainwater systems

KemPex carries the SAI Global Watermark Certificate WMK 25757 for KemPex Pipe and WMK 25717 for KemPex Fittings.

2.2 FITTINGS

KemPex DZR brass sliding sleeve and copper crimp fittings are made of forged brass to AS 3688 and comply with [AS/NZS 2537.2](#)

2.3 FIXINGS AND TOOLS

Brackets, clips and KemPex and KemPress™ battery tools complete with accessories are available for system installation.

Materials - hot water heating appliances

2.4 ELECTRIC HOT WATER CYLINDER, MAINS PRESSURE

To [NZS 4305](#), ceramic-coated steel thermal storage cylinder, insulated and complete with required fittings.

Components

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 TEMPERING VALVE

Tempering valve to [NZS 4617](#) and to [NZBC G12/AS1](#): Water supplies.

2.7 PIPE INSULATION

Kembla K-Flex Pipe Insulation, a closed cell Nitrile rubber insulation material that meets the NZ Building Code fire requirements to AS 1530.3 and [AS/NZS 4859.1](#). Kembla pipe insulation is sized to specifically fit the KemPress™ AS 1432 Copper tube outside tube diameters as a complete system to [NZBC H1/AS1](#) and to [AS/NZS 3500.4](#), section 8 Energy efficiency.

2.8 PROTECTIVE TAPE

Kembla K-Flex Pipe Insulation tape for valves and protective PVC or Duct tape system and the petroleum based DENSO tape.

2.9 SEALANT

BRANZ appraised modified MS neutral cure sealant.

2.10 FIXINGS AND SUPPORT

KemPex and KemPress™ pipe clips and pipe supports are specifically sized to the outside diameter of the PE-Xa and AS 1432 Type B copper pipe, hinged or two bolt pipe clamps including protective EPDM insert. For pipe support spacing and system installation refer to manufacturer's literature and [AS/NZS 3500.1](#).

3 EXECUTION

Conditions

3.1 HANDLE AND STORE

Handle and store pipes, fittings and accessories to avoid damage. Store on site, under cover out of direct UV radiation, stacked to eliminate movement and away from work in progress.

Store fittings and tapware in a shelved, dry and securely locked area. Retain tapware in the manufacturer's original packaging, complete with all fixings and installation instructions. Label each unit separately with its space/fixture number to match.

3.2 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 CONCEALED

Concealed pipework within the fabric of the building unless detailed otherwise.

3.4 PIPE PROTECTION

Pipework to be protected by shielding with a suitable protective sleeve, timber or metal, where there is the possibility of penetration by a mechanically driven fixing.

3.5 IN GROUND PIPE INSTALLATION

The requirements of [AS/NZS 3500.1](#), [AS/NZS 3500.4](#), [AS/NZS 3500.5](#) for below ground installations to be followed. Fittings must be adequately protected with an inert water proof material. In soil conditions in which chemical attack or permeation is possible, a suitable protective sleeve must be installed using KemPex Conduit.

3.6 UV PROTECTION FOR INSTALLED PIPEWORK

UV radiation (e.g. sunlight or some types of fluorescent lights) may damage the PE-Xa pipes. Pipes installed in areas where they could be exposed to UV radiation must be completely covered to protect them, e.g. by using a protective sleeve such as Kempex Conduit. Copper tube does not require UV protection.

3.7 CORROSION

Separate all metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, taping, or separator strips.

3.8 THERMAL MOVEMENT

Accommodate movement in pipes resulting from temperature change through the layout of the pipe runs, expansion joints and by installing sleeving through penetrations using the KemPex Conduit system. For long runs in the hot water service an offset bend or an expansion joint may be required. Refer to Kembla for details.

3.9 PIPE SIZE

Flow rates to each outlet to be no less than those given in [AS/NZS 3500.1](#) and [NZBC G12/AS1](#): Water supplies, table 3, Acceptable flow rates to sanitary fixtures. Pipe size as determined in table 4, Tempering valve and nominal pipe diameters or for Manifold Eco - Flow system IRC 2003.

Application - jointing

3.10 JOINING KEMPEX PE-XA PIPE

Seal joints by sliding the brass sleeve over the joint with an axial press tool or by crimping copper to brass fittings to [NZBC G12/AS1](#), depending on the fitting system selected. Refer to SELECTIONS for preferred jointing system.

3.11 JOINING KEMPRESS™ COPPER PIPE

Seal joints by inserting the copper tube into the copper press fit fittings which has an o ring sealing element and press together using a hydraulic battery tool. The press tool is specifically designed and manufactured for securing the press fit products onto the pipe. Refer to SELECTIONS for preferred jointing system.

3.12 CONNECTION TO OTHER PIPE SYSTEMS

When connecting to other pipe systems use either a flange for large sizes or a threaded connection to provide a clear separation between both systems.

Application - pipework installation

3.13 POTABLE WATER SUPPLY PIPEWORK INSTALLATION

To [AS/NZS 3500.1](#). From connection point, run pipes complete with all fittings, supports and fixings and join in accordance with the manufacturer's documents. Pipework support spacing to be firmly fixed and buffered to eliminate noise and water hammer, complete with KemPex fittings and necessary valves. Conceal pipework and pressure test before the wall linings are fixed.

Do not install PE-Xa cross linked polyethylene pipe for flow and return piping to any solar water heating system. Use the KemPress™ Copper around hot water cylinders and for all Solar and uncontrolled heat sources (e.g. wood fired heaters) use Kembla compression fittings with copper olives. Refer to Kembla.

3.14 HOT WATER PIPEWORK

To [AS/NZS 3500.4](#). Use a take-off spigot to give separate branches to each fitting, lay out pipes with support spacing to [AS/NZS 3500.4](#) and [NZBC G12/AS1](#), table 7 Water supply pipework support spacing. Pipework support spacing to be firmly fixed and buffered to eliminate noise and water hammer, complete with KemPex fittings and necessary valves. Lag all pipes with rigid or flexible pipe insulation to the manufacturer's requirements, [AS/NZS 3500.4](#) and [NZBC G12/AS1](#).

3.15 EQUIPOTENTIAL BONDING

Earth metallic water supply pipe and metallic sanitary fixtures to [NZBC G12/AS1](#), 9.0.

Application - hot water systems

3.16 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](#). Install KemPress™ Copper around the hot water cylinder to a minimum of 1 metre prior to the installation of the KemPex piping system.

3.17 SEISMIC RESTRAINTS - NON-GAS WATER HEATING APPLIANCES

For non-gas appliances [NZBC G12/AS1](#) provides restraint options, one option for storage cylinders of up to 360 litres, is [NZBC G12/AS1](#), figure 14, which is an easily understood solution.

3.18 INSTALL TEMPERING VALVE

Install one metre minimum from outlet of hot water cylinder and to manufacturer's instructions.

Installation - tapware

3.19 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.

3.20 INSTALLING TAPWARE

Install tapware supplied under 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES. Install in accordance with the manufacturer's requirements.

Completion

3.21 LABEL

Label all pipework with permanent adhesive markers at 3 metre minimum intervals.

- 3.22 **REPLACE**
Replace damaged or marked elements.
- 3.23 **LEAVE**
Leave work to the standard required by following procedures.
- 3.24 **REMOVE**
Remove debris, unused materials and building elements from the site.

4 **SELECTIONS**

For further details on selections go to www.kembla.co.nz
Substitutions are not permitted to the following, unless stated otherwise.

Pipework

- 4.1 **KEMPEX PE-XA CROSS-LINKED POLYETHYLENE PLUMBING WATER SYSTEM**
Brand: KemPex - Black
Pipe sizes: 25mm OD
- 4.2 **KEMPEX DZR BRASS JOINING SYSTEM**
Type: KemPex Slide™ or KemPex Crimp™ fitting
- 4.3 **KEMPRESS™ PRESS FIT COPPER PIPES**
Manufacturer:: MM Kembla NZ Ltd
Brand: Kempress™
Type: Press-Fit Copper
Accessories: Kembla AVG Valves, Pipe Clamps, Insulation
Exposed pipe: Chrome plated copper pipe
- 4.4 **PIPEWORK FLEXIBLE INSULATION**
Brand: Kembla K-Flex
Material: Nitrile Flexible Foam
Wall thickness: 13mm
Finish: Black

Hot water systems

- 4.5 **ELECTRIC HOT WATER CYLINDER, MAINS PRESSURE**
Brand: Existing
Model size: Existing

Valves and accessories

- 4.6 **MAIN ISOLATING VALVE**
Location: Existing
Brand/type: Existing
- 4.7 **APPLIANCE ISOLATING VALVES - EXPOSED**
Appliance: Washing machine
Brand/type: Refer to tapware selections
- 4.8 **TEMPERING VALVE**
Location: Existing
Brand/type: Existing

7421MO MARLEY OPTIM DWV SANITARY SYSTEM

1 GENERAL

This section relates to the supply and laying of **Marley New Zealand Limited** above ground gravity flow PVC-U sanitary systems for residential and commercial applications.

It includes:

- foul water
- sanitary fixtures to first underground drain connection
- system wastes, floor wastes, floor waste gullies, traps, vents and valves
- associated components and accessories to make the system work.

1.1 RELATED WORK

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures.

Refer to 7123 HOT AND COLD WATER SYSTEM for potable water systems.

Refer to 7420MD MARLEY DBLUE® ACOUSTIC SANITARY SYSTEM for acoustic sanitary system.

Refer to 7142 GREYWATER SYSTEMS for greywater systems.

Documents

1.2 DOCUMENTS

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

NZBC G1/AS1	Personal hygiene
NZBC G13/AS1	Foul water - Sanitary plumbing
AS 2887	Plastic waste fittings
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent applications
AS/NZS 1462.22	Methods for test for plastic pipes and fittings - Method 22: Method for determination of pipe stiffness
AS/NZS 1462.3	Methods for test for plastic pipes and fittings - Method for determining the impact characteristics of pipes
AS/NZS 2032	Installation of PVC pipe systems
AS/NZS 3500.2:2015	Plumbing and drainage - Sanitary plumbing and drainage
Plumbers, Gasfitters and Drainlayers Act 2006	

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Marley OPTIM DWV Technical Design Manual

Marley Material Safety Data Sheets

Manufacturer/supplier contact details

Company: **Marley New Zealand Limited**

Web: www.marley.co.nz

Email: guyy@marley.co.nz

Telephone: 09 279 2799

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years: For defects in materials and manufacture
Refer to Marley New Zealand Ltd for warranty conditions and details

- Provide this warranty on Marley New Zealand Ltd standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

1.5 WARRANTY - INSTALLER

Provide an installer warranty:

2 years: For installation

- Provide this warranty on the installer 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**

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](#).

1.7 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.8 AS BUILT DOCUMENTS

Refer to the general section 1238 AS BUILT DOCUMENTATION for the requirements for submission and review of as built documents and records.

Provide the following as built documents and records:
Stormwater and Sewer Drainage

- Provide draft as built information prior to practical completion.
- Provide final as built information prior to the end of the defects liability period.

Compliance information**1.9 INFORMATION REQUIRED FOR CODE COMPLIANCE**

Provide the following compliance documentation: -

- Installer's approval certificate from the manufacturer / importer / distributor
- Manufacturer's, importer's or distributor's Certificate of Conformance
- Installer's warranty
- Producer Statement - Construction from the installer
- Producer Statement - Construction Review from an acceptable suitably qualified person
- Other information required by the BCA in the Building Consent Approval documents.

Performance**1.10 TESTING**

Confirm timing before carrying out any tests. Supply potable water and apparatus needed. Seal openings below the section being tested and slowly raise the water level to a minimum of 3 metres above the highest point of the section. Do not exceed 6 metres of head above the lowest point. Carry out and record a visual inspection that each joint showed no evidence of leaks.

2 PRODUCTS**Materials****2.1 PVC-U DWV PIPEWORK - RESIDENTIAL**

Marley PVC-U DWV pipework comprised of unplasticised PVC waste pipes, traps and fittings manufactured to [AS/NZS 1260](#), tested to AS/NZS 1462.22 and AS/NZS 1462.3, and compliant with [AS/NZS 3500.2](#). Available in a range of pipe types with nominal size DN20 to DN150 and stiffness class SN4 and SN6. Refer to SELECTIONS for options.

2.2 PVC-U VENT PIPES

Marley PVC-U vent pipes comprised of unplasticised PVC including fittings and accessories manufactured to [AS/NZS 1260](#), tested to AS/NZS 1462.22 and AS/NZS 1462.3, and compliant with [AS/NZS 3500.2](#). Available in a range of pipe types with nominal size DN 40 to DN 100 and stiffness class SN4 to SN10. Refer to SELECTIONS for options.

2.3 EXPOSED PIPES AND TRAPS - CHROME

To [AS/NZS 3500.2](#). Satin chrome plated exposed pipes, traps and wastes including all associated fittings refer to SELECTIONS.

2.4 FLOOR WASTE

Vinyl Rite Floor Waste System, with solvent joint and standard white PVC grate. Available in a range sizes and grate types, refer to SELECTIONS for options.

2.5 GULLY TRAP

Refer to 7461 FOUL WATER DRAINAGE for gully traps.

Components**2.6 PROTECTIVE TAPE**

Plasticised PVC tape system with primer, mastic fixing and outer coating.

3 EXECUTION**Conditions****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 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.

3.4 SETTING OUT

Set out location of all stacks, discharge pipes, fittings and vent pipes and the completeness of their discharge into the drainage system.

3.5 CORE HOLES AND SLEEVES

Fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Sleeve diameter to be 25mm larger than outside diameter of pipe accommodated. Strip core holes and make good after installation of pipework.

3.6 PIPE ACCESS

Fit and fix stacks, wastes and pipes in ducts independent of all other services so they are easily replaceable for their full length. Wrap or tape pipes buried in concrete.

3.7 FITTINGS ACCESS

Fit and fix traps and wastes to enable access for cleaning and for maintaining the total system.

3.8 CONFIRM LOCATION

Unless the location and height are clearly delineated on the drawings, confirm installation height and plan locations of sanitary fittings before commencing the piping installation.

3.9 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.

Installation - traps and wastes**3.10 TRAPS AND WASTES - CONCEALED**

Conceal traps and wastes in the fabric of the building in accordance with manufacturer's requirements.

3.11 TRAPS AND WASTES - EXPOSED CHROME

Fit and fix satin chrome plated exposed pipes, traps and wastes in accordance with manufacturer's requirements.

3.12 INSTALL GULLY TRAPS

Refer to 7461 FOUL WATER DRAINAGE for installation of gully traps.

Installation - jointing**3.13 JOINTING PVC-U PIPE - SOLVENT WELDED JOINTS**

Prime and solvent weld joints using spigots and sockets to Marley requirements. Jointing to be in accordance with Marley OPTIM DWV jointing procedures as shown in the Marley OPTIM technical manual.

Installation - fixing**3.14 THERMAL MOVEMENT**

Accommodate longitudinal movement in pipes resulting from temperature changes. Incorporate expansion joints in PVC-U pipes. Install PVC pipes to [AS/NZS 2032](#). Take particular care to allow for movement at horizontal take-off locations from stacks.

3.15 TRAPS AND FIXTURE DISCHARGE PIPES

Size traps and pipes as required for each fixture or appliance. Establish the developed length of waste pipes. Vent and allow access for cleaning as required. Follow the most direct line with the least number of bends to [NZBC G13/AS1](#): Foul water sanitary plumbing, table 4, Discharge unit loading for stacks and graded discharge pipes and table 7, Distance between supports.

3.16 DISCHARGE STACKS AND VENTS

Size stacks and vents to [NZBC G13/AS1](#): Foul water sanitary plumbing, table 2, Fixture discharge pipe sizes and discharge units and table 6, Vent pipe sizes. Extend up past the highest branch to form a discharge stack vent terminating to [NZBC G13/AS1](#): Foul water sanitary plumbing, figure 12 and finishing at the base with a 45 degree bend. Support system to [NZBC G13/AS1](#): Foul water sanitary plumbing, table 7, Distances between supports.

Completion**3.17 ROUTINE CLEANING**

Carry out routine trade cleaning of this part of the work including periodic removal of all debris, unused materials and elements from the site.

3.18 DEFECTIVE OR DAMAGED WORK

Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable.

Commissioning**3.19 TESTING**

Pre-test all pipework during construction. On completion of the work and before approval for acceptance of the pipework, carry out a final test to the approval of the engineer and if required witnessed by the representative of the territorial authority.

4 SELECTIONS

For further details on selections go to www.marley.co.nz
Substitutions are not permitted to the following, unless stated otherwise.

Materials - sanitary systems**4.1 MARLEY PVC DWV PIPEWORK, RESIDENTIAL**

Location:	Sewer and Stormwater Drains
Manufacturer:	Marley New Zealand Limited
Pipe brand/type:	Marley Optim
Pipe diameter:	32-100mm
Jointing:	Solvent
Stiffness class:	SN4
Fittings:	Marley~

4.2 MARLEY PVC-U VENT PIPE

Location:	Ensuite
Manufacturer:	Marley New Zealand Limited
Pipe brand/type:	Marley Optim
Pipe diameter:	80mm
Jointing:	Solvent
Stiffness class:	SN4
Fittings:	Marley Optim

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 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

CFL	compact fluorescent lamp
ELV	extra low voltage
GLS	general lighting service
IP	international (ingress) protection classification
LCD	liquid crystal display
LED	light emitting diode
MCB	miniature circuit breaker
NUO	Network Utility Operator
PCB	printed circuit board
PIR	passive infrared
RCBO	residual current-operated circuit breaker with over current protection
RCCB	residual current-operated circuit breakers
RCD	residual current device
SIA	security integration architecture
TPS	tough plastic sheathed
TCF	Telecommunications Carriers' Forum

Documents

1.2 DOCUMENTS

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

NZBC E2/AS1	External moisture
NZBC F6/AS1	Visibility in escape routes
NZBC F7/AS1	Warning systems
NZBC G4/AS1	Ventilation
AS/NZS 1125	Conductors in insulated electric cables and flexible cord
AS/NZS 1768	Lightning protection
AS/NZS 2201.1	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
AS 2293.1:2005	Emergency escape lighting and exit signs for buildings - System design, installation and operation
AS 2293.3:2005	Emergency escape lighting and exit signs for buildings - Emergency escape luminaires and exit signs
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3008.1.2	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical New Zealand installation conditions
AS/NZS 3100:2009	Approval and test specification-general requirements for electrical equipment
AS/NZS 3112	Approval and test specification - Plugs and socket-outlets
AS/NZS 3113	Approval and test specification - Ceiling roses
AS/NZS 3190	Approval and test specification - Residual current devices (current-operated earth-leakage devices)
AS/NZS 3439.3	Low-voltage switchgear and controlgear assemblies - Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards
AS 3786	Smoke alarms
NZS 4514	Interconnected smoke alarms for houses
AS/NZS 5000.2	Electric cables - Polymeric insulated - for working voltages up to and including 450/750v
AS/NZS 60335.1	Household and similar electrical appliances - Safety - General requirements
AS/NZS 60598.2.2:2001	Luminaires - Particular requirements - Recessed luminaires
IEC 61643	Components for low voltage surge protection devices
Electricity (Safety) Regulations 2010 (Reprint as at 4 April 2016)	
TCF Premises Wiring Code of Practice 2011	

Warranties

1.3 WARRANTY

Warrant the complete electrical installation under normal environmental and use conditions against failure of materials and execution.

1 year: Warranty period

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

Requirements

1.4 COMPLY

Comply with the Electricity (Safety) Regulations 2010, [AS/NZS 3000](#), [AS/NZS 3008.1.2](#) and [TCF Premises Wiring Code of Practice](#) for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection. Arrange for the required inspections of listed work. Pay all fees.

1.5 QUALIFICATIONS

Carry out work under the supervision of an electrical licensed supervisor.

1.6 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.

1.7 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 CABLES

Tough plastic sheathed copper conductors to [AS/NZS 5000.2](#), stranded above 1.0mm², 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 ² on 10 amp MCBs
Lighting circuits:	Commercial: 1.5mm ² on 16 amp MCBs
Power circuits:	2.5mm ² on 16 amp MCBs for domestic and unenclosed or unfilled cavity construction
	2.5mm ² on 16 amp MCBs for domestic insulated construction, or filled cavity
	2.5mm ² on 20 amp MCBs for unenclosed or unfilled cavity construction
	2.5mm ² on 16 amp MCBs for insulated construction, or filled cavity, or lengths over 30 metres
Hot water cylinder circuits:	Single phase: 2.5mm ² on 20 amp MCBs
Range/oven/hob circuits:	Single phase: 6mm ² 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.

2.2 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.

2.3 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.

2.4 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.

2.5 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.

2.6 CEILING ROSES

White plastic mounting base with screwed cover, manufactured to [AS/NZS 3113](#). Terminal type. Cylindrical section TPS for suspended fittings.

2.7 BATTEN HOLDERS

Standard white plastic bayonet cap, with cap angled where wall mounted. Brass liners.

2.8 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.

2.9 RESIDENTIAL RECESSED LIGHT FITTINGS

Residential recessed luminaires to [AS/NZS 60598.2.2](#), types IC-F, IC, CA-80 or CA-135 only.

2.10 OUTDOOR SWITCHES & SOCKETS

Using materials with superior UV protection, impact strength, and addition chemical resistance when compared with interior polycarbonate fittings. Weather protected, switches to IP56 minimum, and sockets to IP53 minimum. Sockets fitted with safety shutters behind socket pins, and all products able to be padlocked off or on.

3 EXECUTION

3.1 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.

3.2 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.

3.3 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.

3.4 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.

3.5 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.

3.6 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.

3.7 WALL BOXES

Mount flush in cavity construction size to fit products selected. Fix vertically mounted wall boxes to studs. Screw fix horizontally mounted switched socket outlet wall boxes to solid blocking or noggs. Fix switch panel wall boxes to solid blocking.

3.8 SWITCH AND SOCKET UNITS

Fit all single and double switch units, all sockets to the following heights (to the centre of the unit) unless shown otherwise on the drawings.

Switch Units:	1000mm above finished floor
Socket Units:	150mm above work benches
	400mm above finished floor

Mount light switches and switch socket outlets vertically and socket units horizontally. Label all switch units that control electrical equipment or special lighting circuits by colour filled engraving on the switch. Use proprietary engraved switch mechanisms where applicable.

3.9 ISOLATING SWITCHES

Locate isolating switches in positions as confirmed by the owner, when not specifically shown on the drawings.

3.10 LIGHT FITTINGS

Install light fittings in locations and at heights specified and confirmed by the owner, in accordance with the fitting manufacturer's requirements.

3.11 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](#).

3.12 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.

3.13 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.

3.14 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.

3.15 OUTDOOR/EXTERIOR SERVICES

Install all wiring systems in accordance with [AS/NZS 3000](#) and in accordance with the manufacturer's recommendations:

Provide circuits and connections for exterior installations, including ELV 12/24 Volt path lighting and electronic irrigation systems. Refer to drawings for connection points. Where underground, ensure appropriate protection, such as thickness of sheathing, conduit, depth of cabling, and proximity to other services.

Use the appropriate rated fittings for power control and power supply. Weather protected switches to IP56, and sockets to IP53 as a minimum. Install to manufacturer's specifications using recommended fittings and sealants to maintain the products integrity.

Earth leakage protection to be provided for in areas where there is increased risk to human safety in the form of either RCDs at the distribution board, or socket outlet. RCDs are recommended for visible awareness of protection.

3.16 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

3.17 COMPLETION

Leave installation operating correctly, with equipment clean and operational.

4 SELECTIONS

GENERAL NOTES

All dimensions are in millimetres unless noted otherwise
All levels are in metres to an assumed datum
All construction shall comply with NZS 3604 and
NZ Building Code and approved solutions

Contractor / Builder and all sub-trades shall check any existing
measurements on site, and confirm site boundaries prior ordering
any materials or fabrication of any components

Timber Framing

- Structural timber framing shall be SG8 min H12 treated kiln dried
- All decks and exposed timber shall be minimum H3.2 SG 8 treated

Bracing

Wall Bracing calculated using Gib Bracing Guide

Wind Zone: High Earthquake Zone: 1
Corrosion Zone: Zone D Stainless Steel fixings
to exposed areas

Plumbing and Drainage

- All Plumbing and Drainage to comply with NZBC G13 AS1 & AS2
- Minimum gradients for pipes will generally be as below but subject to
confirmation for tables C1/C3/E1 & E2 of the BRANZ Plumbing &
Drainage Guide
- 32 Ø mm = 1:20
- 40 Ø mm = 1:20
- 50 Ø mm = 1:20
- 65 Ø mm = 1:40
- 80 Ø mm = 1:60
- 100 Ø mm = 1:60
- Air admittance valves or vents are required to all waste water
discharge pipes where they exceed 3.5 m in length

Glazing & Joinery

- All glazing to be in accordance with NZS 4223.3 - Glazing in
building human impact safety requirements
- Joinery to comply with NZS 4211 - Performance of windows
NZS 3504 - Specifications for Aluminium window
WANZ - Specifications for powder coating &
window installation systems

Structural Steel

- All Steel is to be site checked prior to fabrication
- Steel to steel bolted connections to be M16 Galvanised Engineers
bolts unless otherwise stated.
- Steel to timber bolted connections to be M12 Galvanised
Engineers bolts unless otherwise stated.
- End Plates to have 6 mm Fillet weld all round.
- Damage to primer during erection to be made good.
- Field welds and parts adjacent there to and the heads of all field
bolts to be covered with two coats of primer.
- Structural Steel footings to be inspected by Engineer prior to
concreting/closing in.
- Refer to Arnold & Johnstone Structural Calculations and
contact them on Ph. 07 578 0921 for any queries.

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SHEET 11-DIRECT FIX RUSTICATED WBD DETAILS
SHEET 12 - HARDIFLEX CLADDING DETAILS

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Proposed Mac Donald
Alterations

For:

M & K MacDonald

At:

36 Omokoroa Road
Omokoroa
Lot. 12 DPs 4749

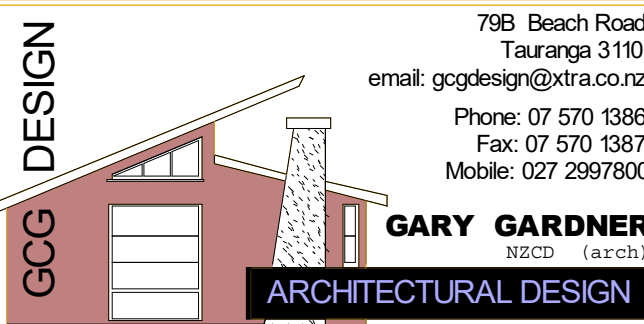
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Date:
1/11/18

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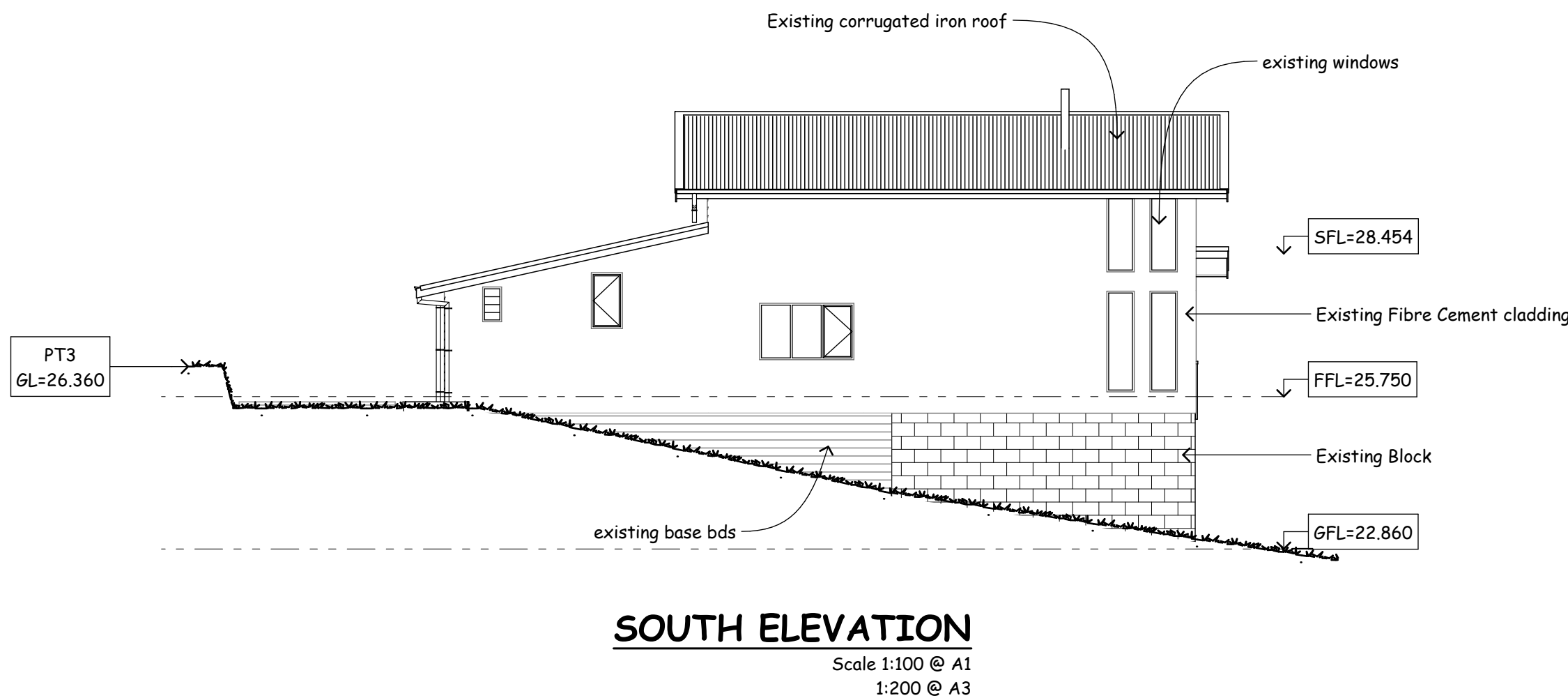
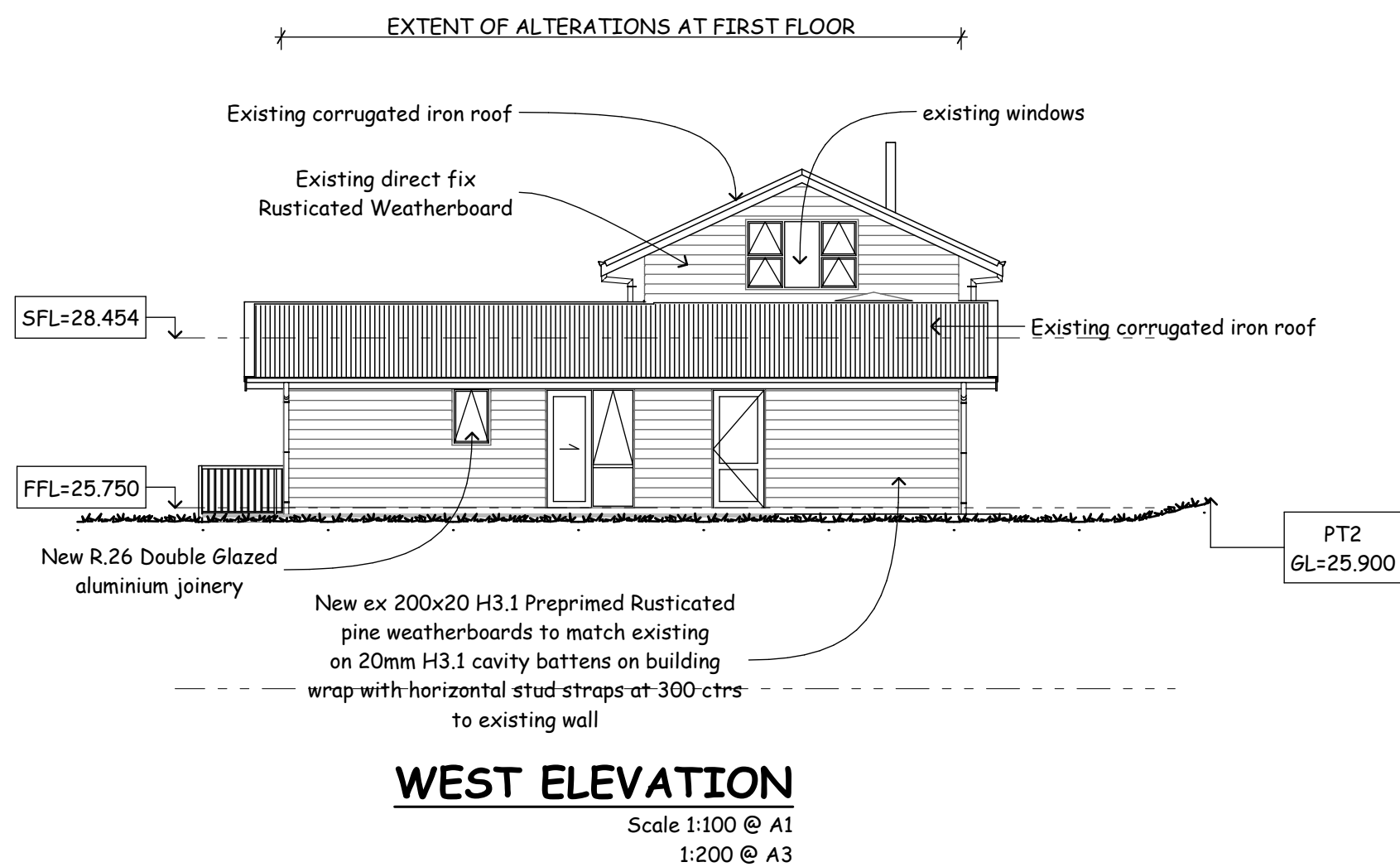
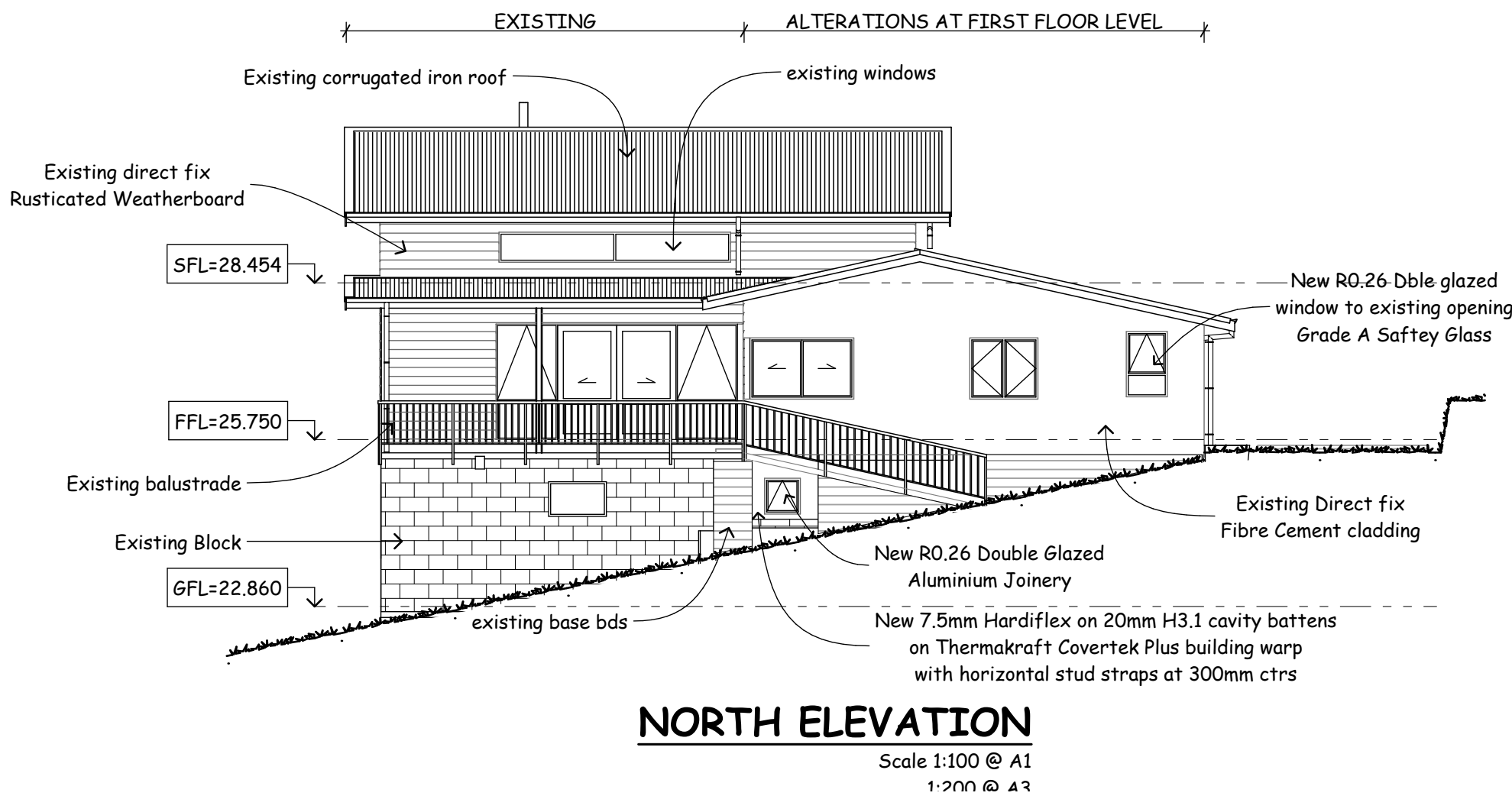
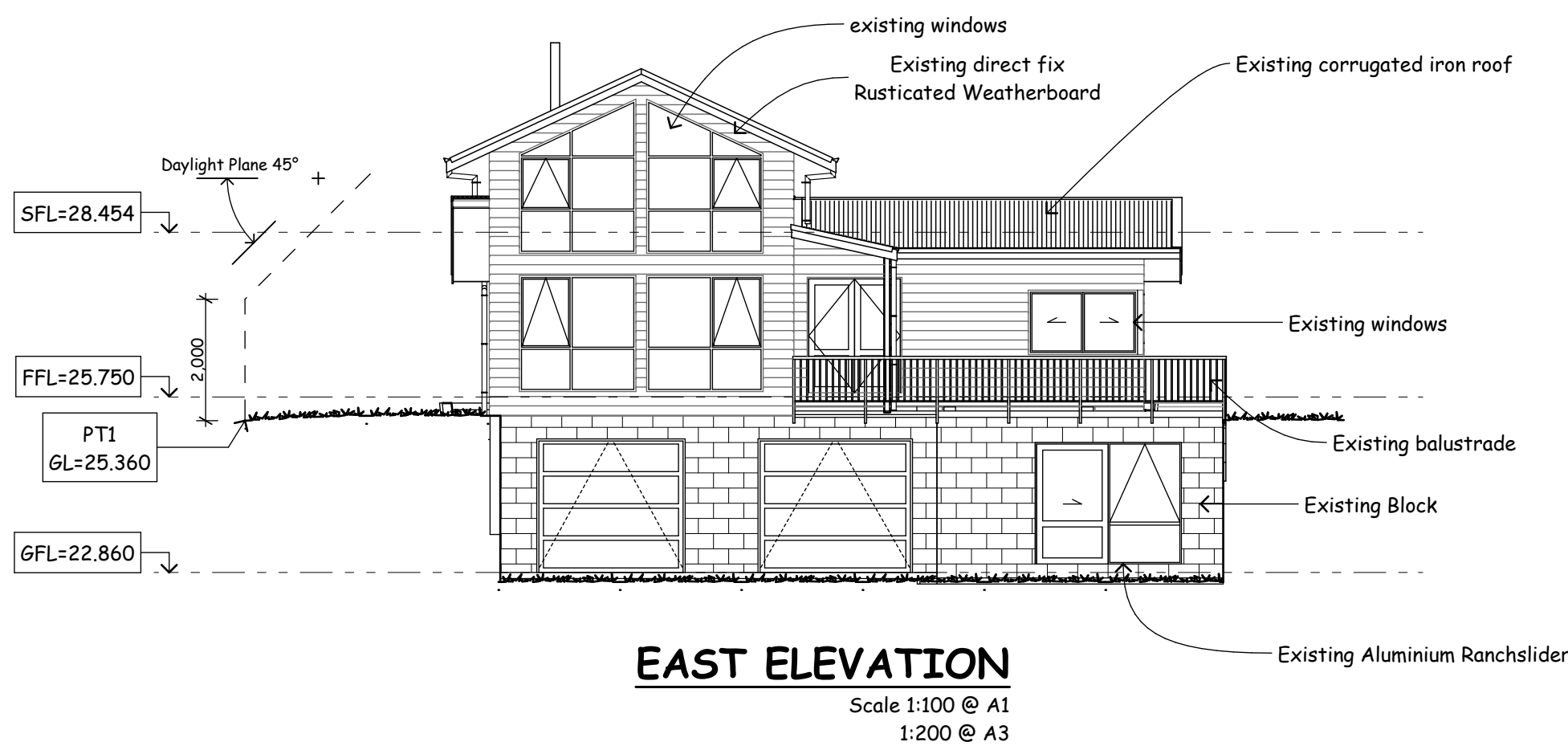
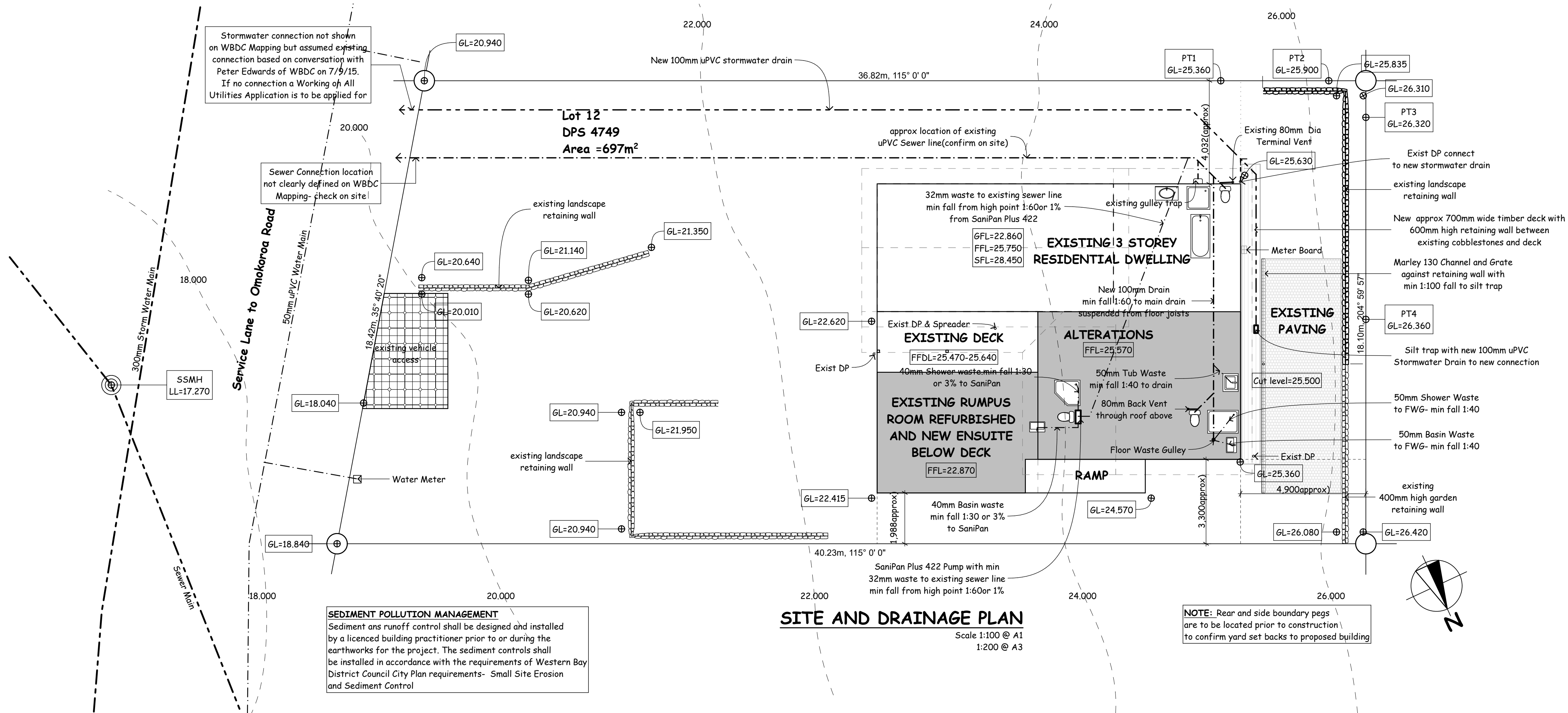
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Contractors Note. It is the Contractors responsibility to
check all dimensions prior to the commencement of
construction and inform the designer of any discrepancies



GENERAL NOTES

All dimensions are in millimetres unless noted otherwise
All levels are in metres to an assumed datum
All construction shall comply with NZS 3604 and
NZ Building Code and approved solutions

Contractor / Builder and all sub-trades shall check any existing
measurements on site, and confirm site boundaries prior ordering
any materials or fabrication of any componets

Timber Framing

- Structural timber framing shall be SG8 min H1.2 treated kiln dried
- All decks and exposed timber shall be minimum H3.2 SG 8 treated

Bracing

Wall Bracing calculated using Gib Bracing Guide

Wind Zone: High Earthquake Zone: 1
Corrosion Zone: Zone D Stainless Steel fixings
to exposed areas

Plumbing and Drainage

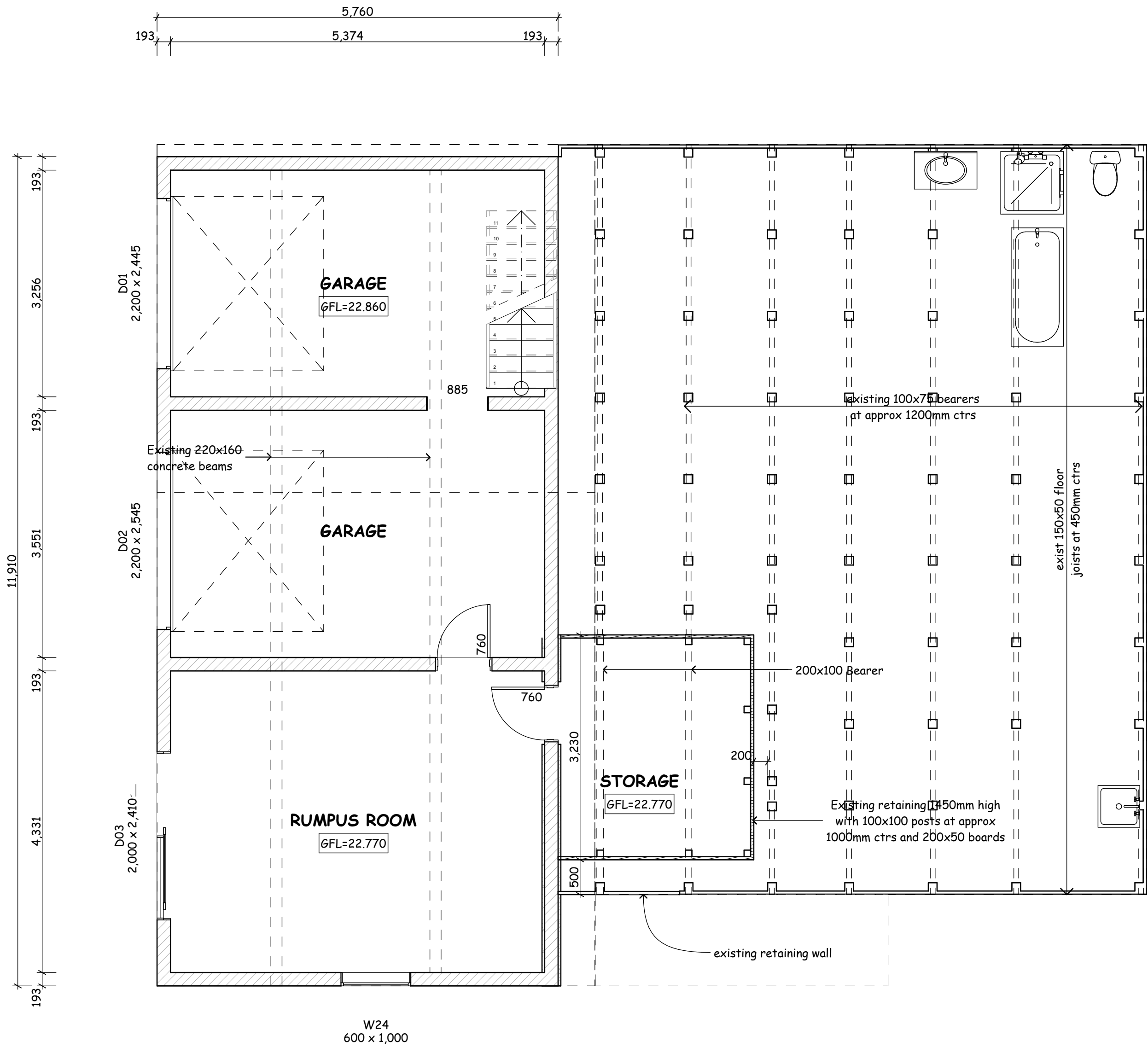
- All Plumbing and Drainage to comply with NZBC G13 AS1 & AS2
- Minimum gradients for pipes will generally be as below but subject to
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40 Ø mm = 1:20
50 Ø mm = 1:20
65 Ø mm = 1:40
80 Ø mm = 1:60
100 Ø mm = 1:60
- Air admittance valves or vents are required to all waste water
discharge pipes where they exceed 3.5 m in length

Glazing & Joinery

- All glazing to be in accordance with NZS 4223.3 - Glazing in
building human impact safety requirements
- Joinery to comply with NZS 4211 - Performance of windows
NZS 3504 - Specifications for Aluminium window
WANZ - Specifications for powder coating &
window installation systems

Structural Steel

- All Steel is to be site checked prior to fabrication
- Steel to steel bolted connections to be M16 Galvanised Engineers
bolts unless otherwise stated.
- Steel to timber bolted connections to be M12 Galvanised
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- End Plates to have 6 mm Fillet weld all round.
- Damage to primer during erection to be made good.
- Field welds and parts adjacent there to and the heads of all field
bolts to be covered with two coats of primer.
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- Refer to Arnold & Johnstone Structural Calculations and
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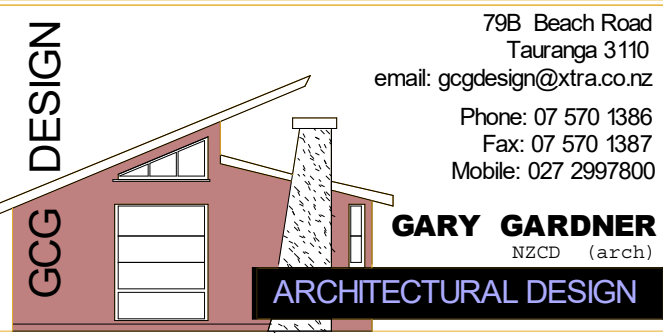


EXISTING GROUND FLOOR PLAN

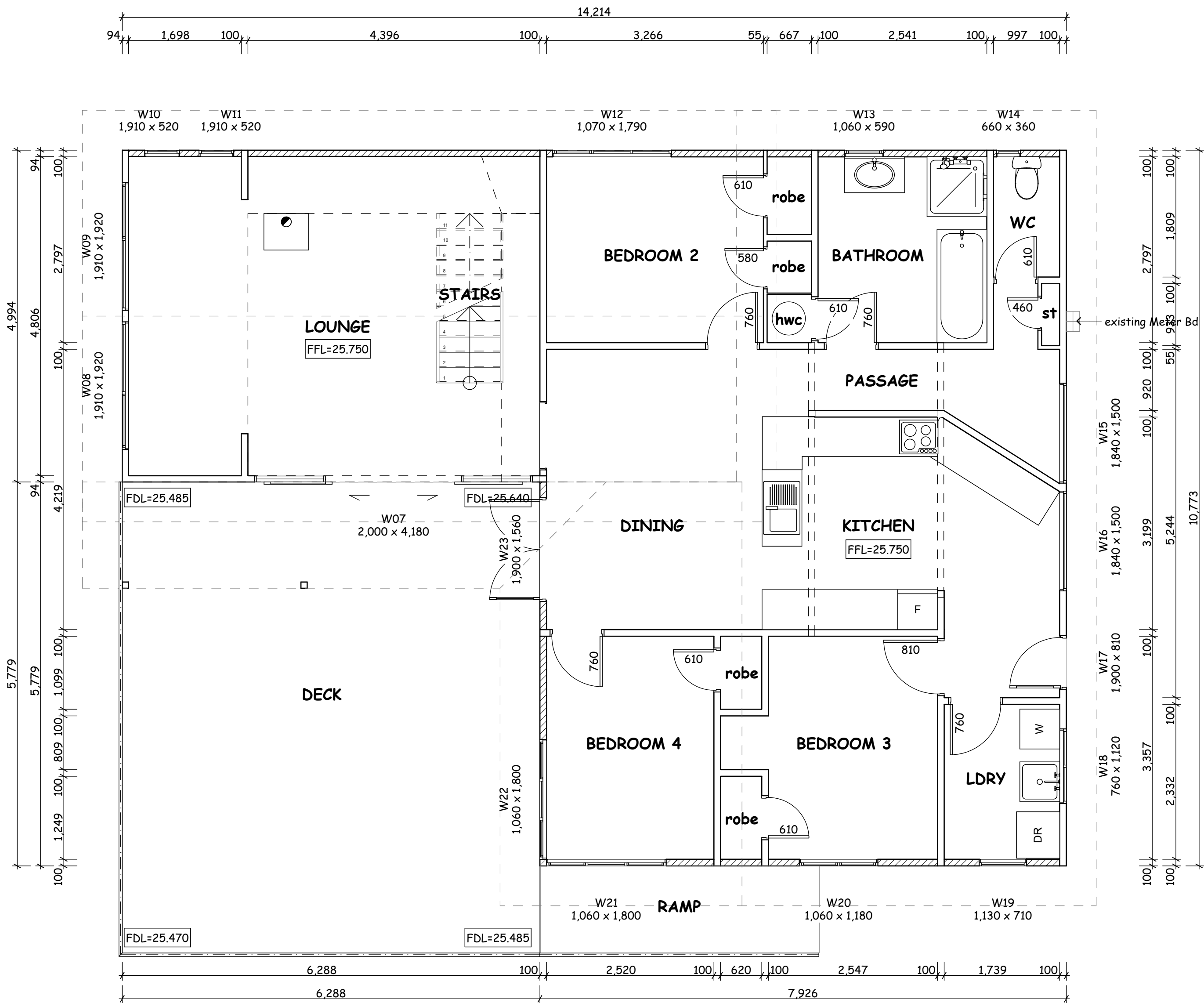
Scale 1:50 @ A1
1:100 @ A3

Existing Area = 68.60m²

Job title:		
Proposed Mac Donald Alterations		
For:		
M & K MacDonald		
At:		
36 Omokoroa Road Omokoroa Lot. 12 DPs 4749		
Scales:	Date:	Sheet No.
As shown	1/11/18	2
JOB No:	Of:	
GCG 2118	12	



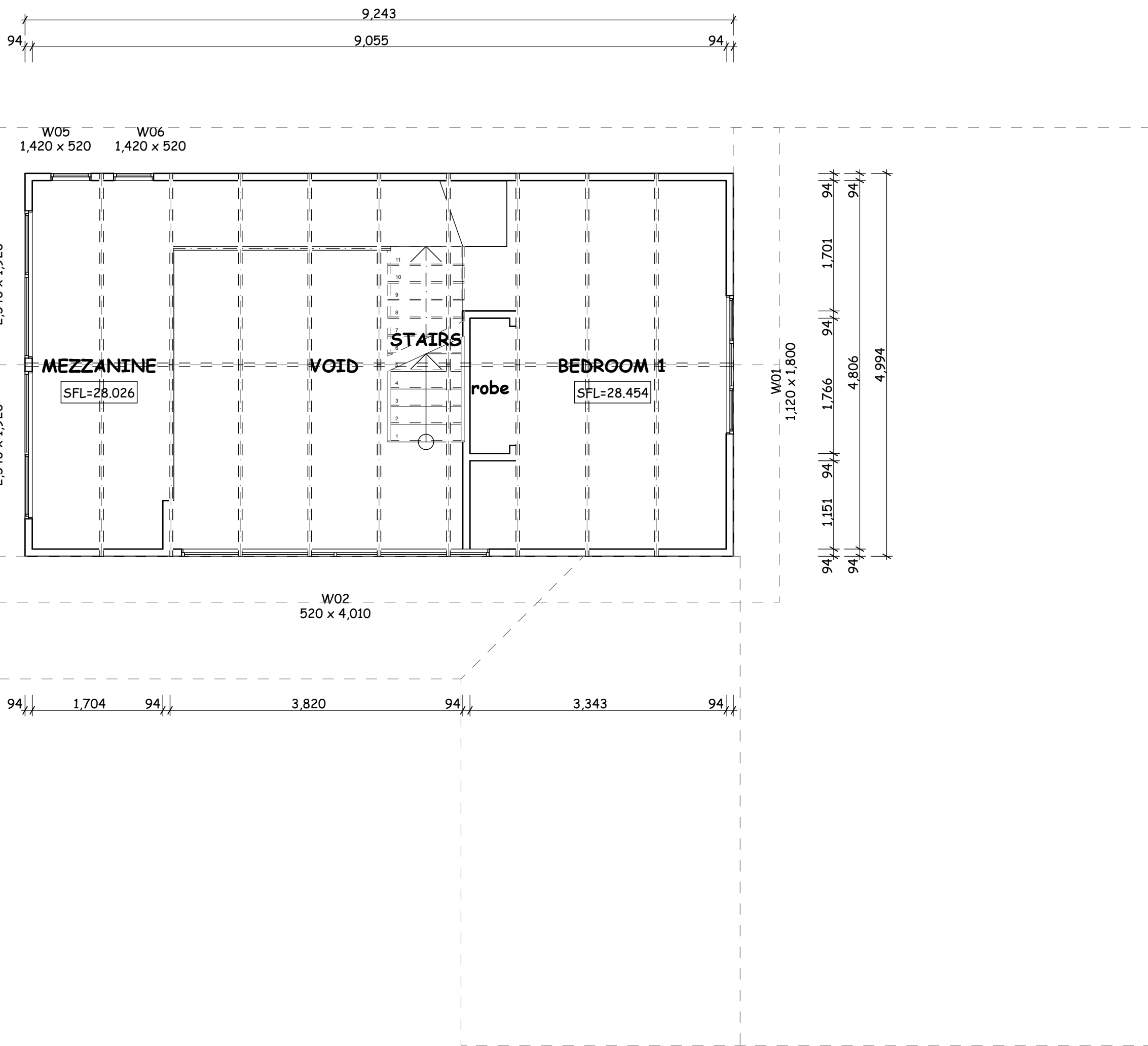
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EXISTING FIRST FLOOR PLAN

Scale 1:50 @ A1
1:100 @ A3

Existing Area = 116.79m²
Addition Area = 00.00m²
Total Area = 116.79m²
Deck Area = 44.77m²



EXISTING SECOND FLOOR PLAN

Scale 1:50 @ A1
1:100 @ A3

Existing Area including Mezzanine = 31.07m²

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Timber Framing

- Structural timber framing shall be SG8 min H1.2 treated kiln dried
- All decks and exposed timber shall be minimum H3.2 SG 8 treated

Bracing

Wall Bracing calculated using Gib Bracing Guide

Wind Zone: High Earthquake Zone: 1
Corrosion Zone: Zone D Stainless Steel fixings
to exposed areas

Plumbing and Drainage

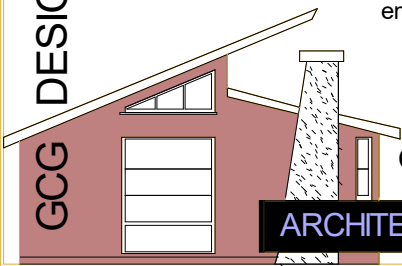
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65 Ø mm = 1:40
80 Ø mm = 1:60
100 Ø mm = 1:60
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discharge pipes where they exceed 3.5 m in length

Glazing & Joinery

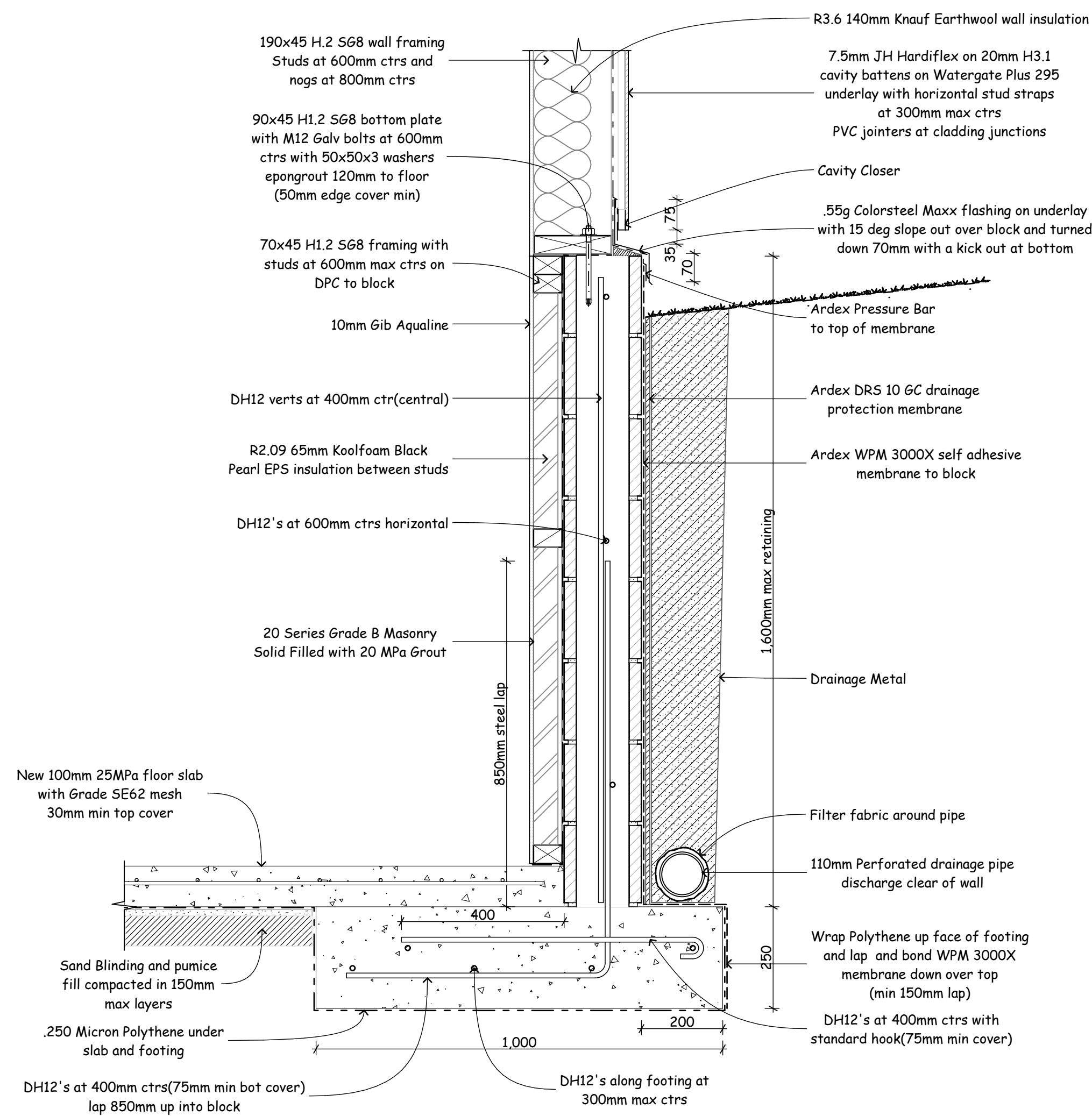
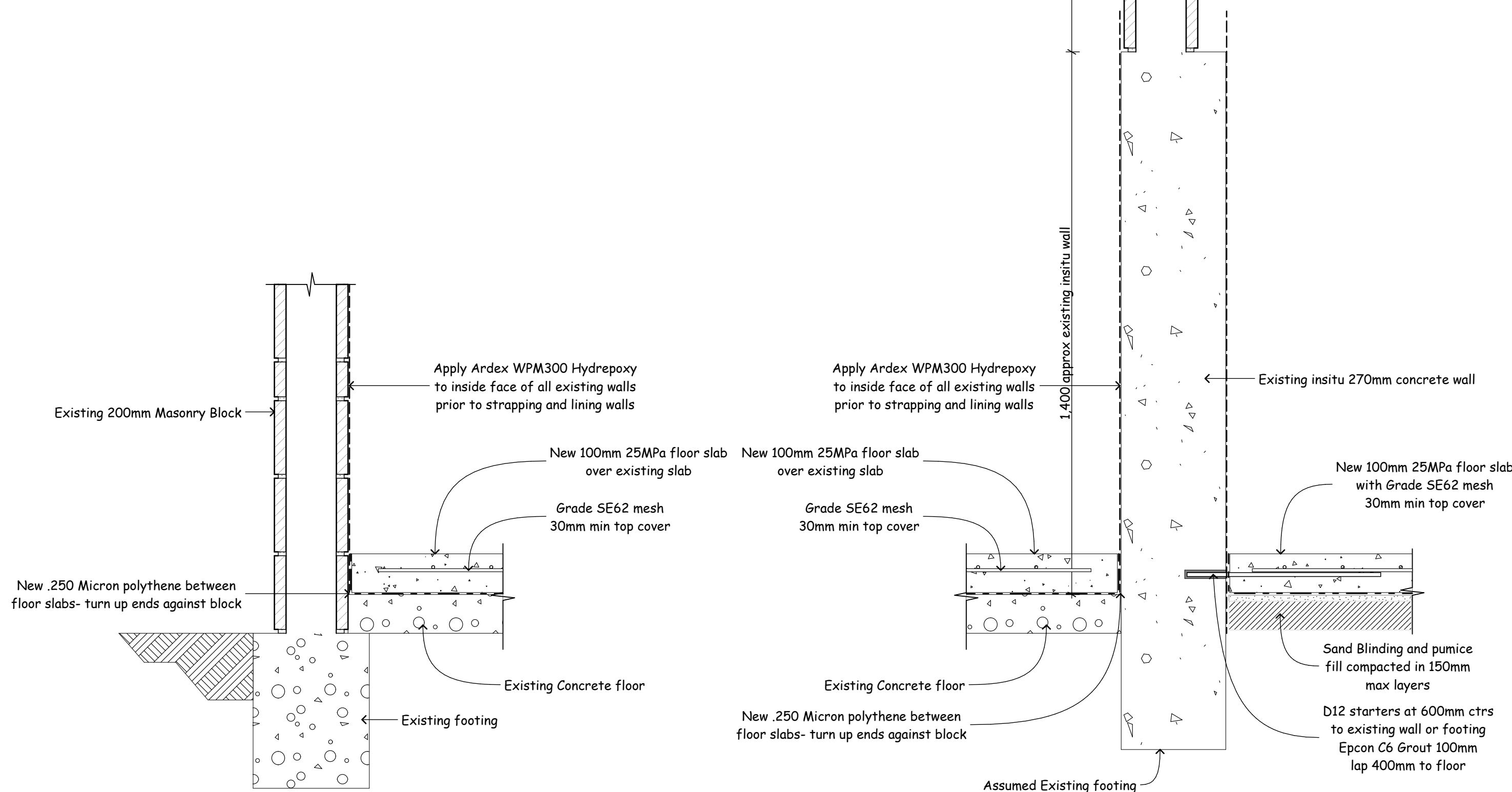
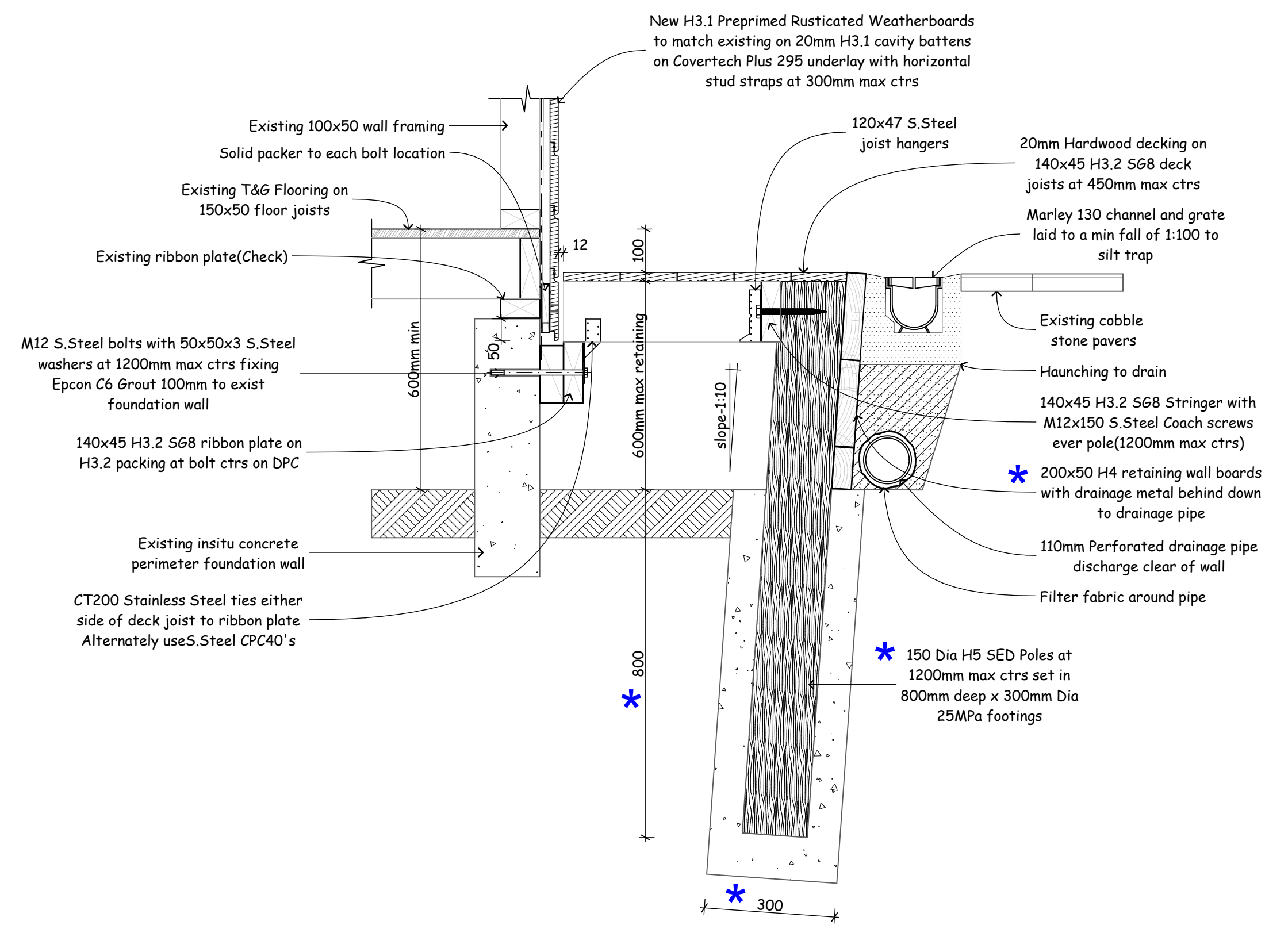
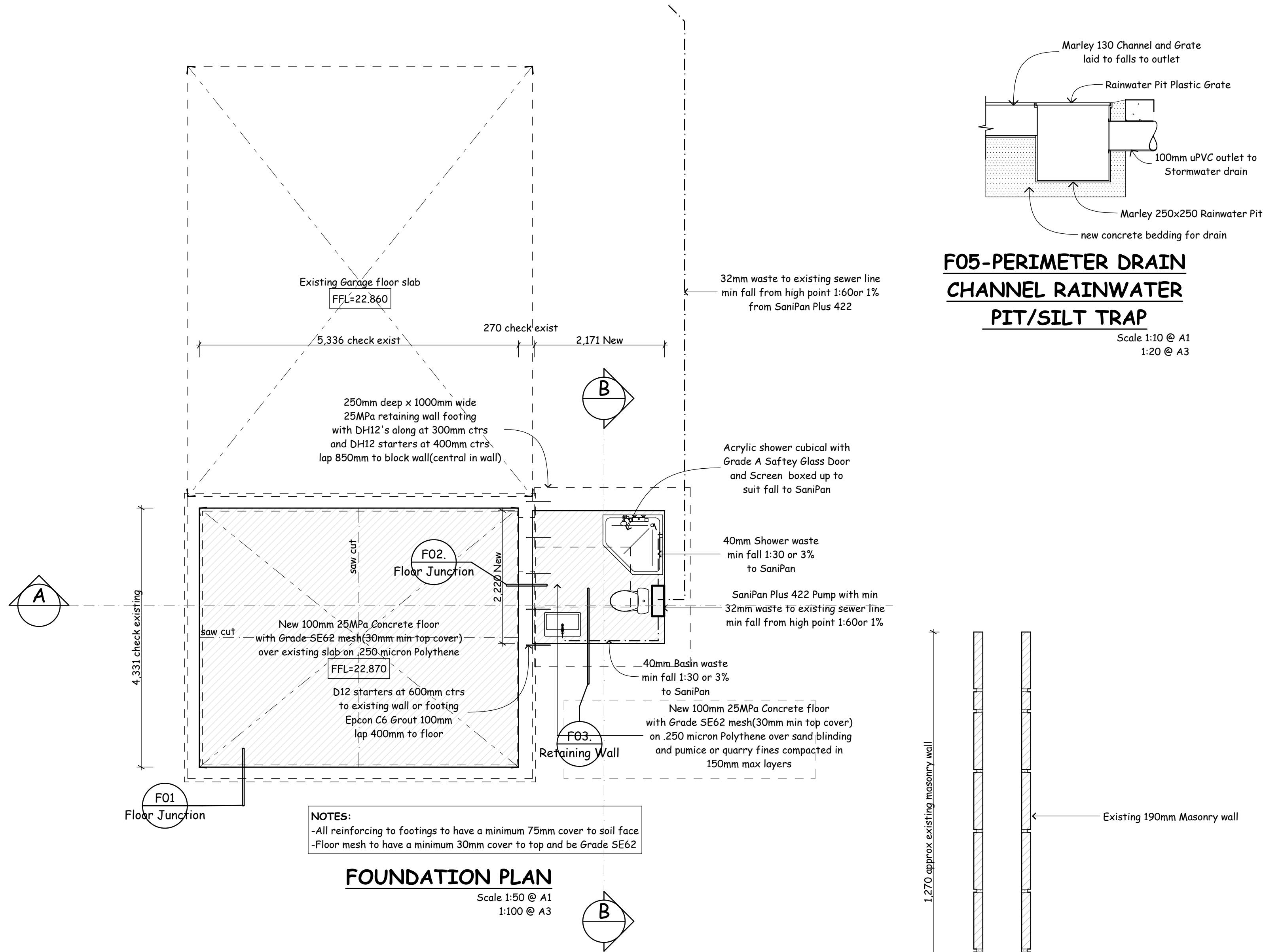
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- Joinery to comply with NZS 4211 - Performance of windows
NZS 3504 - Specifications for Aluminium window
WANZ - Specifications for powder coating &
window installation systems

Structural Steel

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bolts unless otherwise stated.
- Steel to timber bolted connections to be M12 Galvanised
Engineers bolts unless otherwise stated.
- End Plates to have 6 mm Fillet weld all round.
- Damage to primer during erection to be made good.
- Field welds and parts adjacent there to and the heads of all field
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- Structural Steel footings to be inspected by Engineer prior to
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Job title:		
Proposed Mac Donald Alterations		
For:		
M & K MacDonald		
At:		
36 Omokoroa Road Omokoroa Lot. 12 DPs 4749		
Scales:	Date:	Sheet No.
As shown	1/11/18	3
JOB No:		Of:
GCG 2118		12
GCG DESIGN  GARY GARDNER NZCD (archt) ARCHITECTURAL DESIGN 79B Beach Road Tauranga 3110 email: gcgdesign@xtra.co.nz Phone: 07 570 1386 Fax: 07 570 1387 Mobile: 027 2997800		

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Timber Framing

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- All decks and exposed timber shall be minimum H3.2 SG 8 treated

Bracing

Wall Bracing calculated using Gib Bracing Guide

Wind Zone: High Earthquake Zone: 1
Corrosion Zone: Zone D Stainless Steel fixings to exposed areas

Plumbing and Drainage

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DESIGN ENGINEER

The structural elements designated * on this drawing have been designed by Arnold & Johnstone 2015 Ltd, Consulting Engineers

Date 01.11.18

Job No 12509

Signed

Job title:

Proposed Mac Donald Alterations

For:

M & K MacDonald

At:

36 Omokoroa Road
Omokoroa
Lot. 12 DPs 4749

Scales:

Date:

Sheet No.

As shown

1/11/18

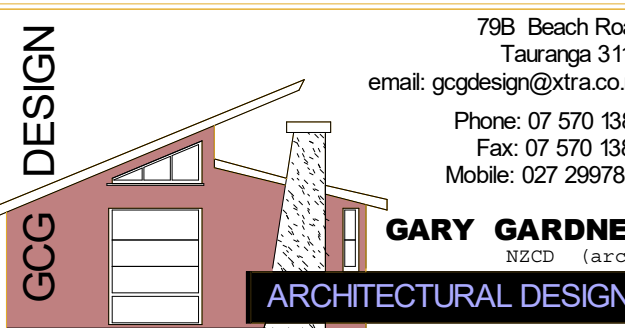
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JOB No:

GCG 2118

Of:

12



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discrepancies

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Wall Bracing calculated using Gib Bracing Guide

Wind Zone: High Earthquake Zone: 1
Corrosion Zone: Zone D Stainless Steel fixings
to exposed areas

Plumbing and Drainage

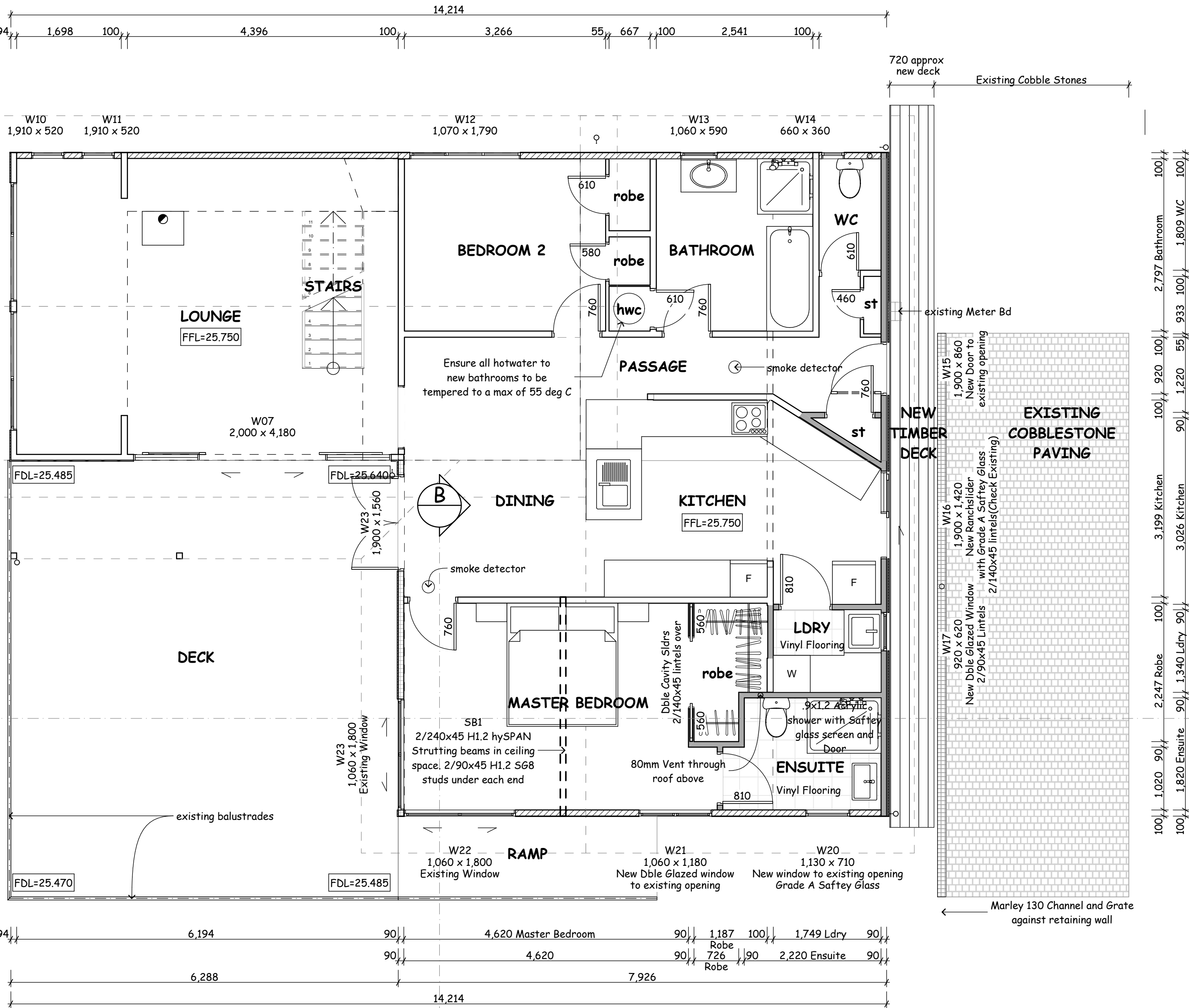
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ALTERED FIRST FLOOR PLAN

Scale 1:50 @ A1
1:100 @ A3

Existing Area = 116.79m²
Total Area = 116.79m²
Deck Area = 44.77m²

LINTEL SIZE TABLE: Light roof

	Width	Span/Loaded Dimension	Lintel Size	From	Lintel Fixing Type	Trimming Stud (NZS 3604: Table 8.5)
W16	1420	1000	2/140 x 45 S68	NZS 3604 : 2011, Table 8.9	F	90mm
W17	620	1000	2/90 x 45 M68	NZS 3604 : 2011, Table 8.9	E	45mm

WALL FRAMING MOISTURE CONTENT

24% at ERECTION
20% at ENCLOSURE
16% at LINING

EXTERNAL WINDOWS AND DOORS

- The nominated External Joinery Contractor is to provide site specific structural
information relating to dead load,live load, wind, snow, earthquake and any other
relevant details complying with NZS3504, Specifications for Aluminium Windows
and NZS4211- Performance of windows and submit to the Territorial Authority on
completions of the project.
- All Glazing is to comply with NZS4223.3- Glazing in Building Human and Impact
Safety Requirements Glazing panels over 1 square meter and in bathrooms to
have a min Grade A Safety Glass
- All windows shall comply with requirements of G7- Natural Lighting providing
an luminance to each Room of no less than 30 lux at floor level for 75% of the
year and have openings to give awareness of the outside that are transparent

G8-ARTIFICIAL LIGHTING

- Artificial Lighting is to comply with G8 with a minimum of 20 lux at floor level
within buildings which when activated in the absence of natural light, will
enable safe movement.
- The lighting designer or Electrician shall provide and submit documentation
supporting this to the Territorial Authority on completions of the project

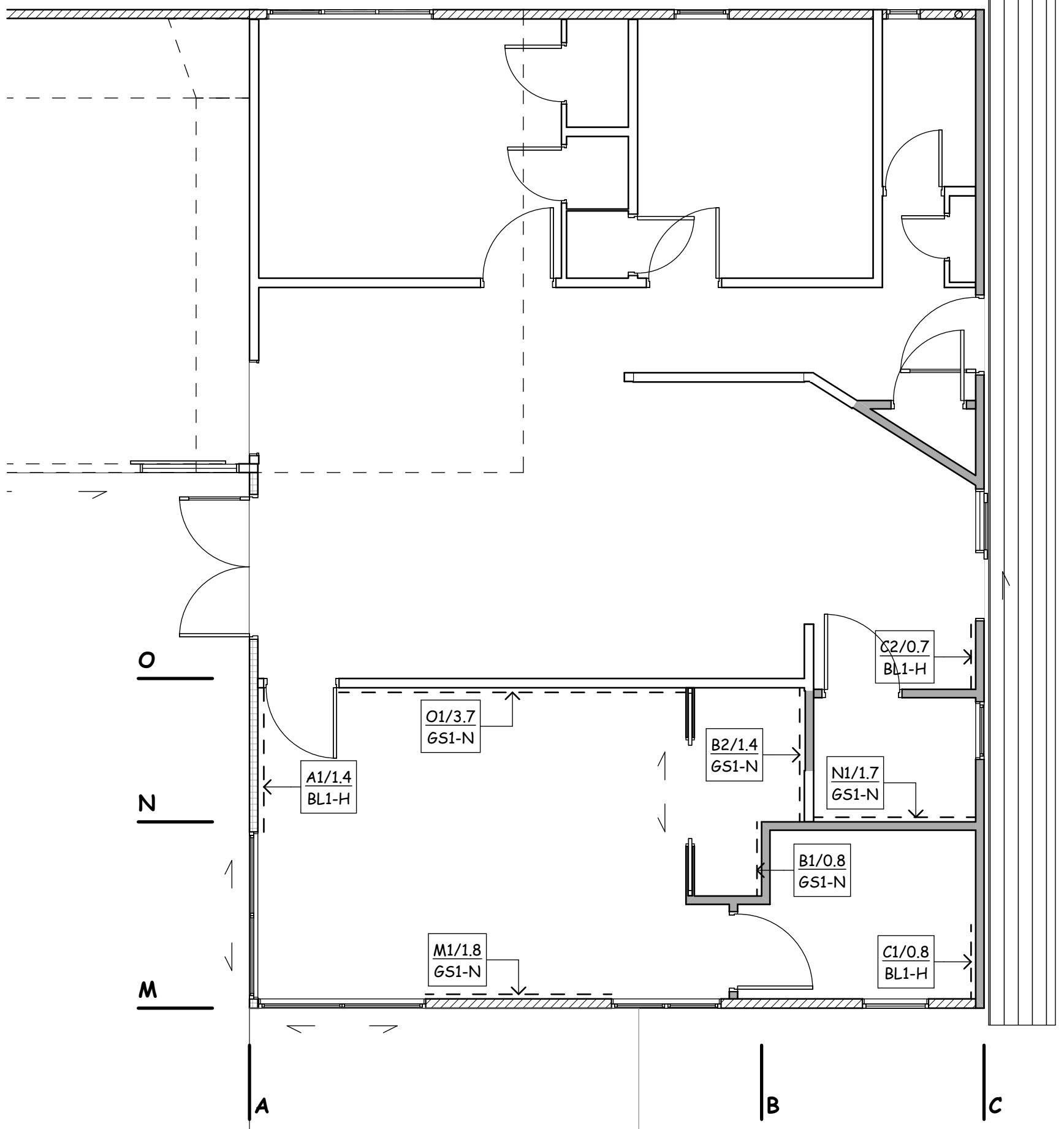
INTERIOR

- New Interior Walls:
90 x 45 H1.2 S68 framing, Studs @ 600crs
with Nogs @ 800crs.
Lining: 10mm Gib Board Both Sides
(9mm Villa Board to Wet Areas i.e.Bathroom,
En Suite, & Laundry)
- Existing Interior Wall:
Lined with 10mm Gib Both Sides

Wall Legend

EXTERIOR

- New Exterior Walls:
90 x 45 H1.2 S68 framing, Studs @ 600crs
with Nogs @ 800crs.
Int Lining: 10mm Gib Board, 9mm Villa Board
to Wet Areas i.e. Bathroom, En Suite, & Laundry)
Insulation: R2.8 90mm Knauf Earthwool Wall Insulation
Cladding: ex 200x20 H3.1 Pre primed Rusticated Weatherboard
to match existing on 20mm H3.1 battens on building wrap supported with
horizontal strapping at 300mm ctrs.
- Existing Exterior Walls:
Existing 100x50 wall framing
Int Lining: Reline with 10mm Gib Board.
Insulation: New R2.8 90mm Knauf Earthwool Wall Insulation
Cladding: Existing Direct fix 200x20 Horizontal Rusticated Weatherboard
on Building Paper-repair and replace as necessary
- Existing Exterior Walls:
Existing 100x50 framing
Int Lining: 10mm Gib Board
Insulation: Unknown
Cladding: Direct Fix ex 200x20 Horizontal Rusticated Weatherboard
on Building Paper-repair and replace as necessary
- Existing Exterior Walls:
Existing 100x50 framing,
Int Lining: existing 10mm Gib Board. Replace with 10mm Gib Board
or 10mm Gib Aquadine where linings are being removed
Insulation: Unknown to existing. Where linings are being removed
replace with New R2.8 90mm Knauf Earthwool Wall Insulation
Cladding: Existing Direct Fix Fibre Cement Sheeting with
timber battens at joints and corners on Building Paper



NOTE: WALL BRACING
Has only been undertaken to Bedroom, Ensuite and Laundry
portion of the existing building. Where interior wall linings
from any other portion of the building are replaced nail
off new sheets to GS1-N as shown in the GIB Ezybrace
Systems literature

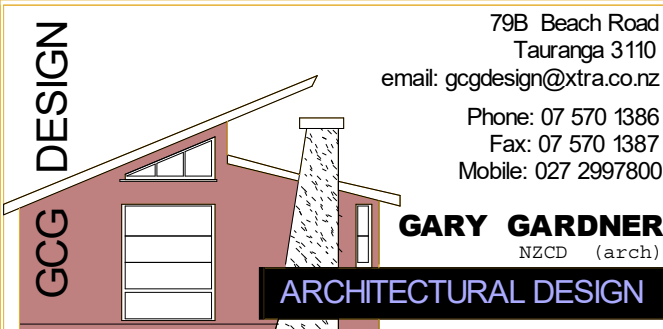
BRACING LEGEND

Brace number
Brace length
Brace type

FIRST FLOOR BRACING PLAN

Scale 1:50 @ A1
1:100 @ A3

Job title: Proposed Mac Donald Alterations		
For: M & K MacDonald		
At: 36 Omokoroa Road Omokoroa Lot. 12 DPs 4749		
Scales: As shown	Date: 1/11/18	Sheet No. 6
JOB No: GCG 2118	Of: 12	



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Timber Framing

- ## Bracing

Wall Bracing calculated using Gib Bracing Guide

Plumbing and Drainage

- ## Glazing & Joinery

- ## Structural Steel

- All Steel is to be site checked prior to fabrication
- Steel to Steel bolted connections to be M16 Galvanised Engineers bolts unless otherwise stated.
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Scale 1:50@ A1
1:100 @ A3



Scale 1:50 @ A1
1:100 @ A3



Scale 1:5 @ A1
1:10 @ A3



Scale 1:5 @ A1
1:10 @ A3



Scale 1:5 @ A1
1:10 @ A3



Scale 1:5 @ A1
1:10 @ A3



Scale 1:5 @ A1
1:10 @ A3

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Timber Framing

- ### Bracing

Plumbing and Drainage

- ## Glazing & Joinery

Structural Steel

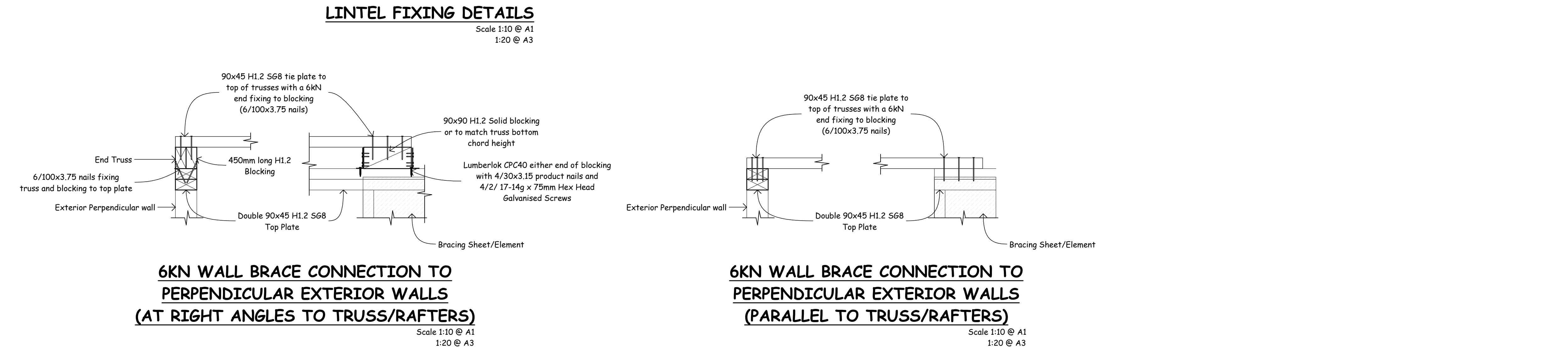
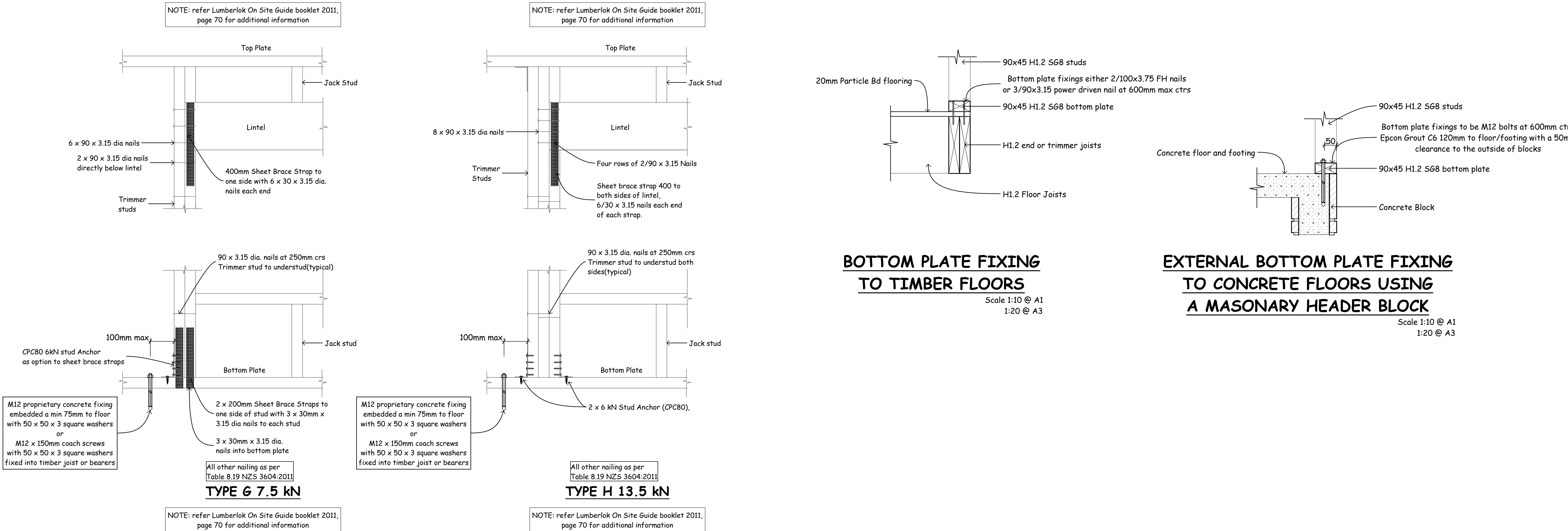
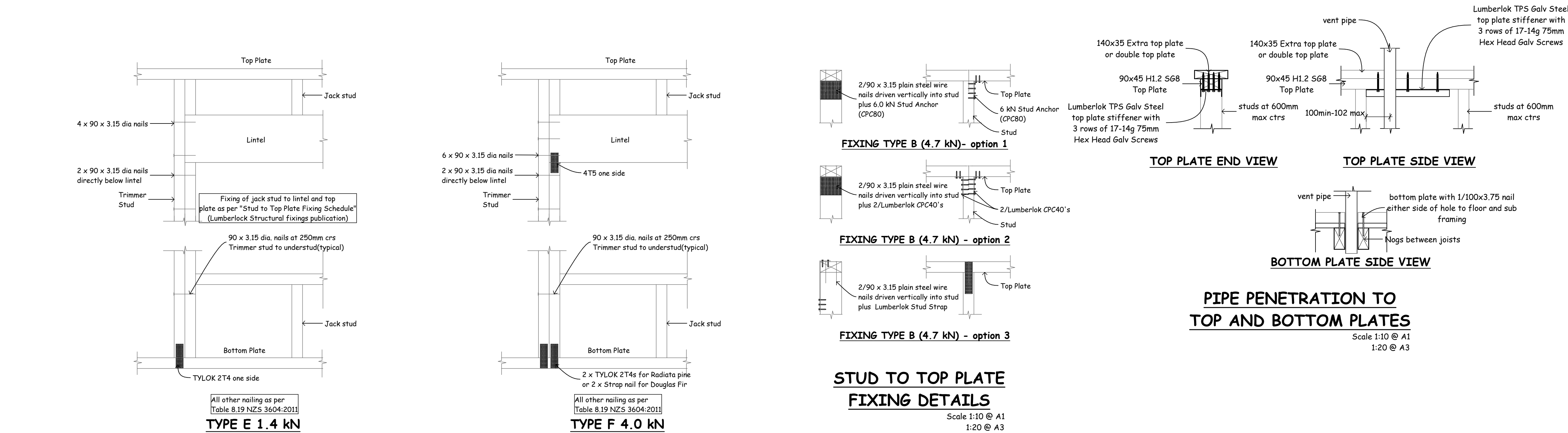
- ### LEGEND

ROOF FRAMING PLAN

ROOF PLAN

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Bracing

Wall Bracing calculated using Gib Bracing Guide

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Glazing & Joinery

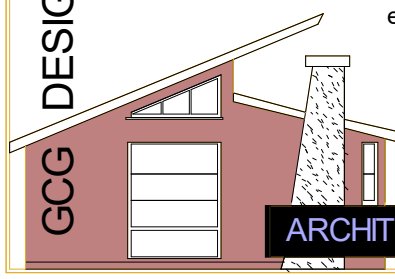
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As shown	1/11/18	9
JOB No:	GCG 2118	Of:
		12

GCG DESIGN

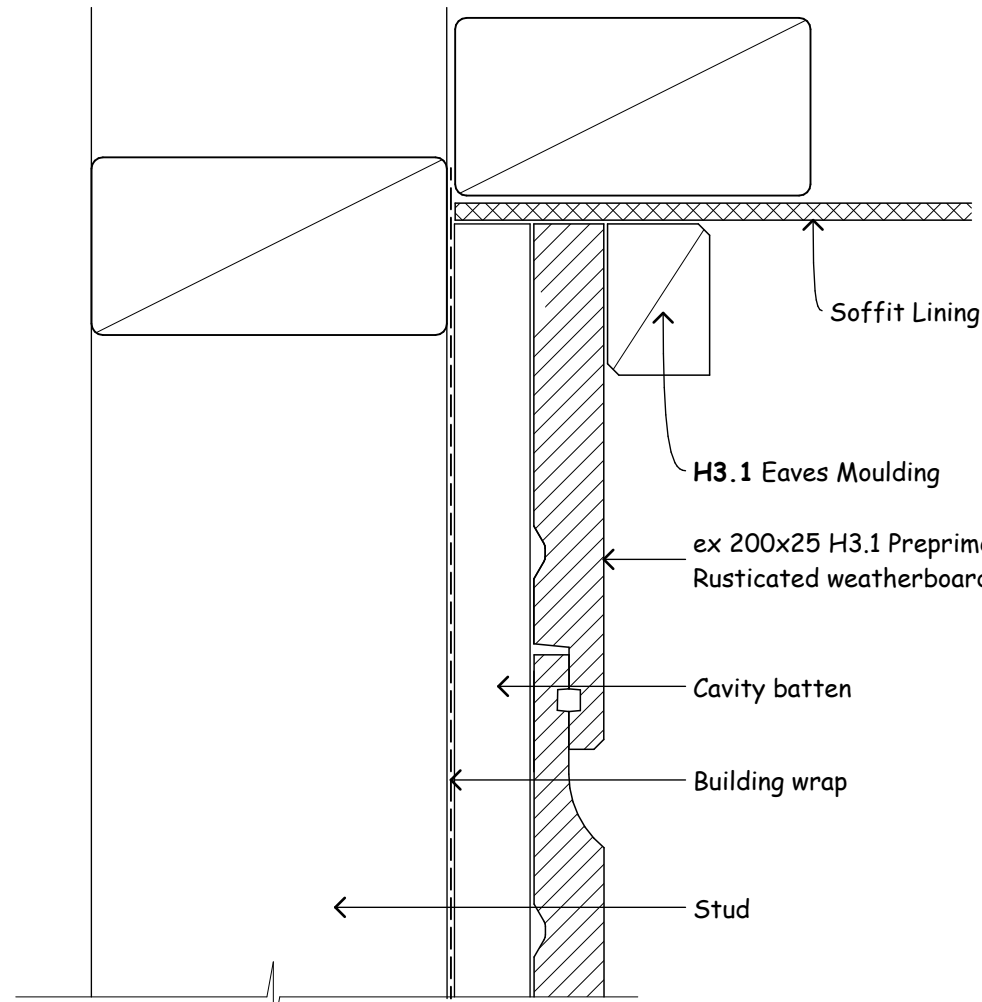


79B Beach Road
Tauranga 3110
email: gcgdesign@xtra.co.nz
Phone: 07 570 1386
Fax: 07 570 1387
Mobile: 027 2997800

GARY GARDNER
NZCD (archt)
ARCHITECTURAL DESIGN

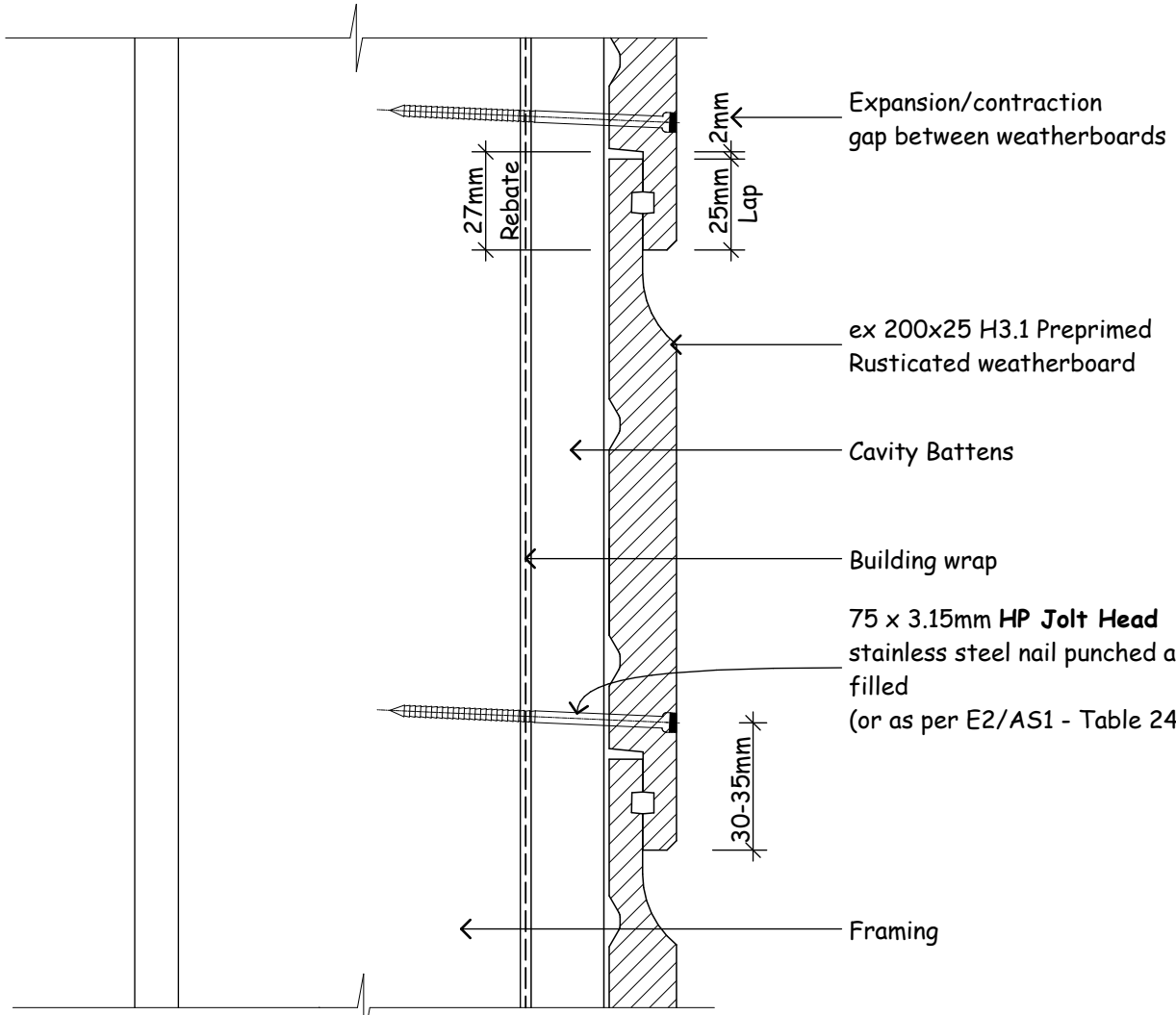
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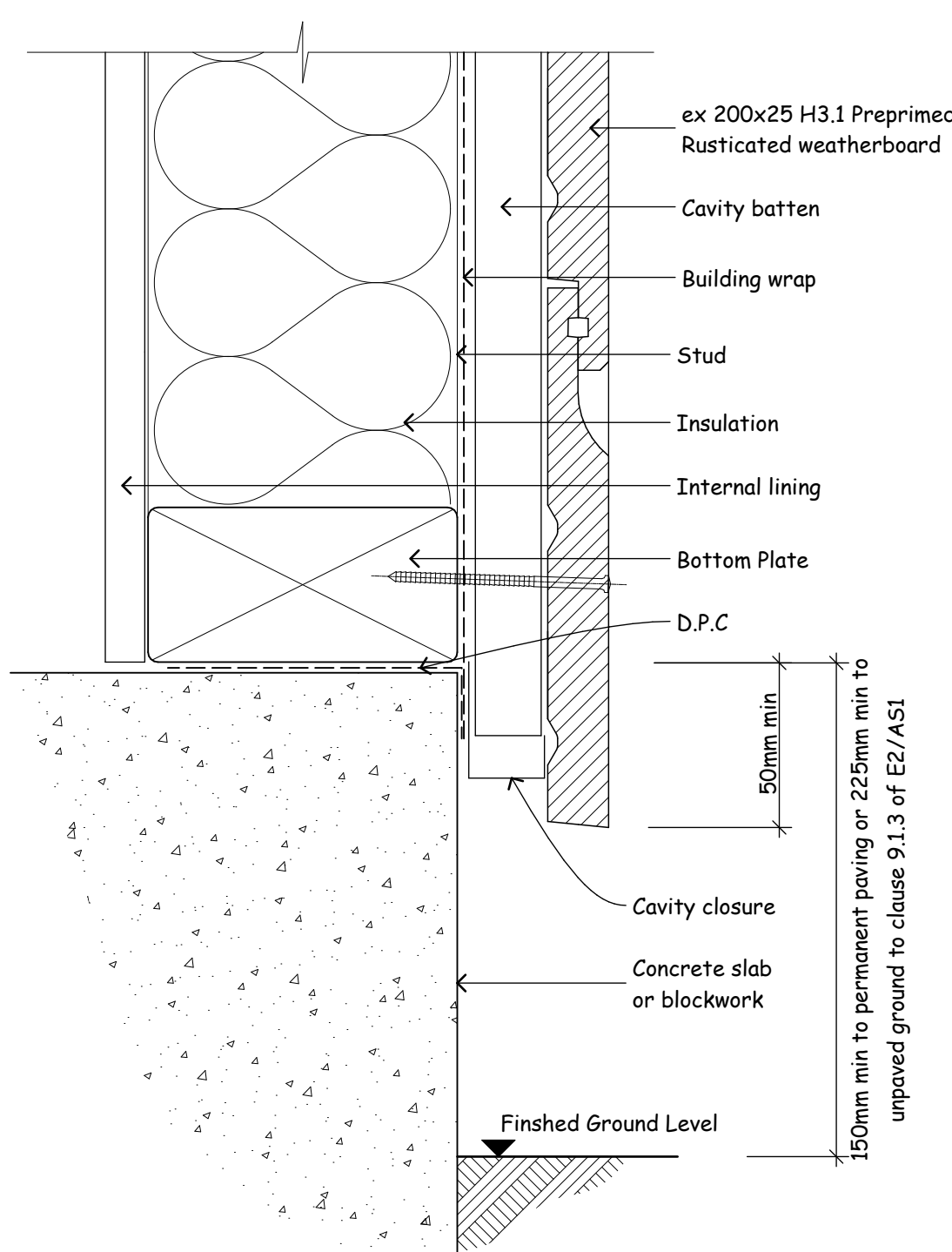
RUSTICATED WEATHERBOARD ON CAVITY BARGE AND SOFFIT DETAIL

Scale 1:2 @ A1
1:4 @ A3



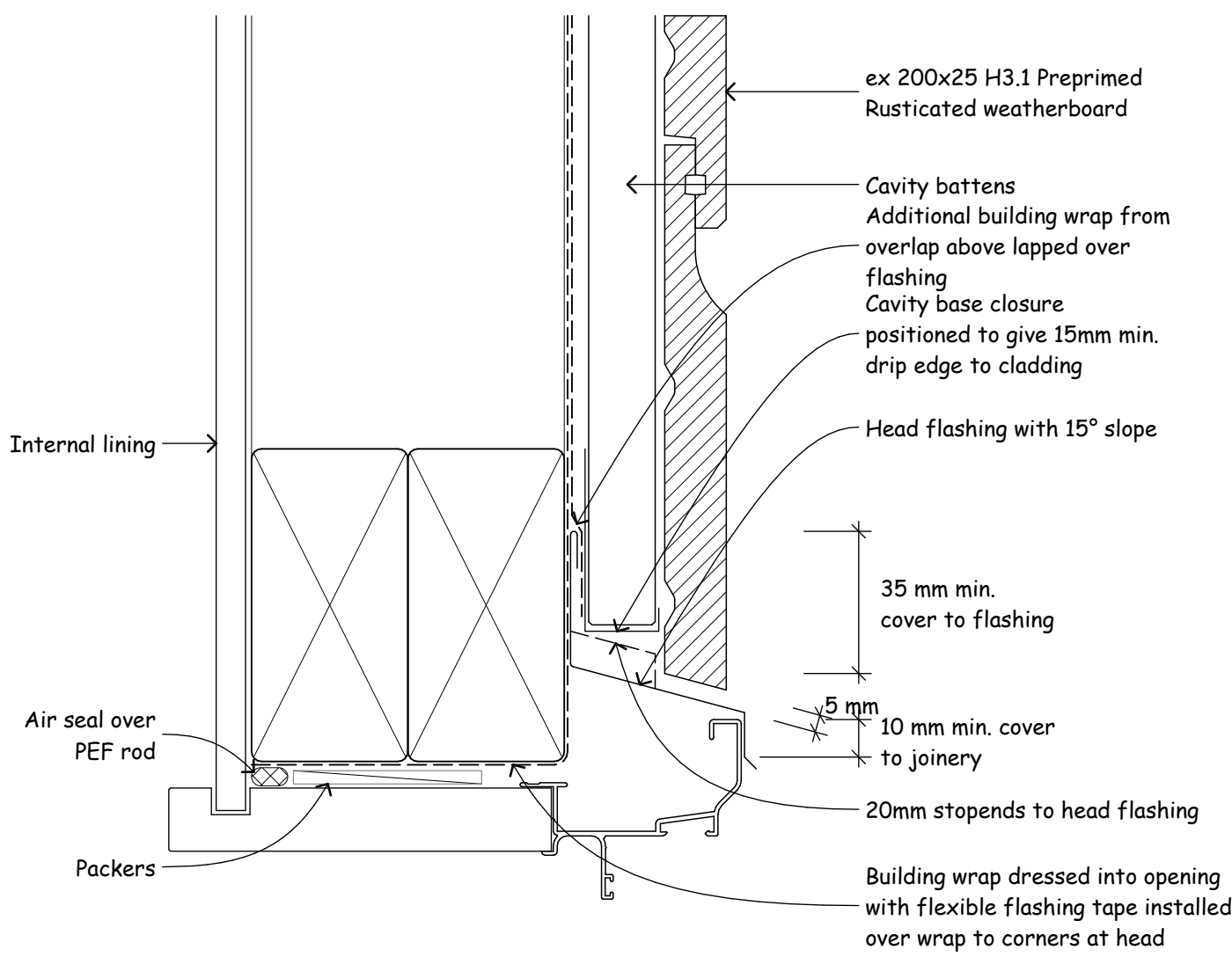
RUSTICATED WEATHERBOARD ON CAVITY TYPICAL FIXING

Scale 1:2 @ A1
1:4 @ A3



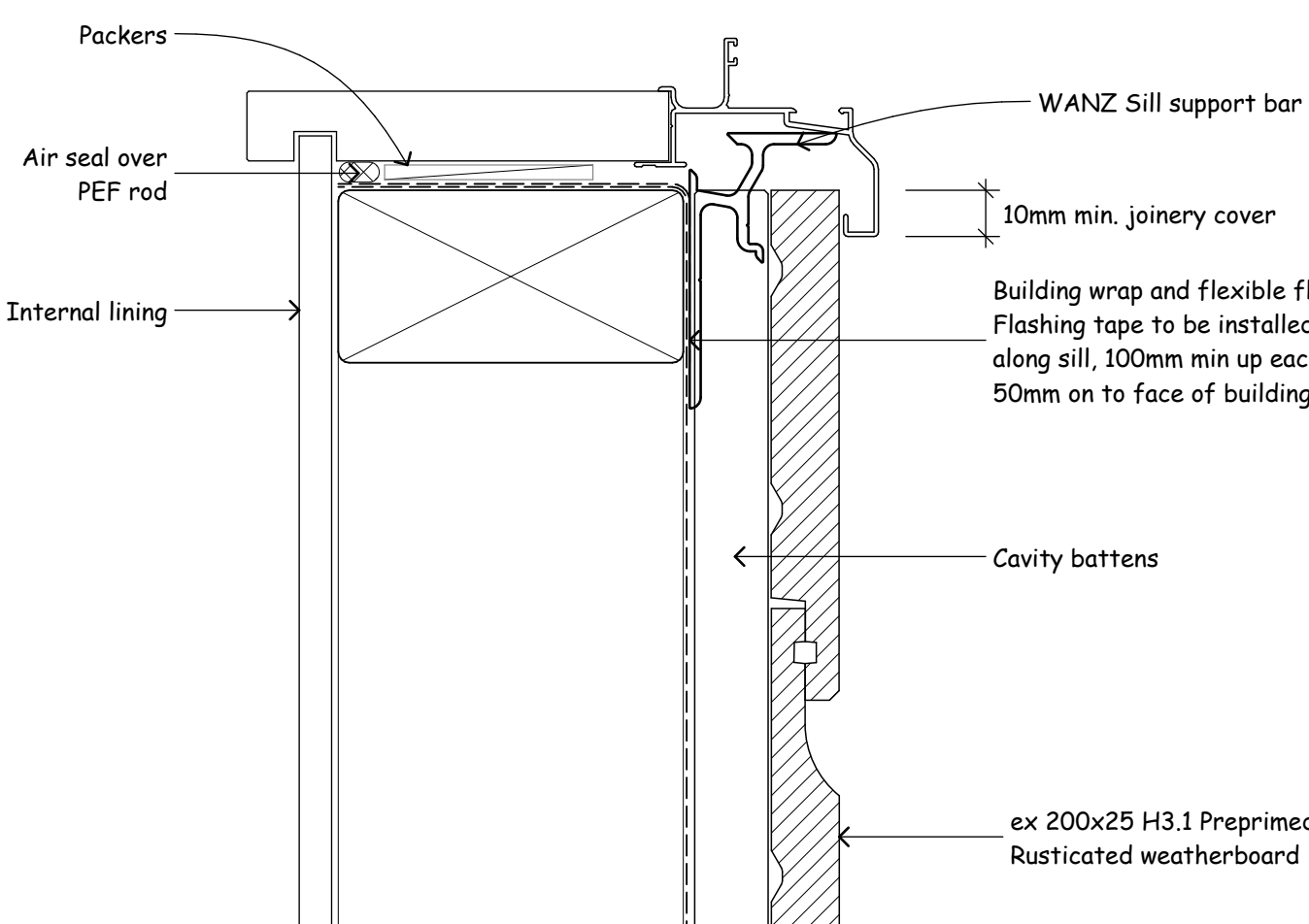
RUSTICATED WEATHERBOARD ON CAVITY WALL BASE

Scale 1:2 @ A1
1:4 @ A3



RUSTICATED WEATHERBOARD ON CAVITY WINDOW HEAD DETAIL

Scale 1:2 @ A1
1:4 @ A3

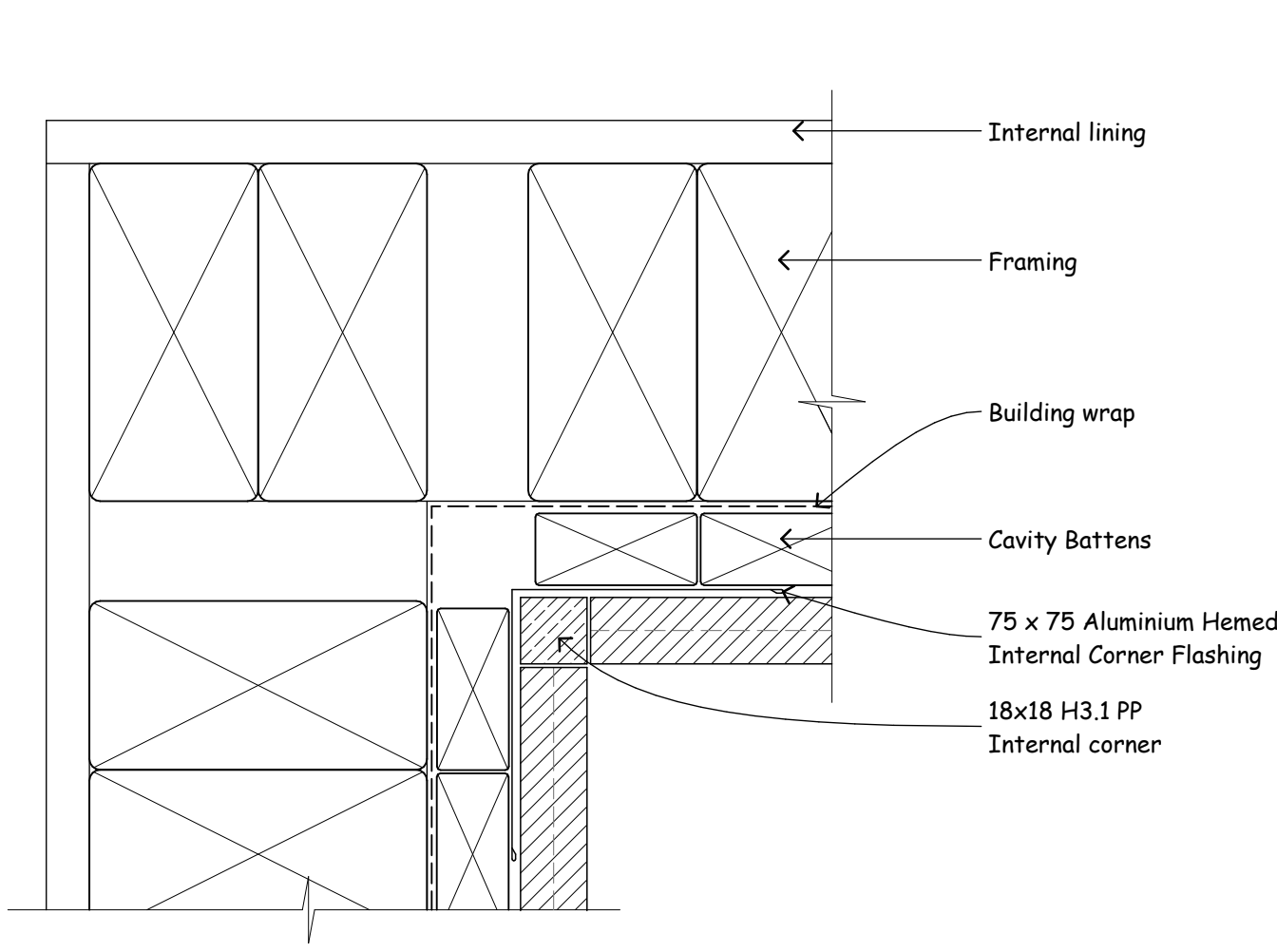
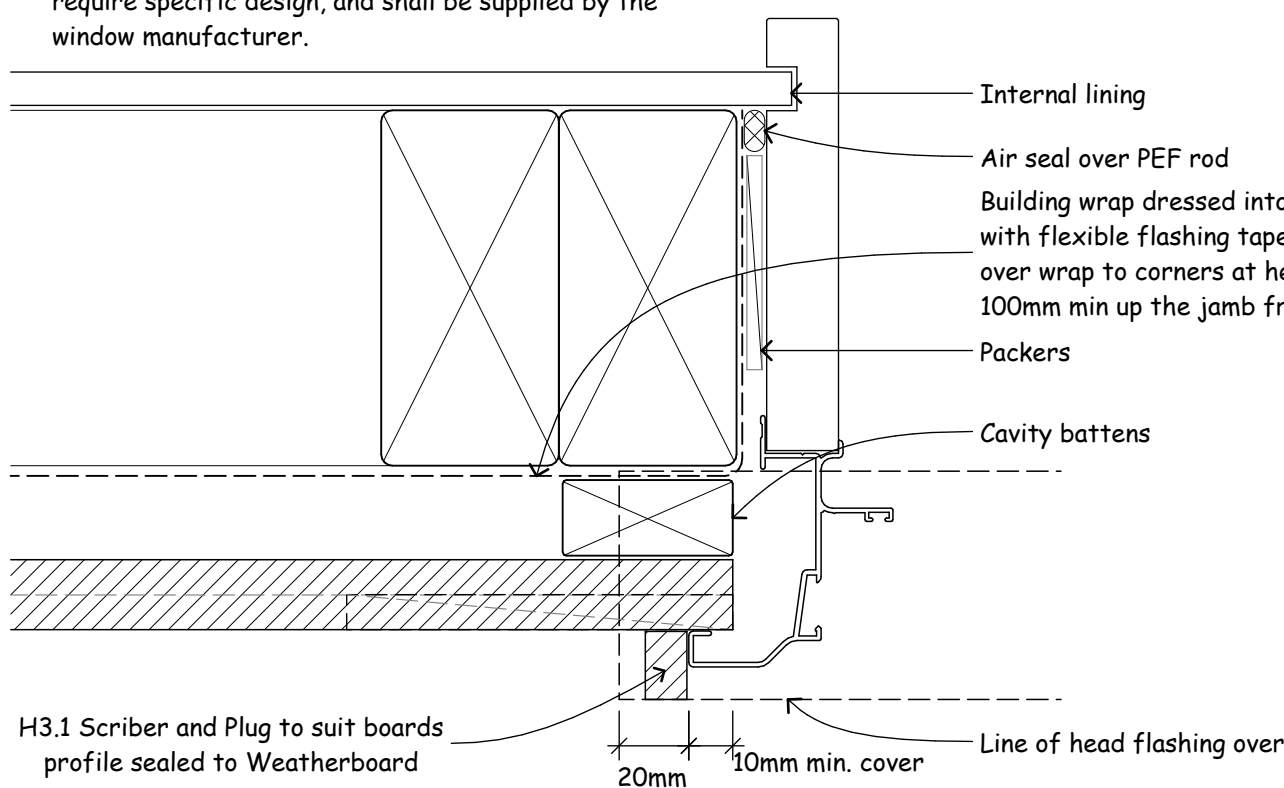


RUSTICATED WEATHERBOARD ON CAVITY WINDOW SILL DETAIL

Scale 1:2 @ A1
1:4 @ A3

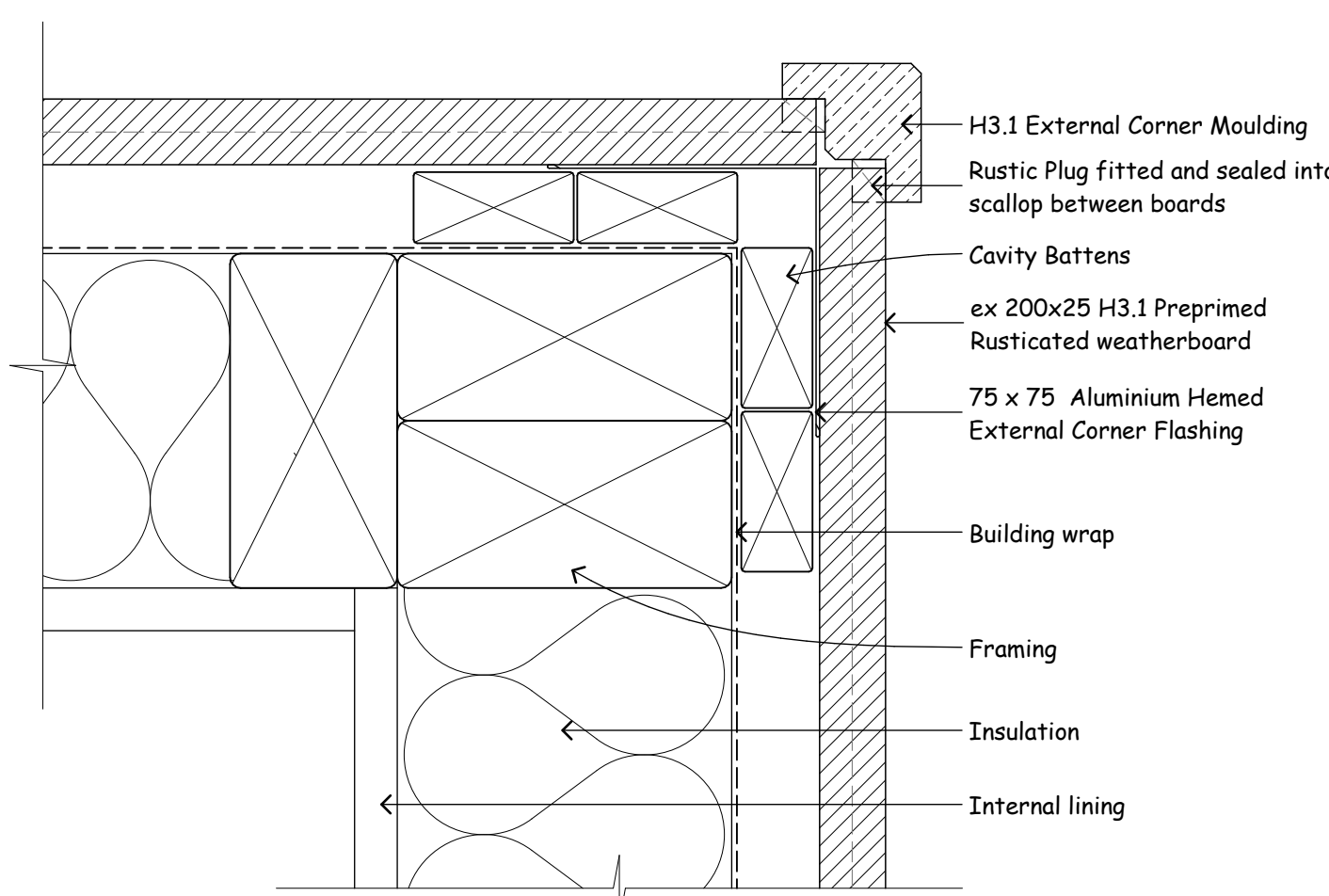
NOTE:

1. Window profile to be selected to achieve cover shown in details.
2. Make allowances between packer at sills for support brackets for large windows. Such brackets require specific design, and shall be supplied by the window manufacturer.



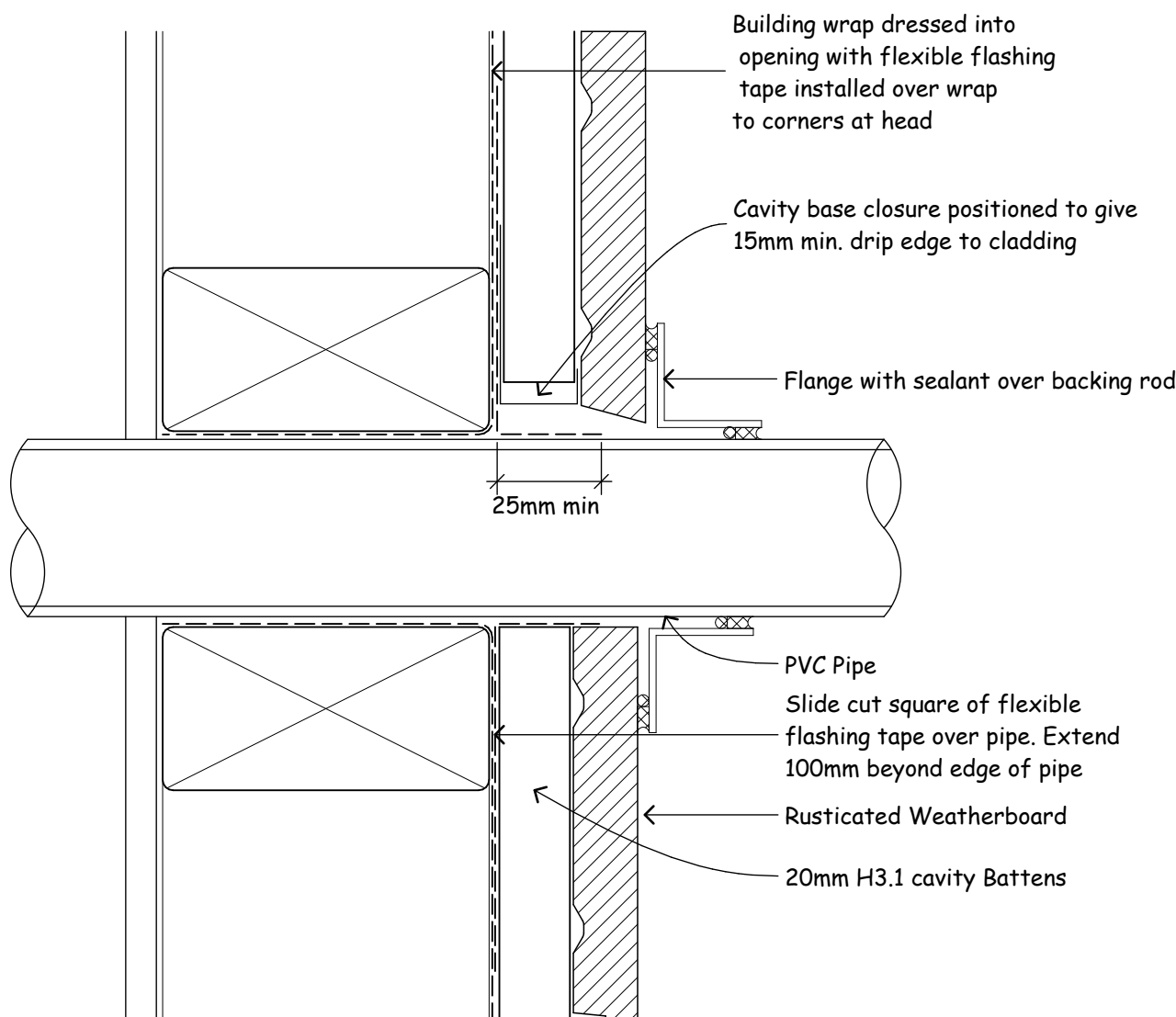
RUSTICATED WEATHERBOARD ON CAVITY INTERNAL CORNER DETAIL

Scale 1:2 @ A1
1:4 @ A3



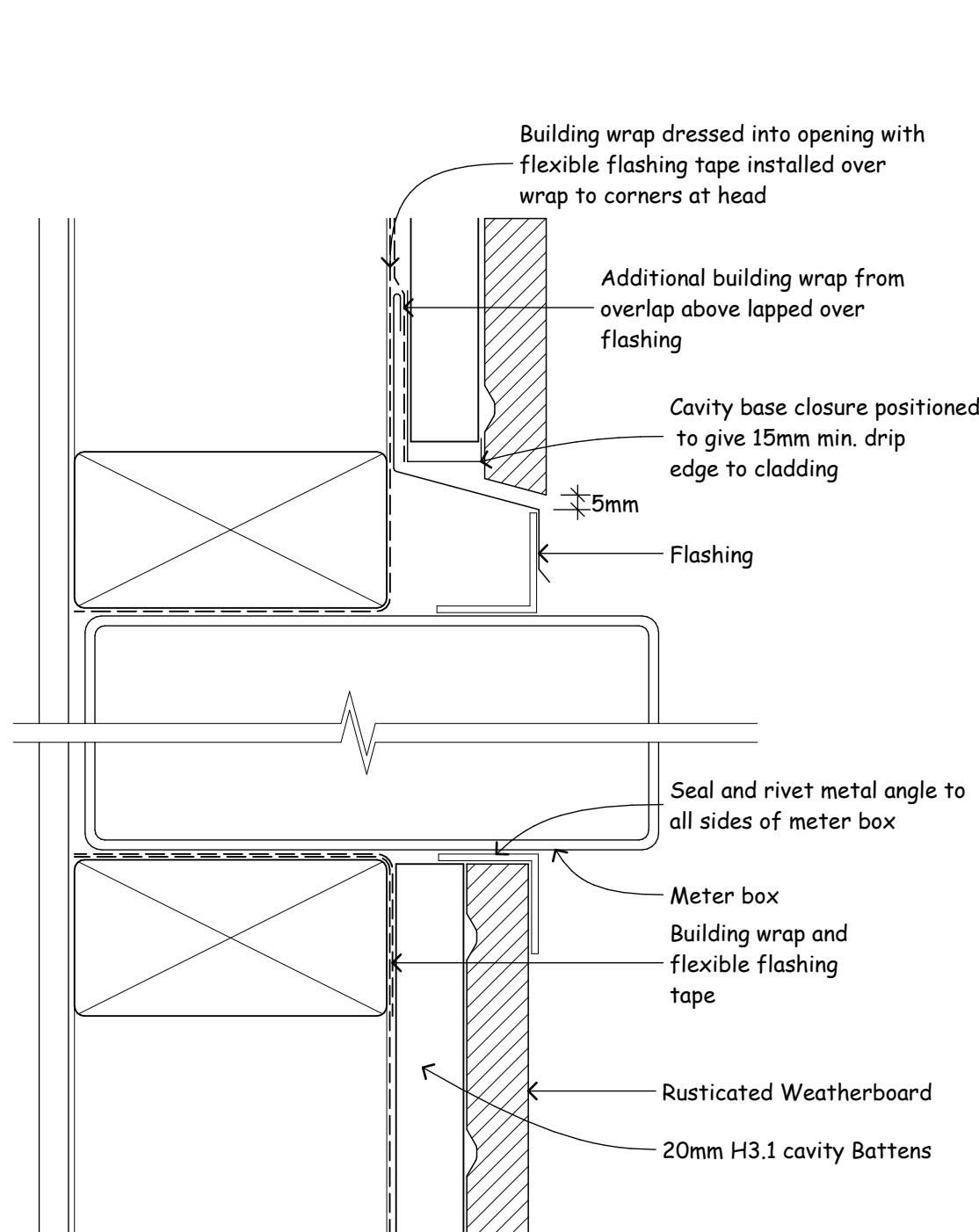
RUSTICATED WEATHERBOARD ON CAVITY EXTERNAL CORNER DETAIL

Scale 1:2 @ A1
1:4 @ A3



RUSTICATED WEATHERBOARD ON CAVITY PIPE PENETRATION DETAIL

Scale 1:2 @ A1
1:4 @ A3



RUSTICATED WEATHERBOARD ON CAVITY METER BOX DETAIL

Scale 1:2 @ A1
1:4 @ A3

GENERAL NOTES

All dimensions are in millimetres unless noted otherwise
All levels are in metres to an assumed datum
All construction shall comply with NZS 3604 and NZ Building Code and approved solutions

Contractor / Builder and all sub-trades shall check any existing measurements on site, and confirm site boundaries prior ordering any materials or fabrication of any components

Timber Framing

- Structural timber framing shall be SG8 min H1.2 treated kiln dried
- All decks and exposed timber shall be minimum H3.2 SG 8 treated

Bracing

Wall Bracing calculated using Gib Bracing Guide

Wind Zone: High Earthquake Zone: 1
Corrosion Zone: Zone D Stainless Steel fixings to exposed areas

Plumbing and Drainage

- All Plumbing and Drainage to comply with NZBC G13 AS1 & AS2
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- 32 Ø mm = 1:20
- 40 Ø mm = 1:20
- 50 Ø mm = 1:20
- 65 Ø mm = 1:40
- 80 Ø mm = 1:60
- 100 Ø mm = 1:60
- Air admittance valves or vents are required to all waste water discharge pipes where they exceed 3.5 m in length

Glazing & Joinery

- All glazing to be in accordance with NZS 4223.3 - Glazing in building human impact safety requirements
- Joinery to comply with NZS 4211 - Performance of windows
- NZS 3504 - Specifications for Aluminium window
- Wanz - Specifications for powder coating & window installation systems

Structural Steel

- All Steel is to be site checked prior to fabrication
- Steel to steel bolted connections to be M16 Galvanised Engineers bolts unless otherwise stated.
- Steel to timber bolted connections to be M12 Galvanised Engineers bolts unless otherwise stated.
- End Plates to have 6 mm Fillet weld all round.
- Damage to primer during erection to be made good.
- Field welds and parts adjacent there to and the heads of all field bolts to be covered with two coats of primer.
- Structural Steel footings to be inspected by Engineer prior to concreting/closing in.
- Refer to Arnold & Johnstone Structural Calculations and contact them on Ph. 07 578 0921 for any queries.

Job title:

Proposed Mac Donald Alterations

For:

M & K MacDonald

At:

36 Omokoroa Road
Omokoroa
Lot. 12 DP 4749

Scales:

As shown

Date:

1/11/18

Sheet No.

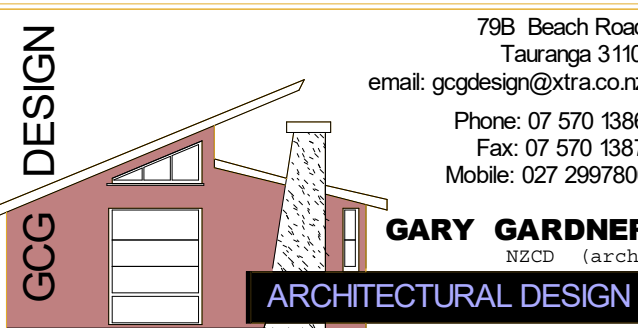
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JOB No:

GCG 2118

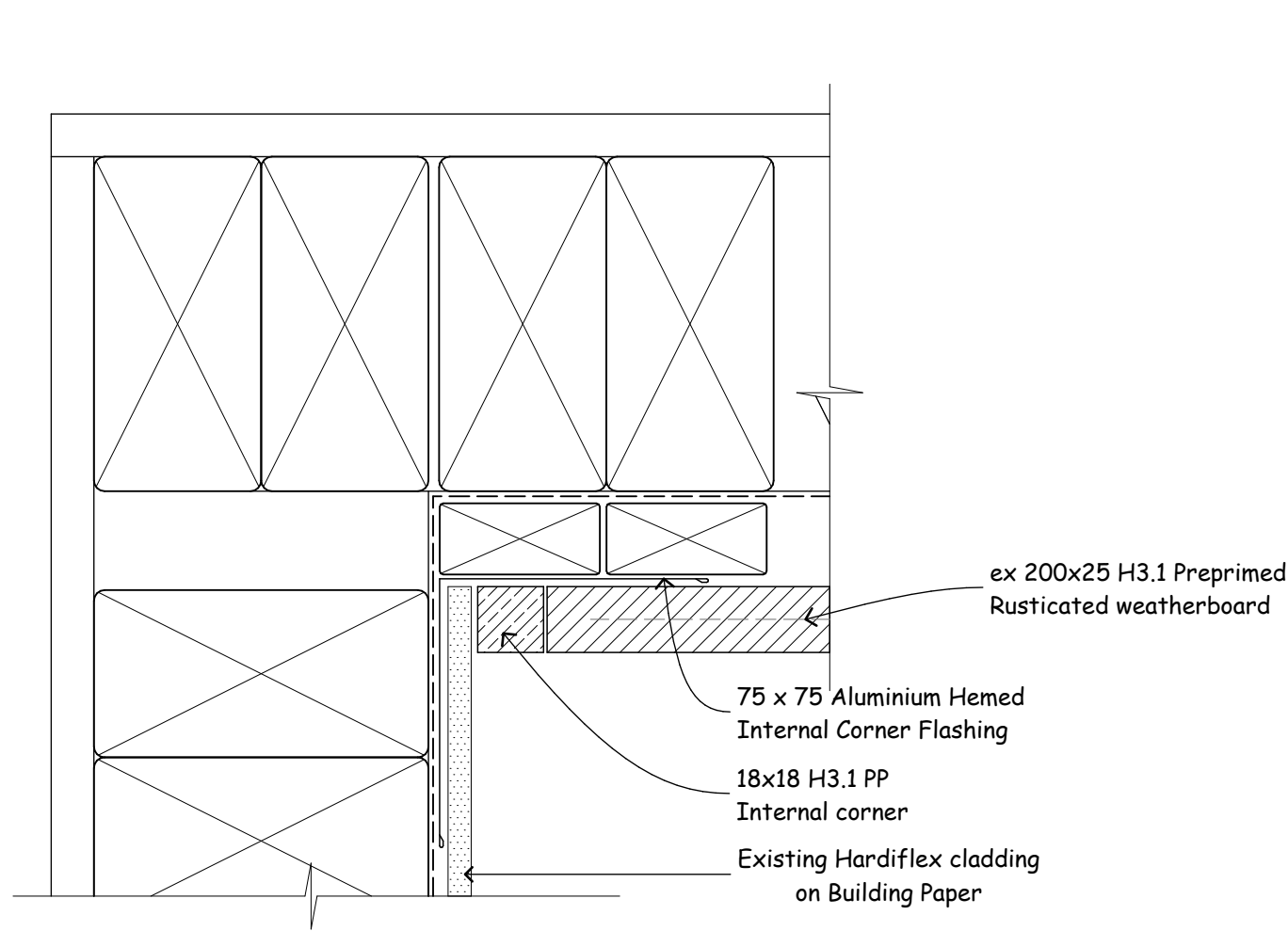
Of:

12



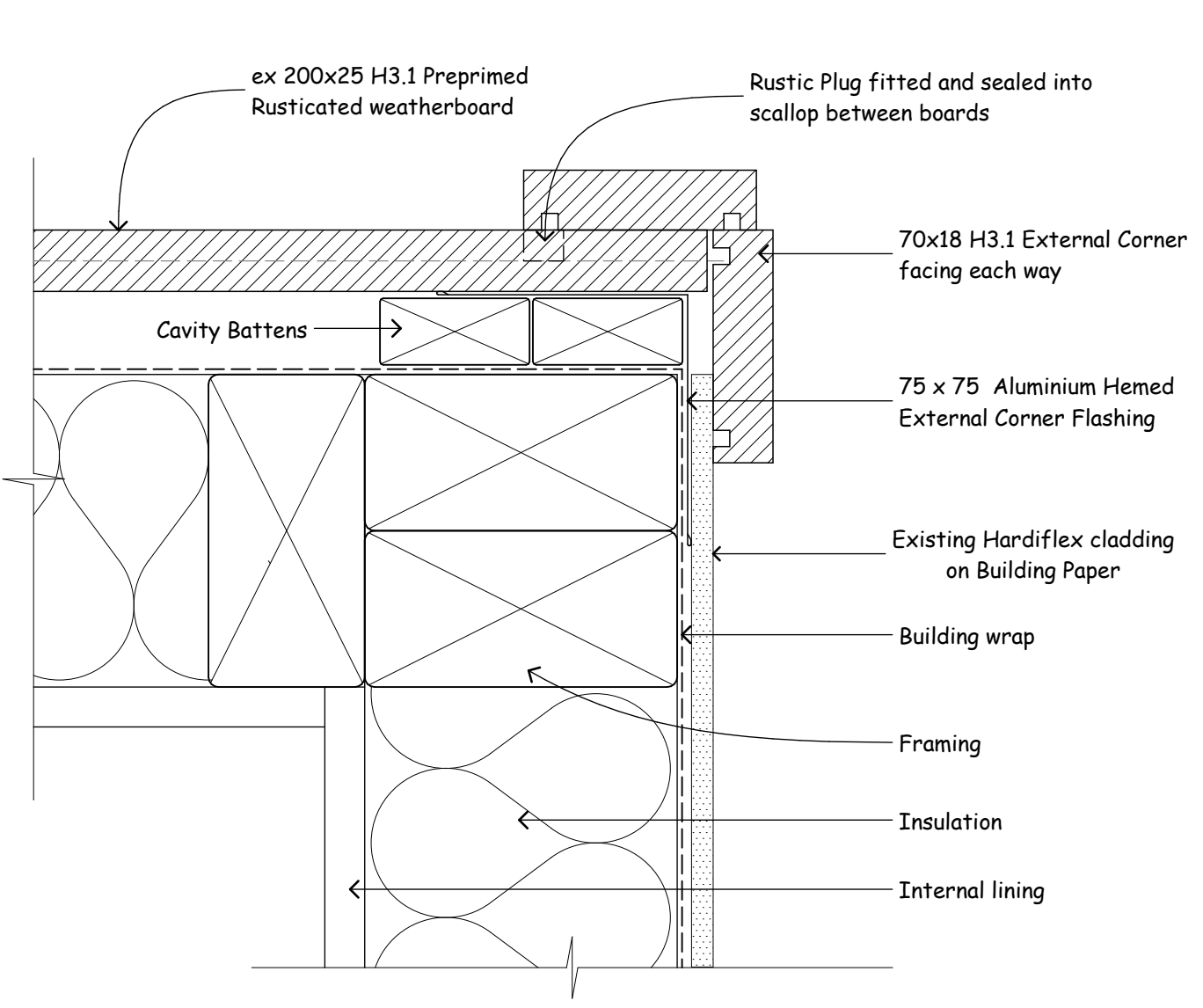
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Contractors Note, It is the Contractors responsibility to check all dimensions prior to the commencement of construction and inform the designer of any discrepancies



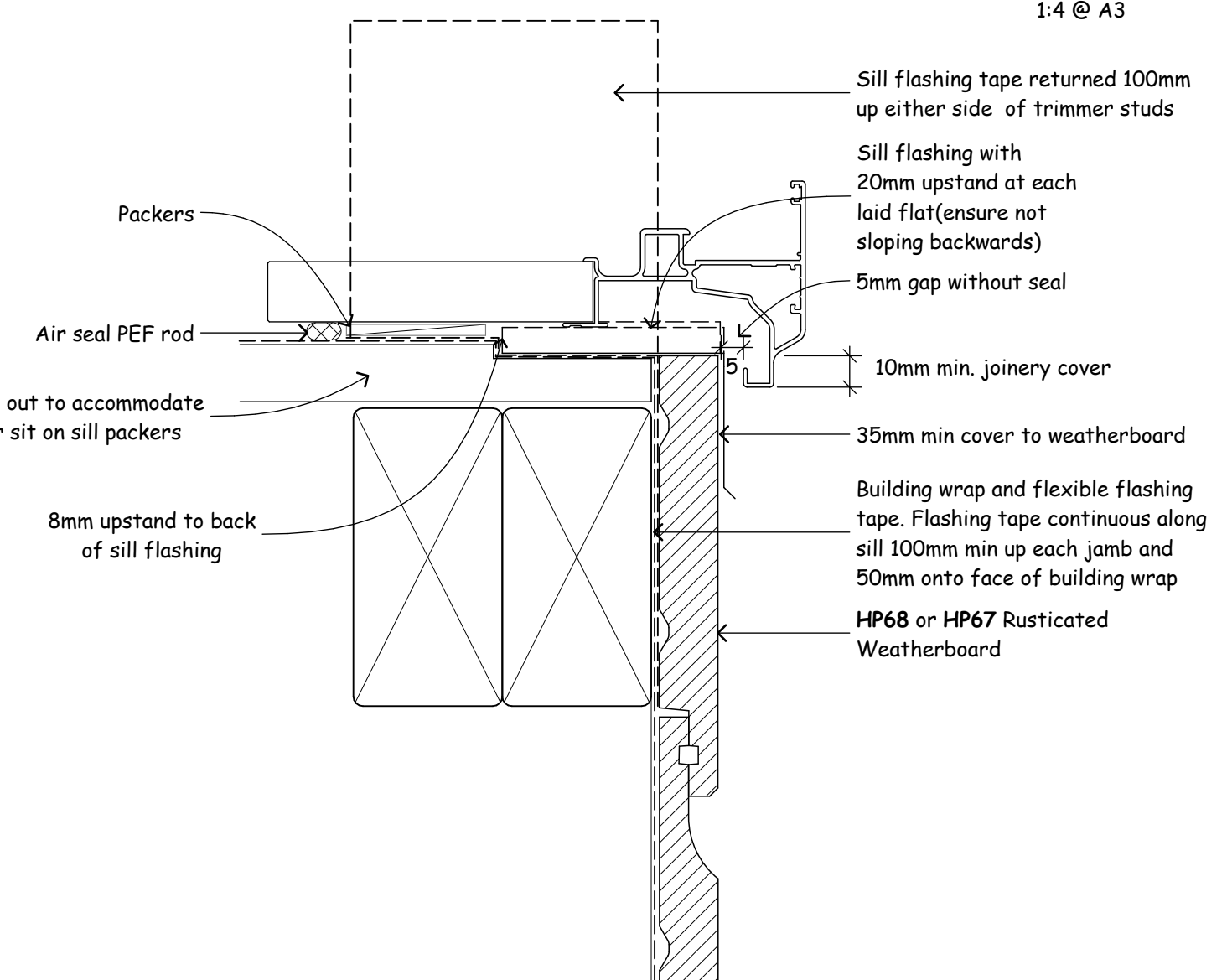
RUSTICATED WEATHERBOARD ON CAVITY TO HARDIFLEX INTERNAL CORNER DETAIL

Scale 1:2 @ A1
1:4 @ A3



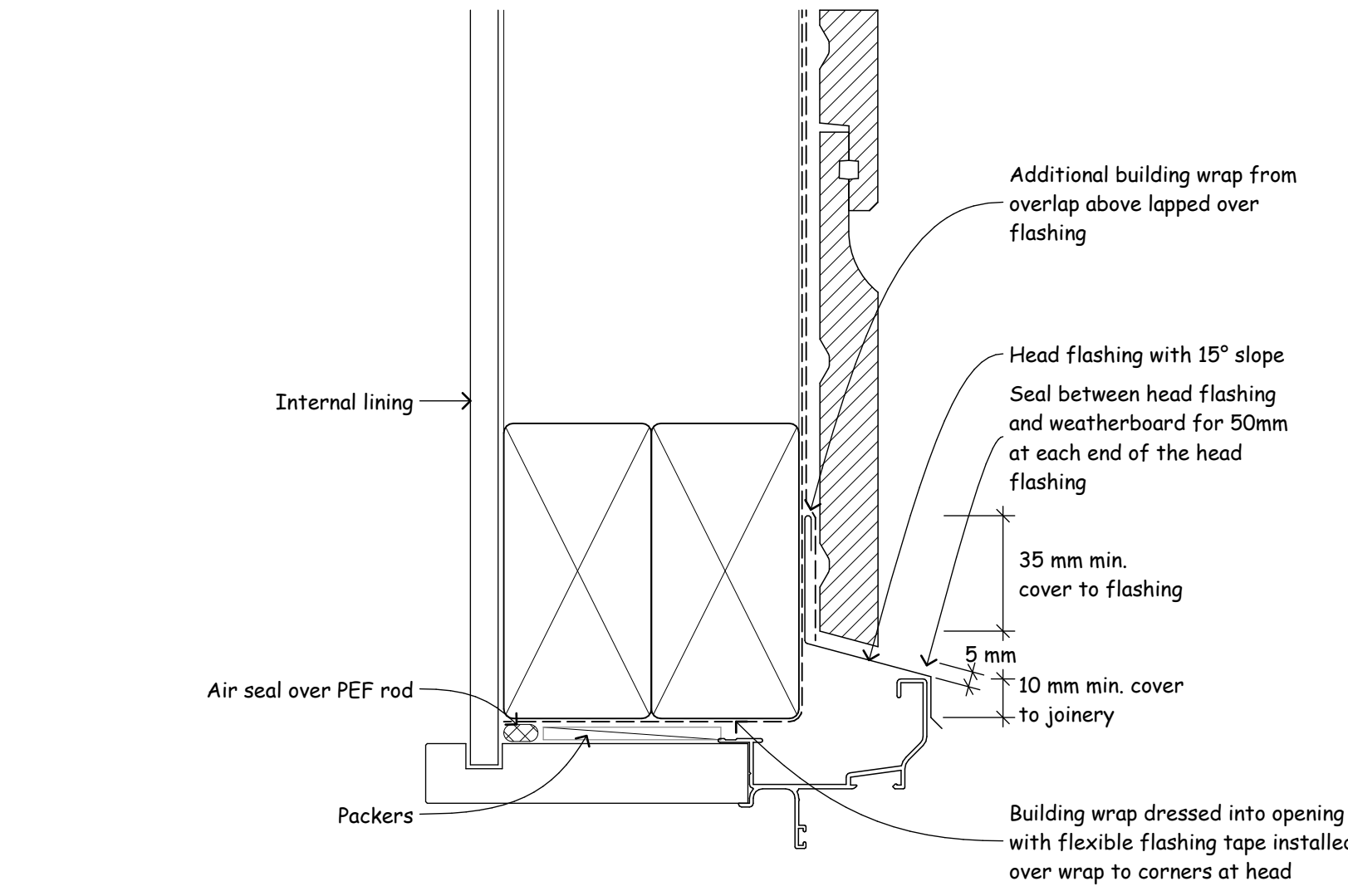
RUSTICATED WEATHERBOARD ON CAVITY TO HARDIFLEX EXTERNAL CORNER DETAIL

Scale 1:2 @ A1
1:4 @ A3



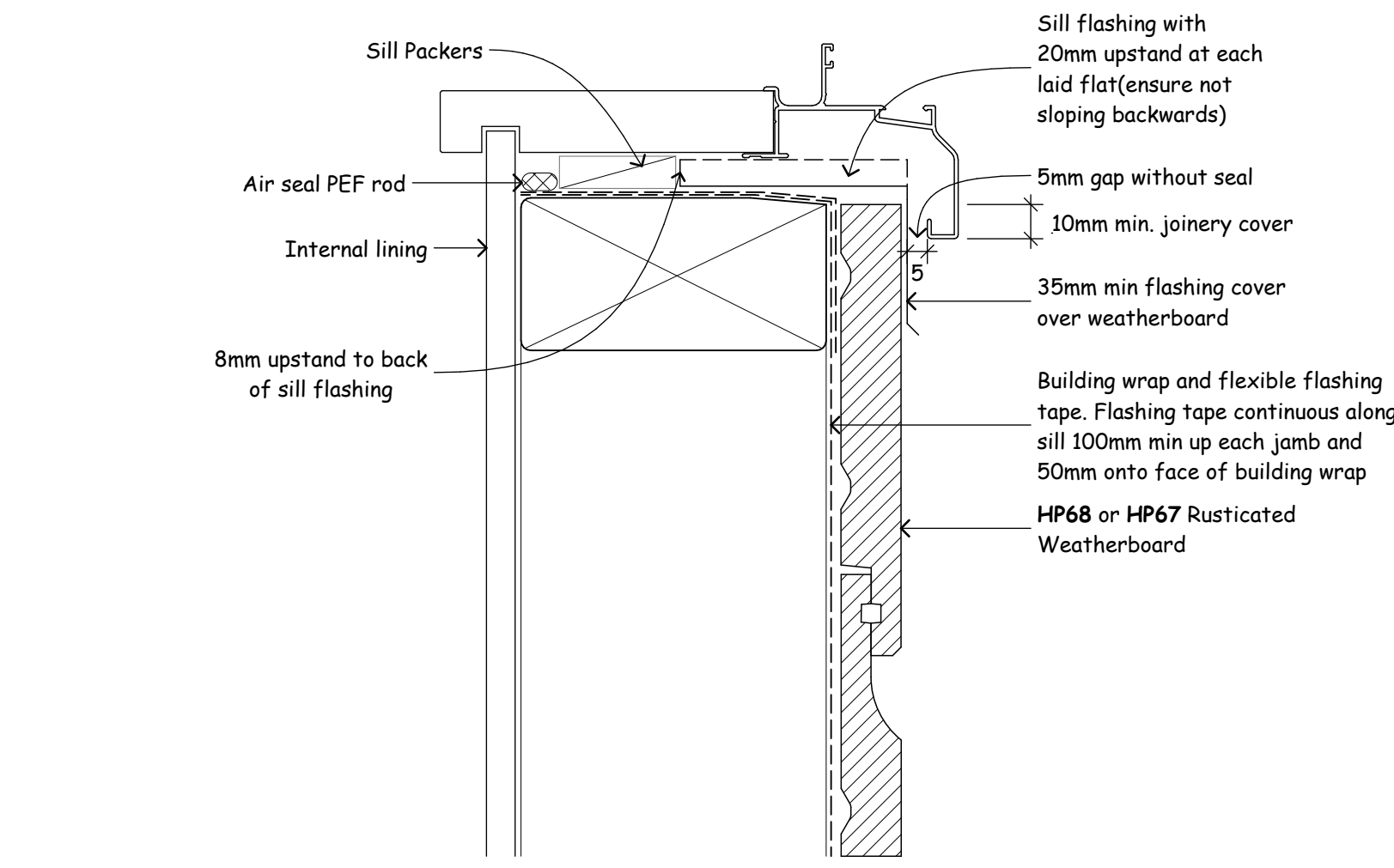
RUSTICATED WEATHERBOARD DIRECT FIX DOOR SILL DETAIL

Scale 1:2 @ A1
1:4 @ A3



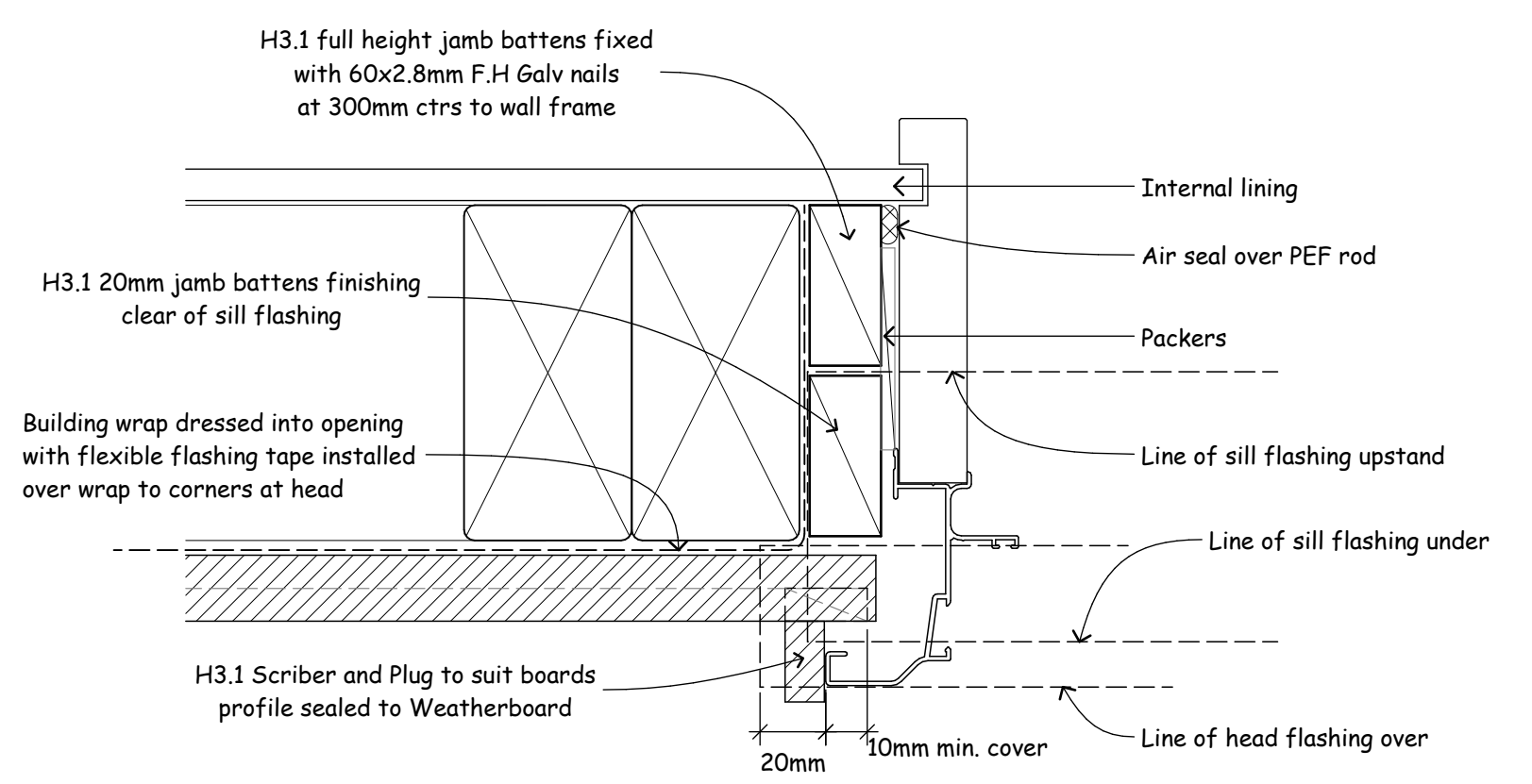
RUSTICATED WEATHERBOARD ON DIRECT FIX WINDOW HEAD DETAIL

Scale 1:2 @ A1
1:4 @ A3



RUSTICATED WEATHERBOARD DIRECT FIX WINDOW SILL DETAIL

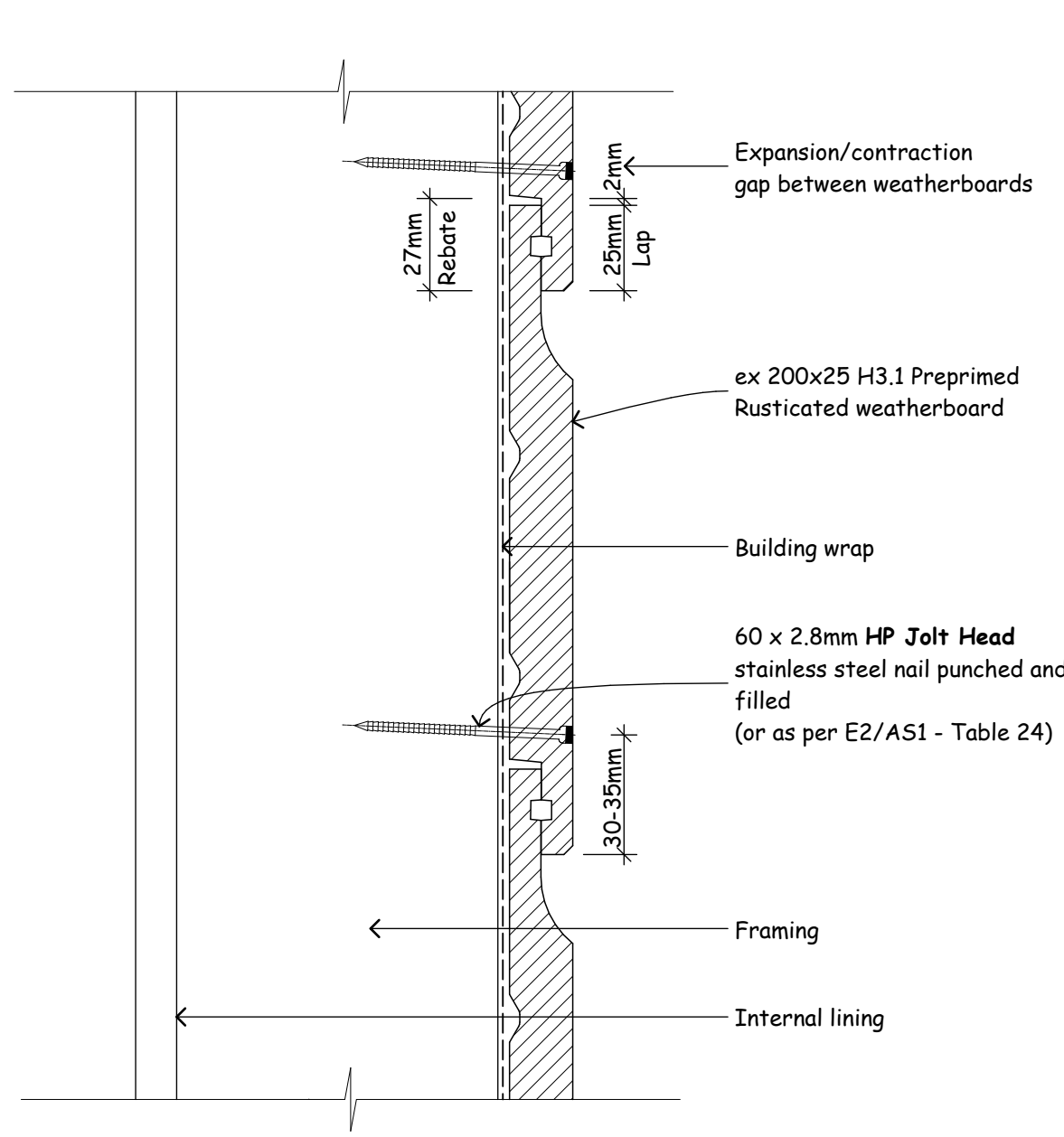
Scale 1:2 @ A1
1:4 @ A3



RUSTICATED WEATHERBOARD ON DIRECT FIX WINDOW JAMB DETAIL

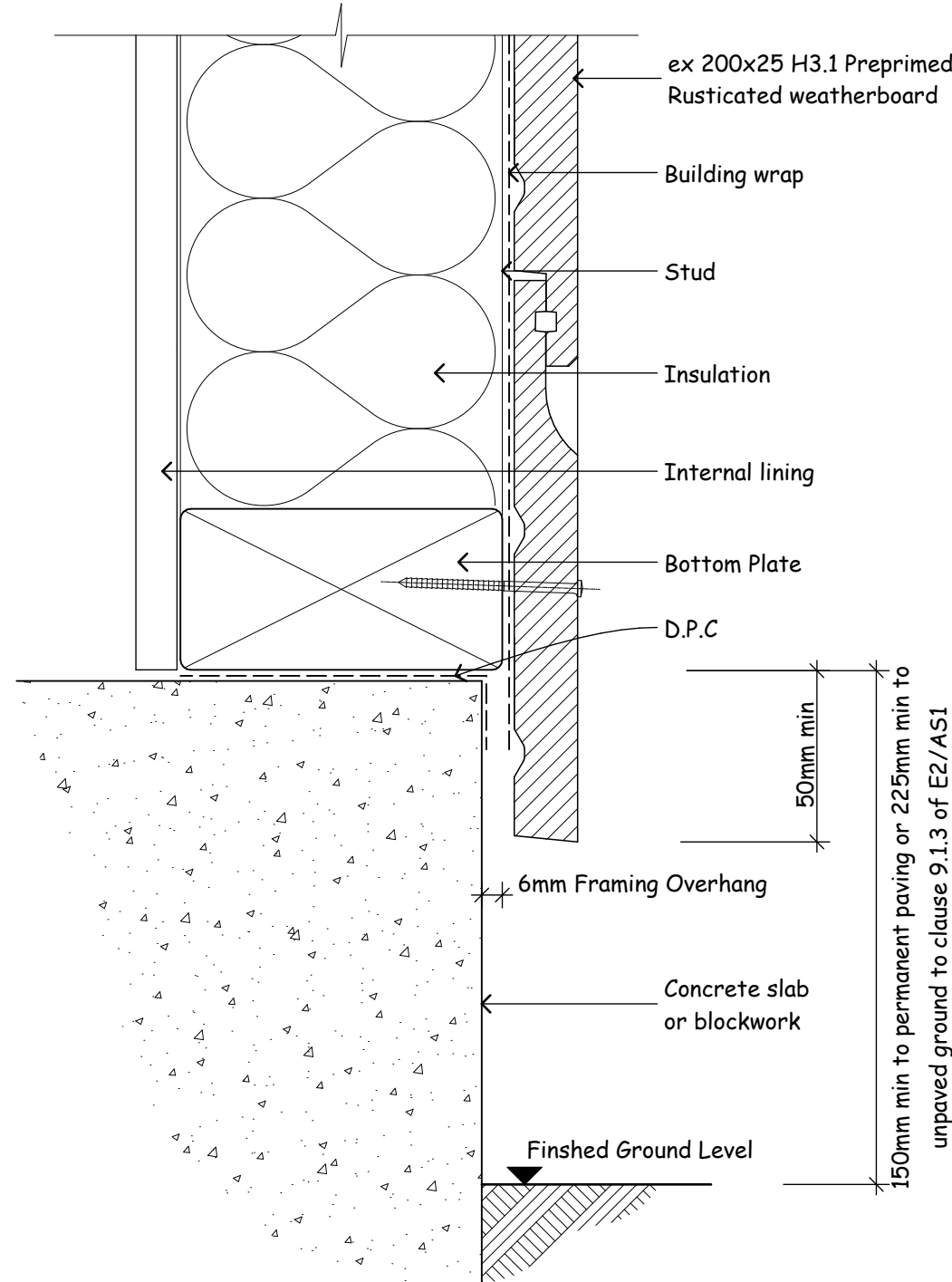
Scale 1:2 @ A1
1:4 @ A3

NOTE:
1. Window profile to be selected to achieve cover shown in details.
2. Make allowances between packer at sills for support brackets for large windows. Such brackets require specific design, and shall be supplied by the window manufacturer.



RUSTICATED WEATHERBOARD DIRECT FIX TYPICAL FIXING

Scale 1:2 @ A1
1:4 @ A3



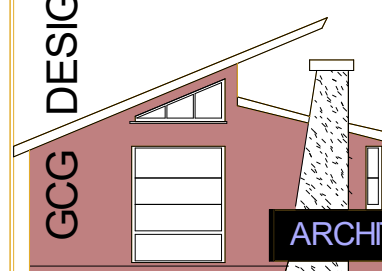
RUSTICATED WEATHERBOARD DIRECT FIX WALL BASE

Scale 1:2 @ A1
1:4 @ A3

GENERAL NOTES		
All dimensions are in millimetres unless noted otherwise All levels are in metres to an assumed datum All construction shall comply with NZS 3604 and NZ Building Code and approved solutions		
Contractor / Builder and all sub-trades shall check any existing measurements on site, and confirm site boundaries prior ordering any materials or fabrication of any components		
Timber Framing - Structural timber framing shall be SG8 min H1.2 treated kiln dried - All decks and exposed timber shall be minimum H3.2 SG 8 treated		
Bracing Wall Bracing calculated using Gib Bracing Guide		
Wind Zone: High Earthquake Zone: 1 Corrosion Zone: Zone D Stainless Steel fixings to exposed areas		
Plumbing and Drainage - All Plumbing and Drainage to comply with NZBC G13 AS1 & AS2 - Minimum gradients for pipes will generally be as below but subject to confirmation for tables C1/C3/E1 & E2 of the BRANZ Plumbing & Drainage Guide 32 Ø mm = 1:20 40 Ø mm = 1:20 50 Ø mm = 1:20 65 Ø mm = 1:40 80 Ø mm = 1:60 100 Ø mm = 1:60 - Air admittance valves or vents are required to all waste water discharge pipes where they exceed 3.5 m in length		
Glazing & Joinery - All glazing to be in accordance with NZS 4223.3 - Glazing in building human impact safety requirements - Joinery to comply with NZS 4211 - Performance of windows - NZS 3504 - Specifications for Aluminium window - WANZ - Specifications for powder coating & window installation systems		
Structural Steel - All Steel is to be site checked prior to fabrication - Steel to steel bolted connections to be M16 Galvanised Engineers bolts unless otherwise stated. - Steel to timber bolted connections to be M12 Galvanised Engineers bolts unless otherwise stated. - End Plates to have 6 mm Fillet weld all round. - Damage to primer during erection to be made good. - Field welds and parts adjacent there to and the heads of all field bolts to be covered with two coats of primer. - Structural Steel footings to be inspected by Engineer prior to concreting/closing in. - Refer to Arnold & Johnstone Structural Calculations and contact them on Ph. 07 578 0921 for any queries.		

Job title: Proposed Mac Donald Alterations		
For: M & K MacDonald		
At: 36 Omokoroa Road Omokoroa Lot. 12 DPs 4749		
Scales: As shown	Date: 1/11/18	Sheet No. 11
JOB No: GCG 2118	Of: 12	

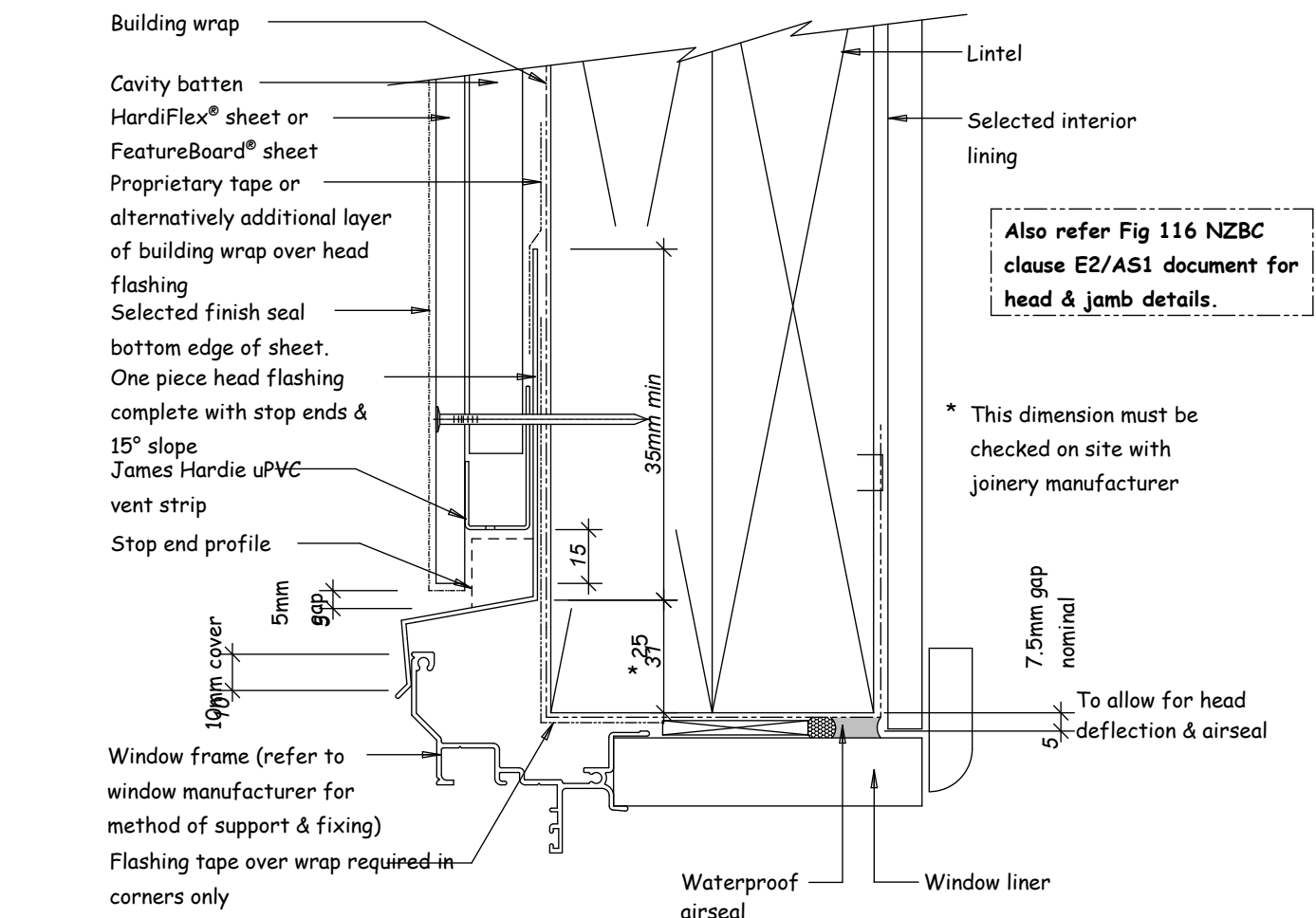
GCG DESIGN



79B Beach Road
Tauranga 3110
email: gcgdesign@xtra.co.nz
Phone: 07 570 1386
Fax: 07 570 1387
Mobile: 027 2997800

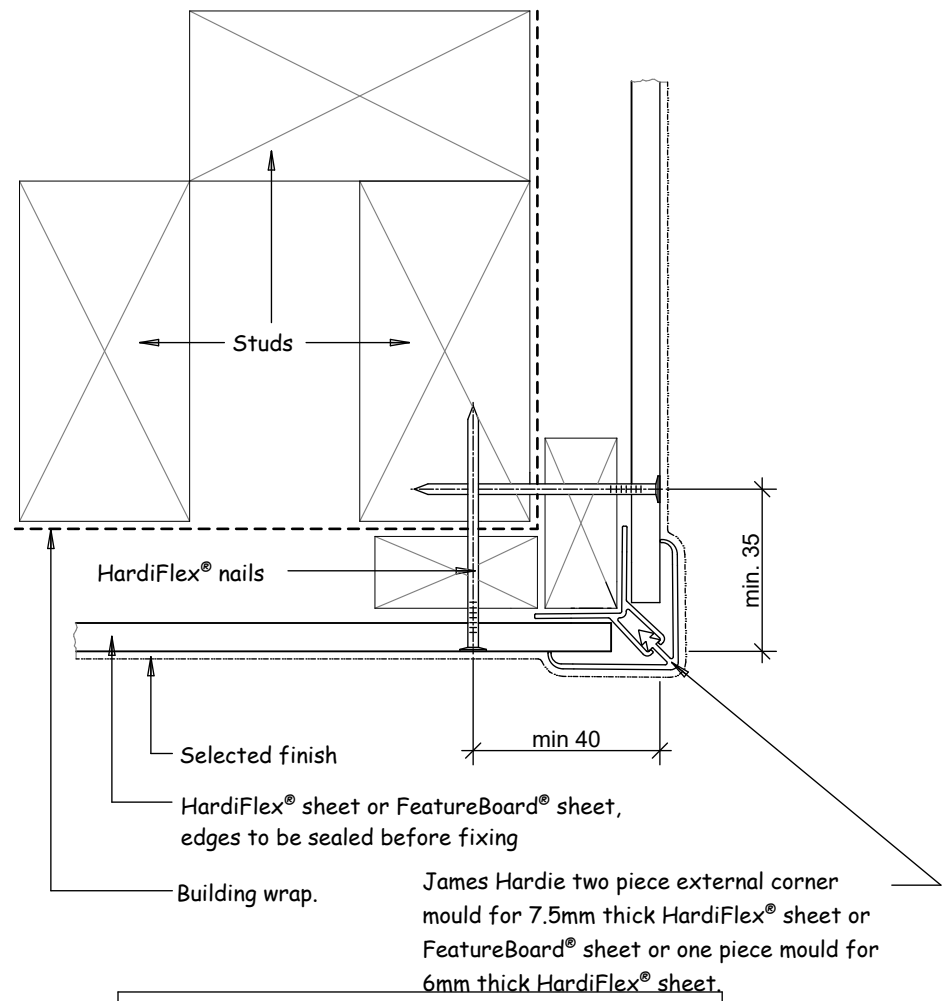
GARY GARDNER
NZCD (archt)
ARCHITECTURAL DESIGN

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Contractors Note, It is the Contractors responsibility to check all dimensions prior to the commencement of construction and inform the designer of any discrepancies



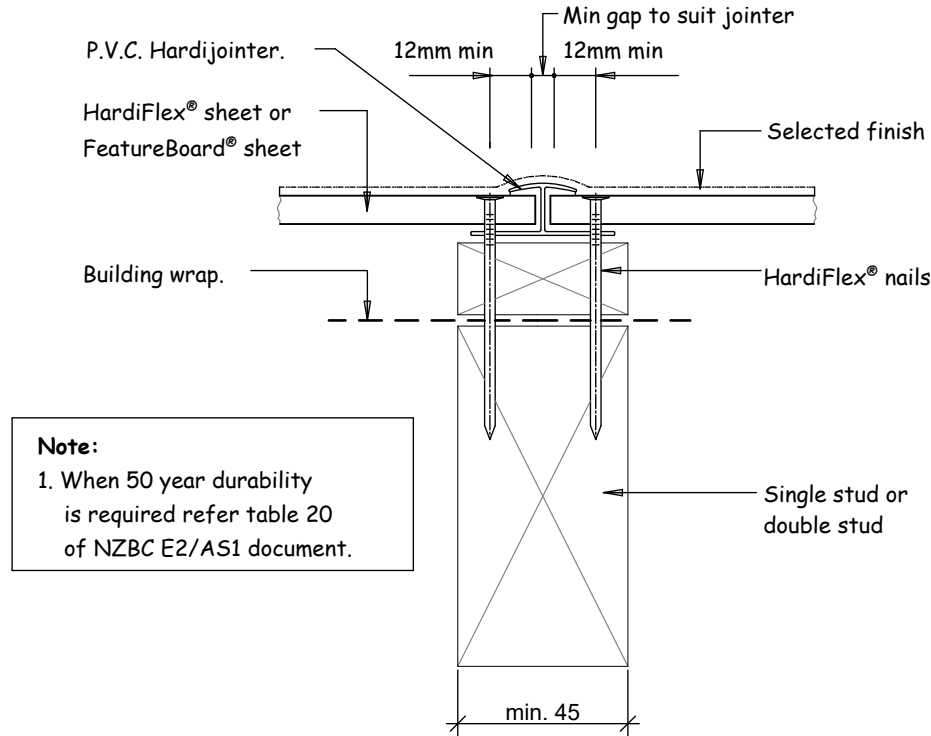
CAVITY WINDOW HEAD

Scale 1:2 @ A1
1:4 @ A3



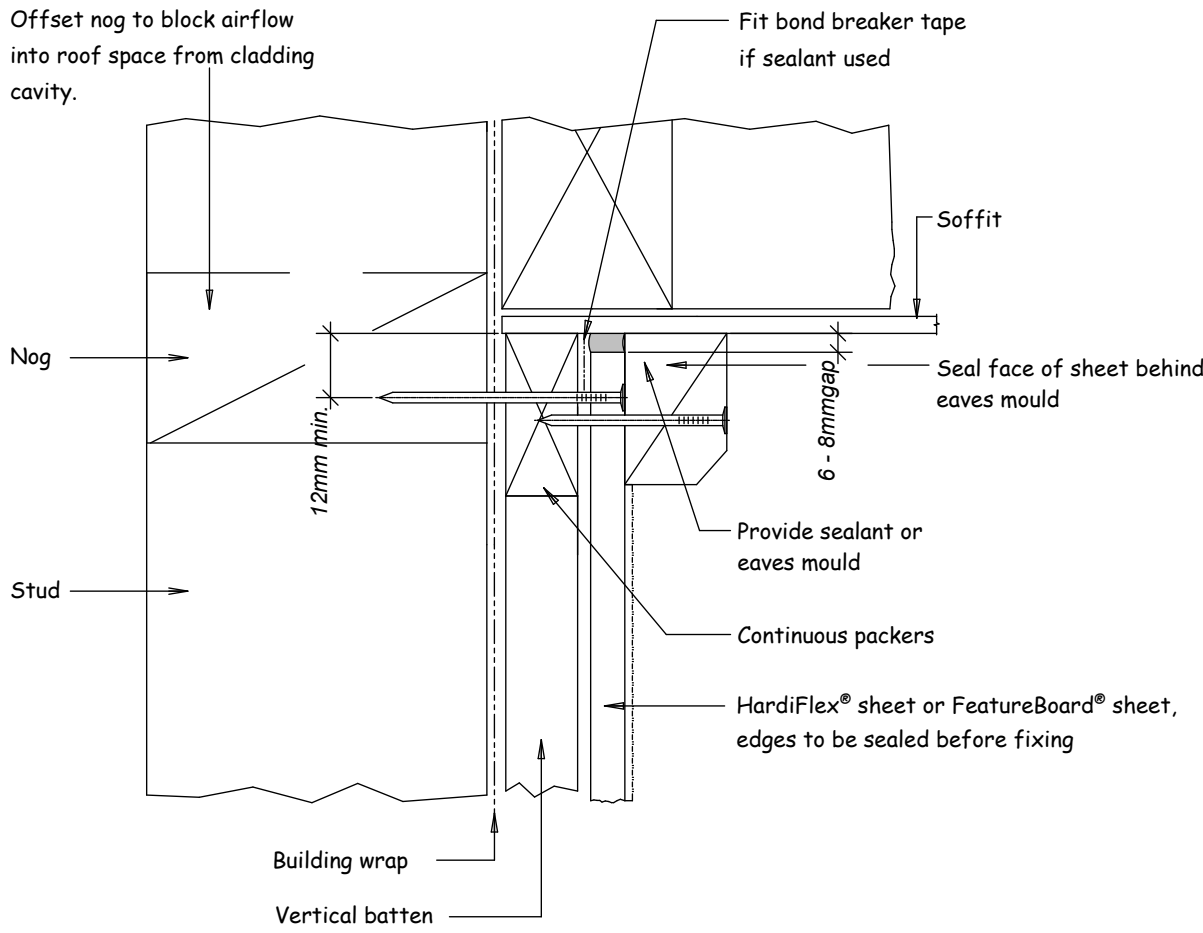
CAVITY EXTERNAL CORNER JOINT

Scale 1:2 @ A1
1:4 @ A3



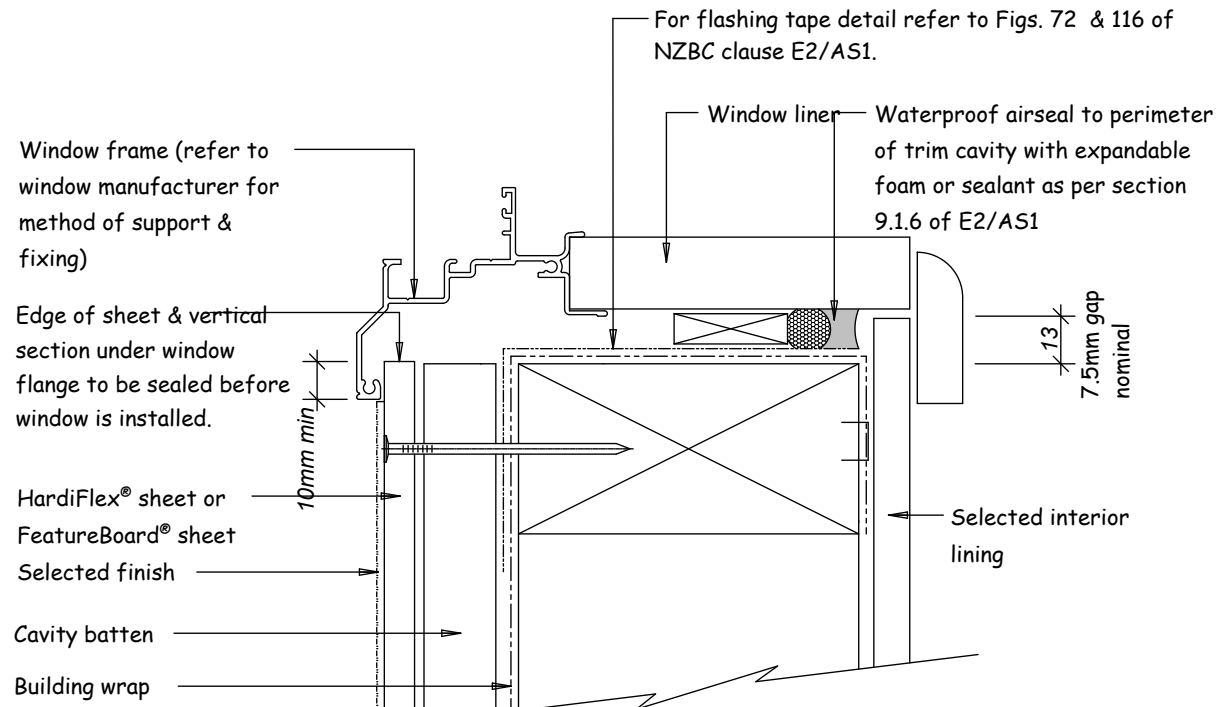
CAVITY VERTICAL P.V.C. JOINT

Scale 1:2 @ A1
1:4 @ A3



CAVITY SOFFIT DETAIL

Scale 1:2 @ A1
1:4 @ A3



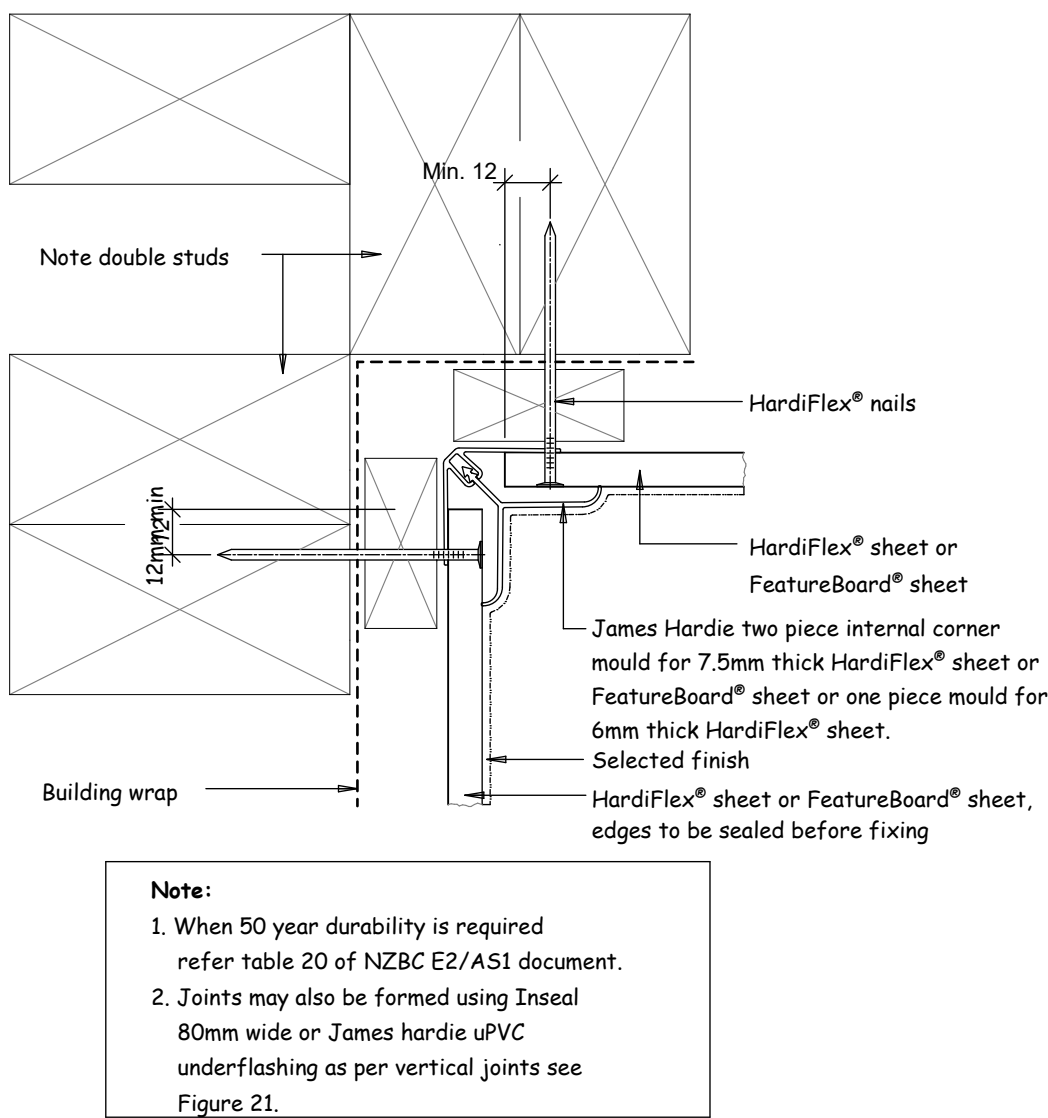
General notes for materials selection

- Flashing materials must be selected based on environmental exposure, refer to NZS 3604 & table 20 of NZBC clause 'E2/AS1'.
- Building wrap must comply with acceptable solution NZBC clause 'E2/AS1' & NZS 3604.
- Flashing tape must have proven compatibility with the selected building wrap & other materials with which it comes into contact as per table 21 of NZBC clause 'E2/AS1'.

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

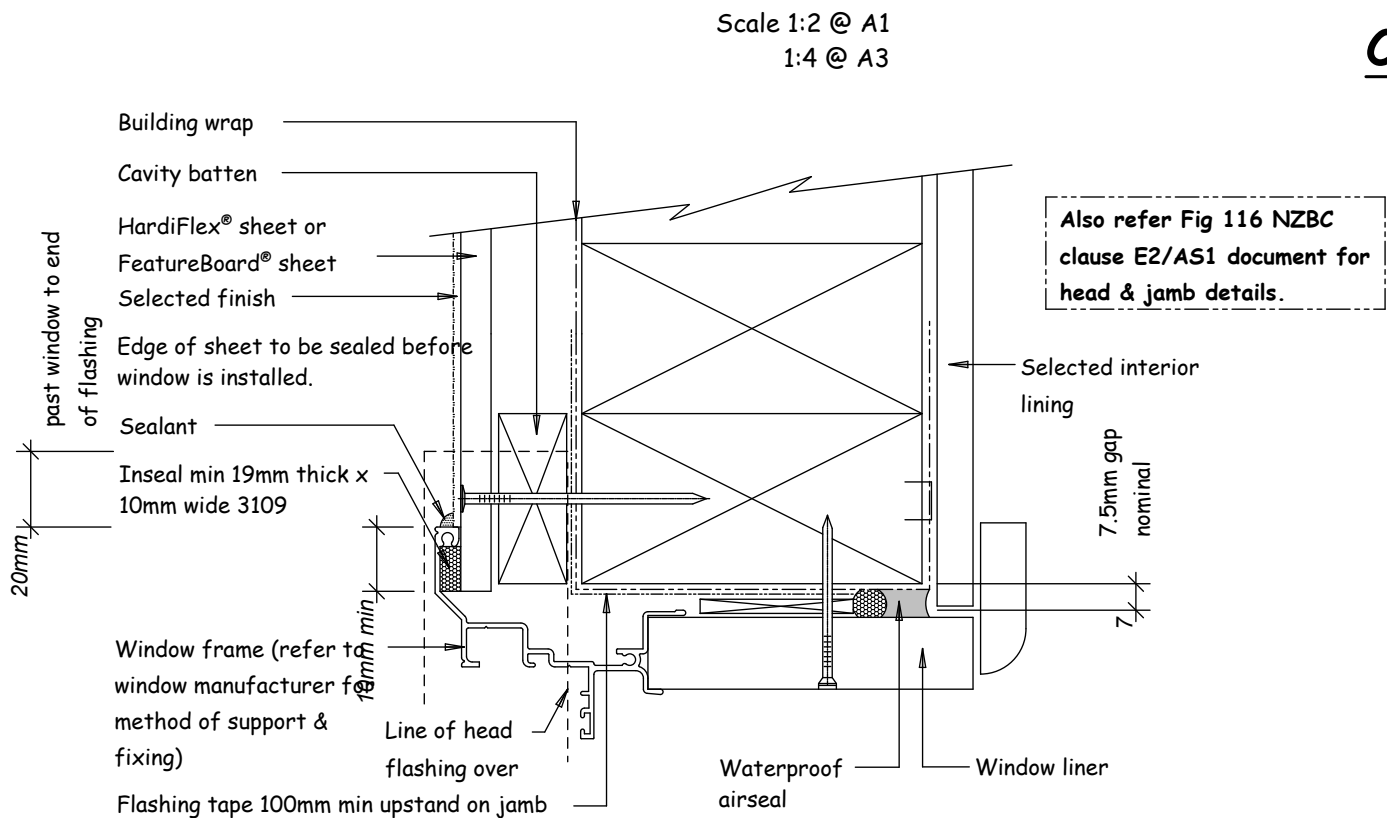
CAVITY WINDOW SILL

Scale 1:2 @ A1
1:4 @ A3



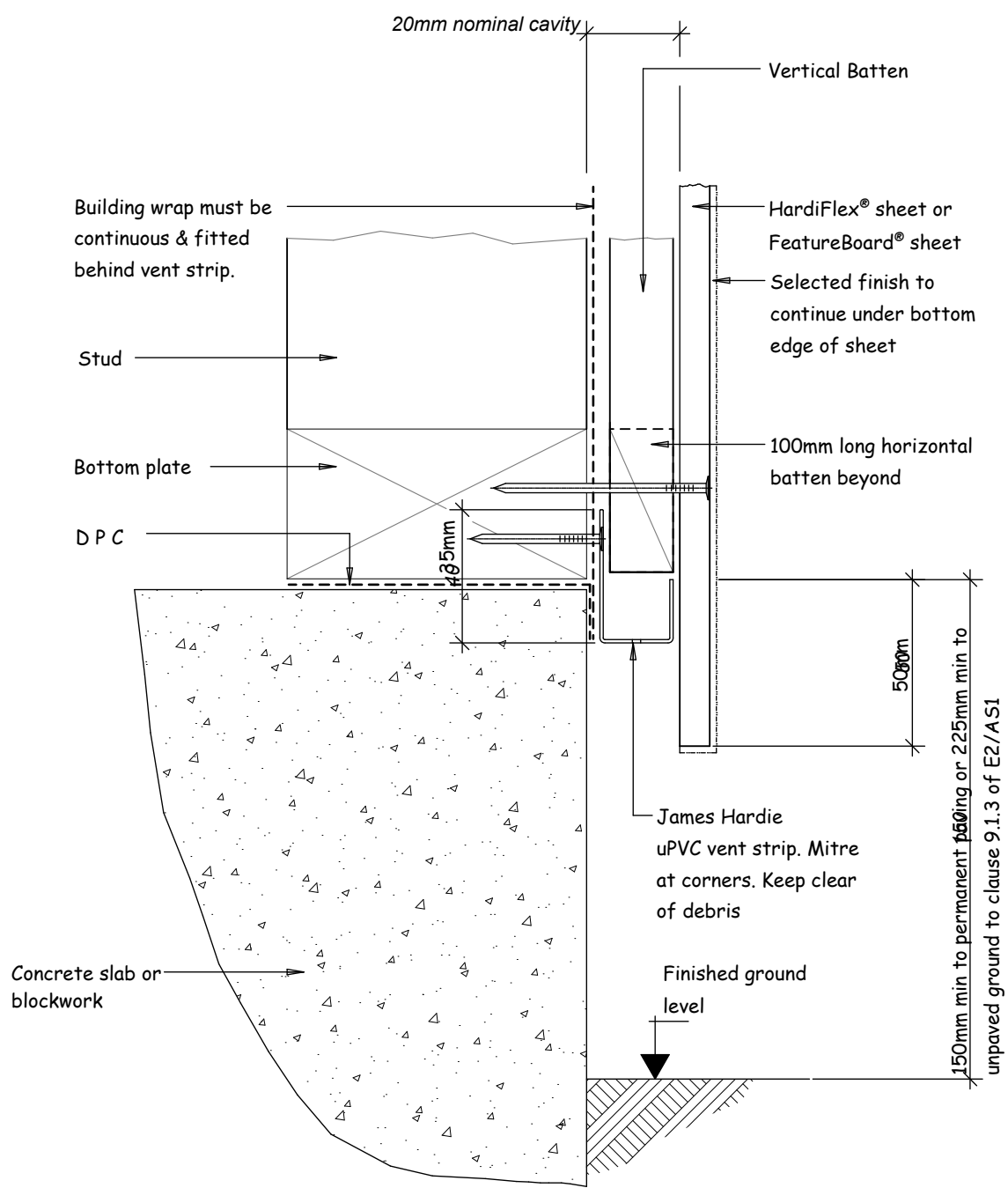
CAVITY INTERNAL CORNER JOINT

Scale 1:2 @ A1
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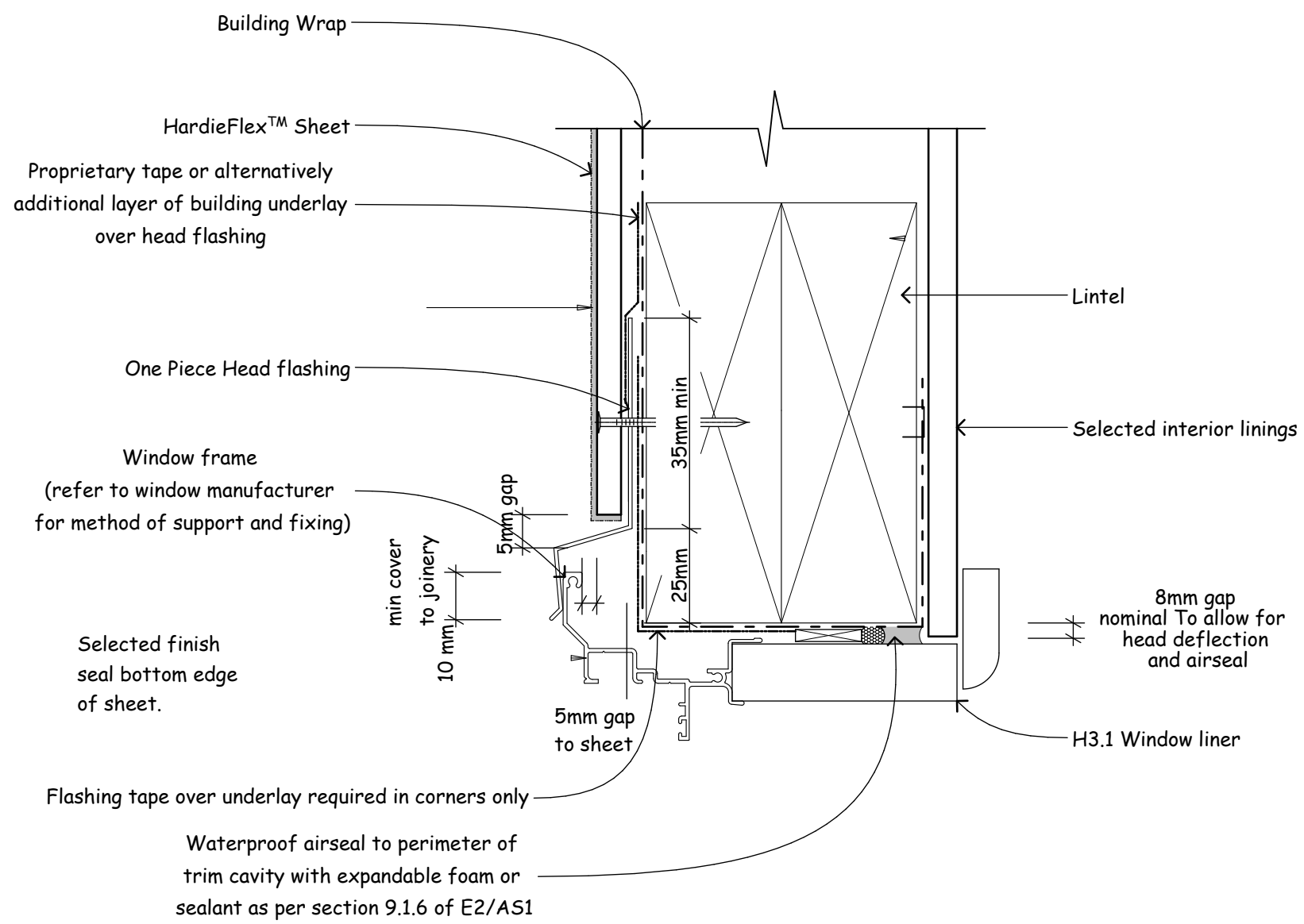
CAVITY WINDOW JAMB

Scale 1:2 @ A1
1:4 @ A3



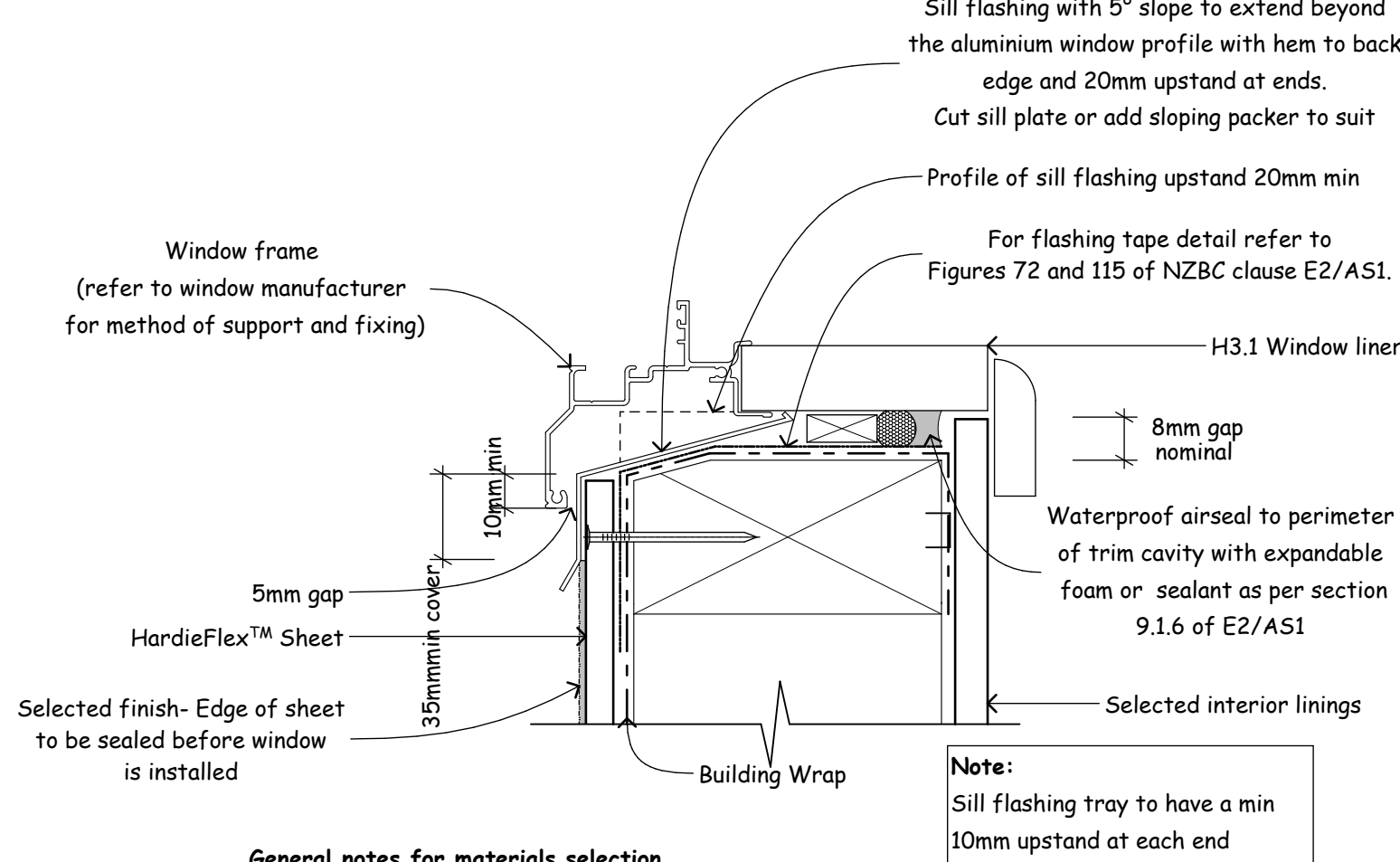
CAVITY CONCRETE FOOTING

Scale 1:2 @ A1
1:4 @ A3



DIRECT FIX WINDOW HEAD

Scale 1:2 @ A1
1:4 @ A3



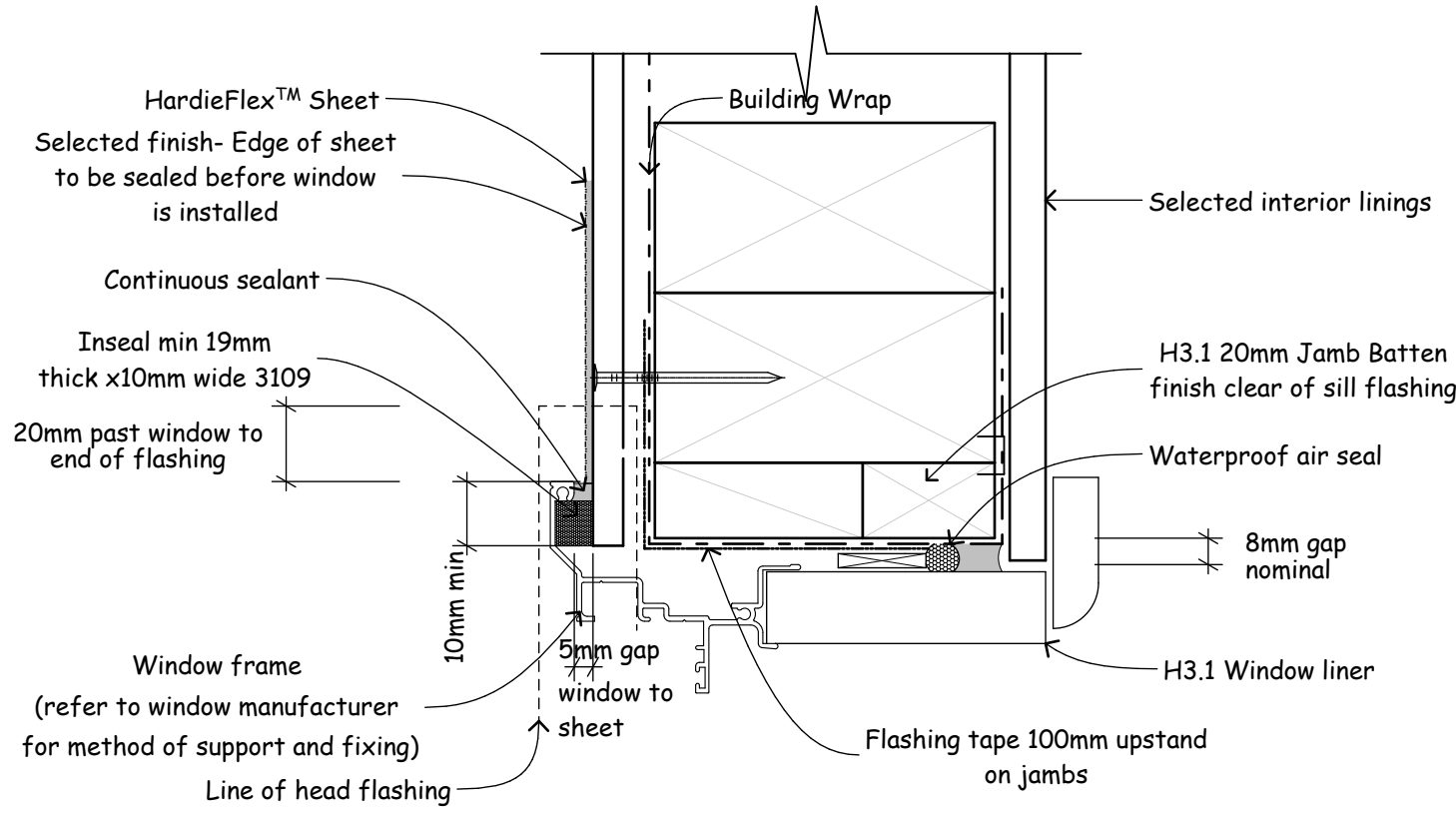
General notes for materials selection

- 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.

DIRECT FIX WINDOW SILL

Scale 1:2 @ A1
1:4 @ A3



DIRECT FIX WINDOW JAMB

Scale 1:2 @ A1
1:4 @ A3

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Job title:

Proposed Mac Donald
Alterations

For:

M & K MacDonald

At:

36 Omokoroa Road
Omokoroa
Lot. 12 DPs 4749

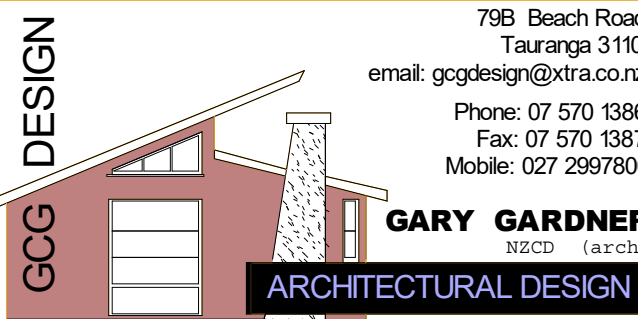
Scales:
As shown

Date:
1/11/18

Sheet No.
12

JOB No: GCG 2118

Of: 12



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Contractors Note. It is the Contractors responsibility to check all dimensions prior to the commencement of construction and inform the designer of any discrepancies

Building Code Clause(s) B1

PRODUCER STATEMENT – PS1 – DESIGN

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

ISSUED BY: Arnold and Johnstone 2015 Ltd
(Design Firm)

TO: Malcolm and Caron MacDonald
(Owner/Developer)

TO BE SUPPLIED TO: Western Bay of Plenty District Council
(Building Consent Authority)

IN RESPECT OF: Proposed House Alterations
(Description of Building Work)

AT: 36 Omokoroa Road, Omokoroa
(Address)

LOT 12 DP 4749 SO

We have been engaged by the owner/developer referred to above to provide Structural Engineering services in respect of the requirements of Clause(s) B1 (Extent of Engagement)

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

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

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

☐ Alternative solution as per the attached schedule.

The proposed building work covered by this producer statement is described on the drawings titled Proposed MacDonald Alterations, 36 Omokoroa Road, Omokoroa and numbered Sheet 4 and 5, dated 1/11/18; 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 Geotechnical ultimate bearing capacity 200 kPa
- (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, Raman Forbes am: ☒ CP Eng 228942 #
(Name of Design Professional)

☐ Reg Arch #

I am a Member of: ☒ IPENZ ☐ NZIA and hold the following qualifications: BE (Hons)
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 Raman Forbes ON BEHALF OF Arnold and Johnstone 2015 Ltd
(Design Firm)

Date 1/11/18 (signature)

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

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

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

GUIDANCE ON USE OF PRODUCER STATEMENTS

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects, Institution of Professional Engineers New Zealand, Association of Consulting Engineers New Zealand in consultation with the Building Officials Institute of New Zealand. The original suit of producer statements has been revised at the date of this form as a result of enactment of the Building Act (2004) by these organisations to ensure standard use within the industry.

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

PS1 Design Intended for use by a suitably qualified independent design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 Design Review Intended for use by a suitably qualified independent design professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 Construction Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011²

PS4 Construction Review Intended for use by a suitably qualified independent design professional who undertakes construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

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

Competence of Design Professional

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

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

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

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

*Professional Indemnity Insurance

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

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

Professional Services during Construction Phase

There are several levels of service which a Design Firm may provide during the construction phase of a project (CM1-CM5 for Engineers³). The Building Consent Authority is encouraged to require that the service to be provided by the Design Firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4

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

Attached Particulars

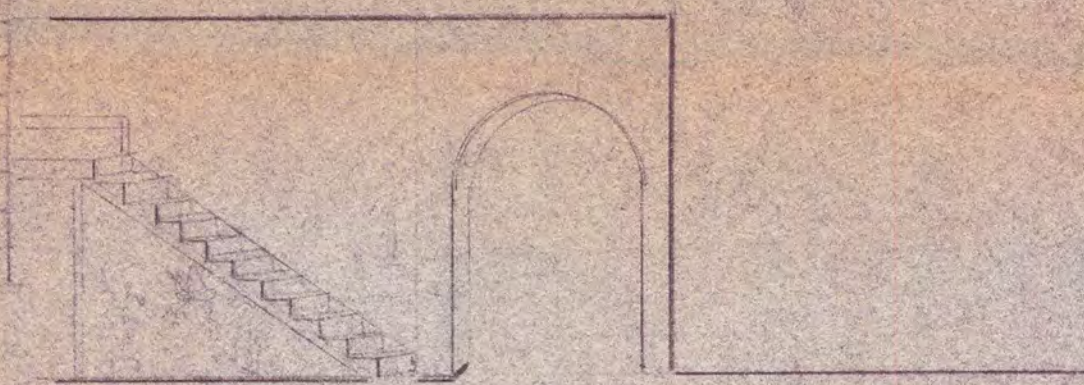
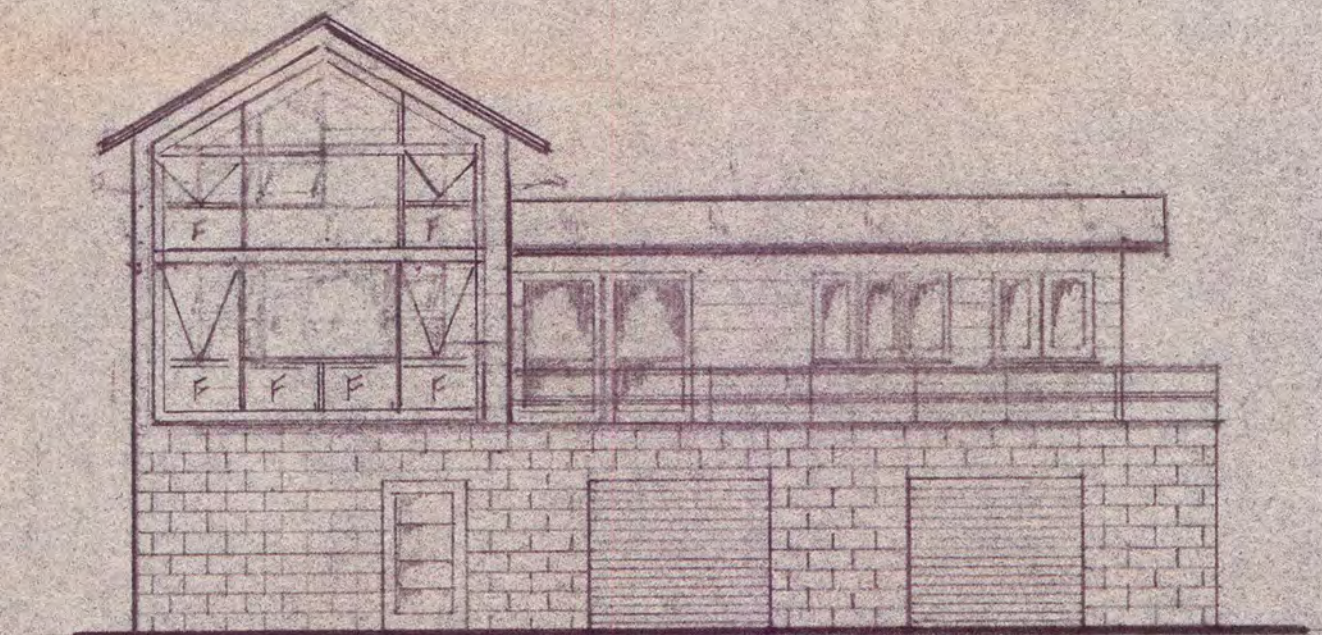
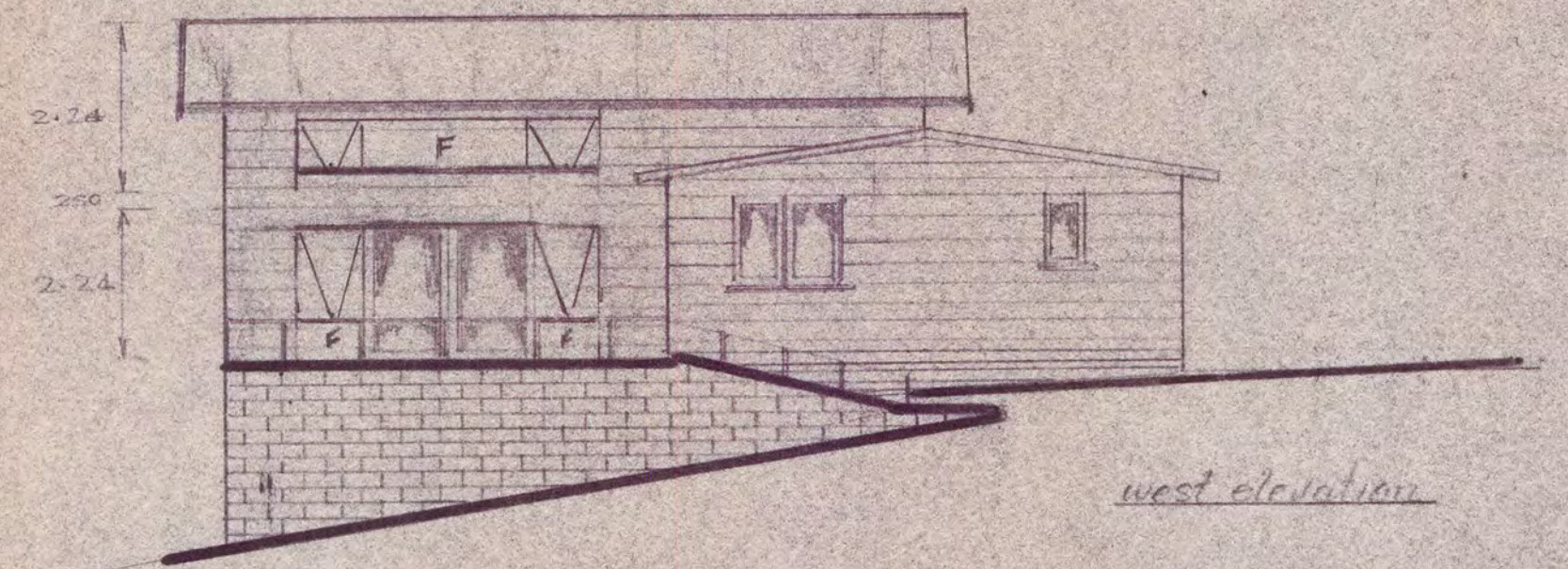
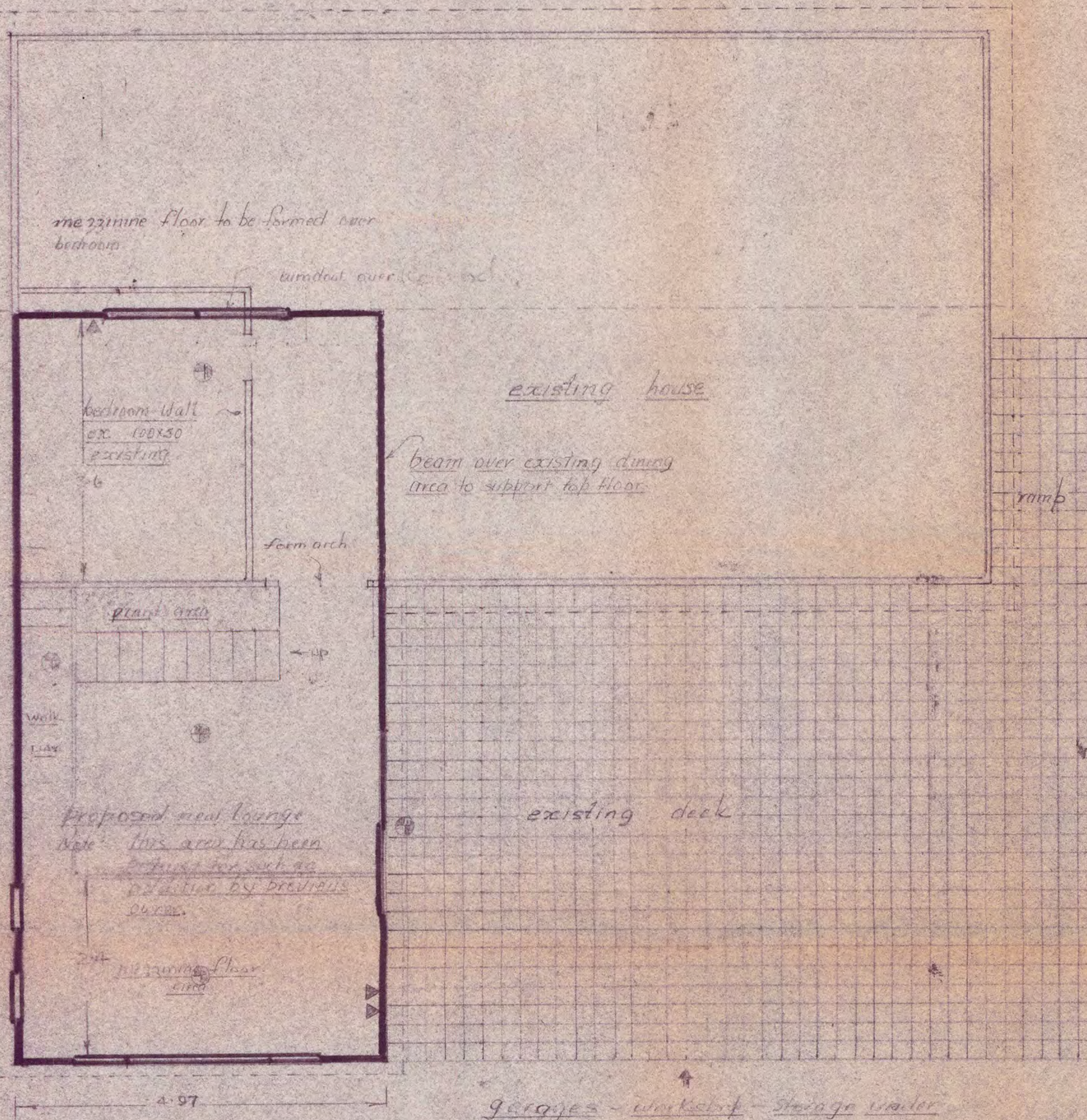
Attached particulars referred to in this producer statement refer to supplementary information appended to the producer statement.

Refer Also:

- ¹ Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2013
- ² NZIA Standard Conditions of Contract SCC 2011
- ³ Guideline on the Briefing & Engagement for Consulting Engineering Services (ACENZ/IPENZ 2004)
- ⁴ PN Guidelines on Producer Statements

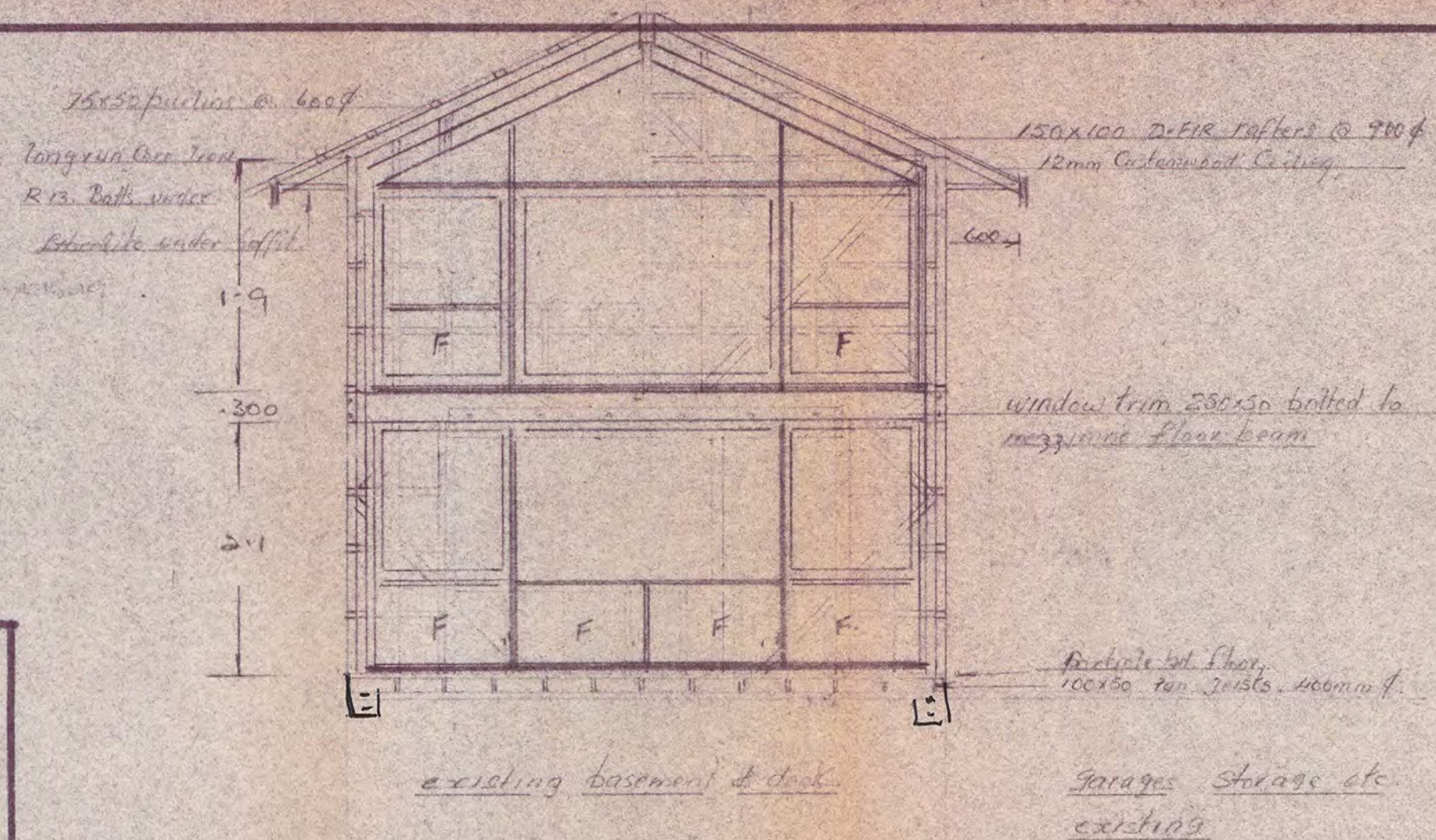
www.acenz.org.nz
www.ipenz.org.nz
www.nzia.co.nz



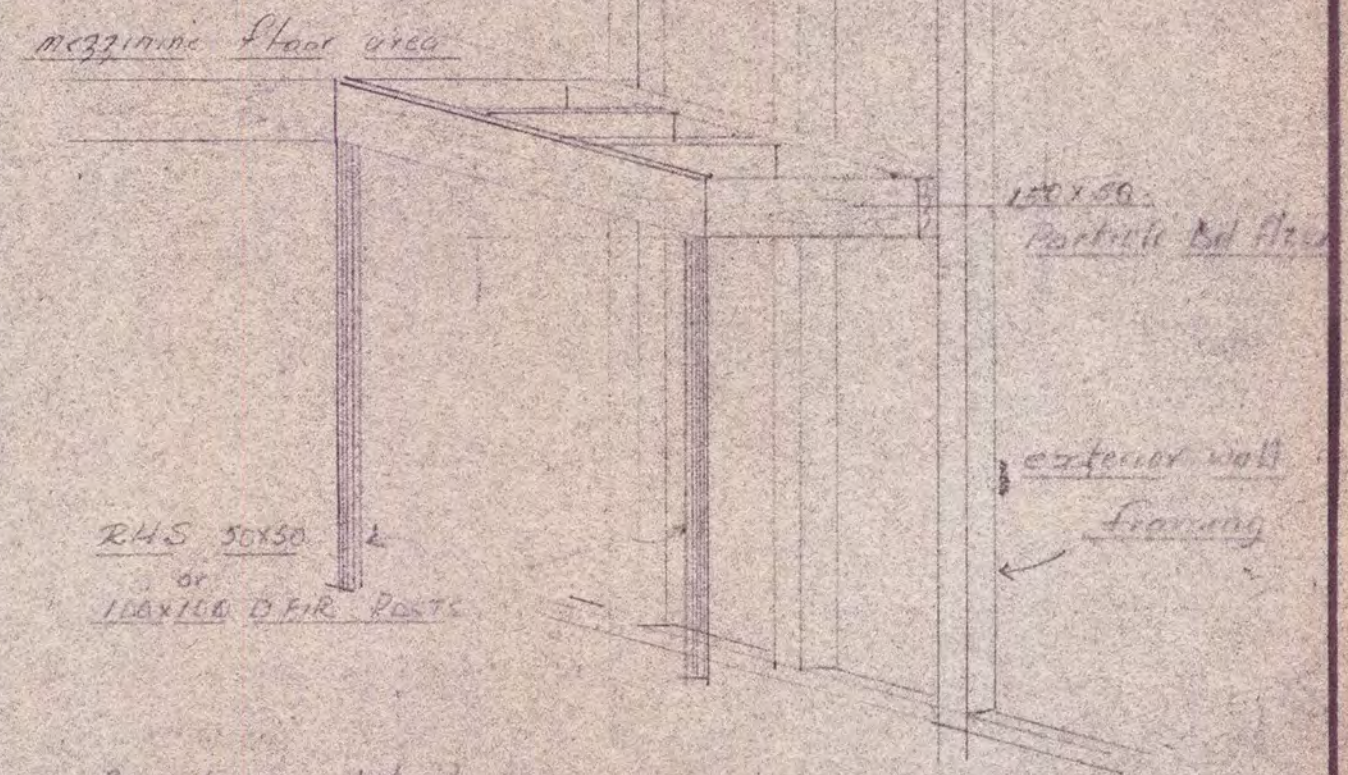


Proposed additions for M^r & M^{rs}. J. Hammand. Omakoroa.

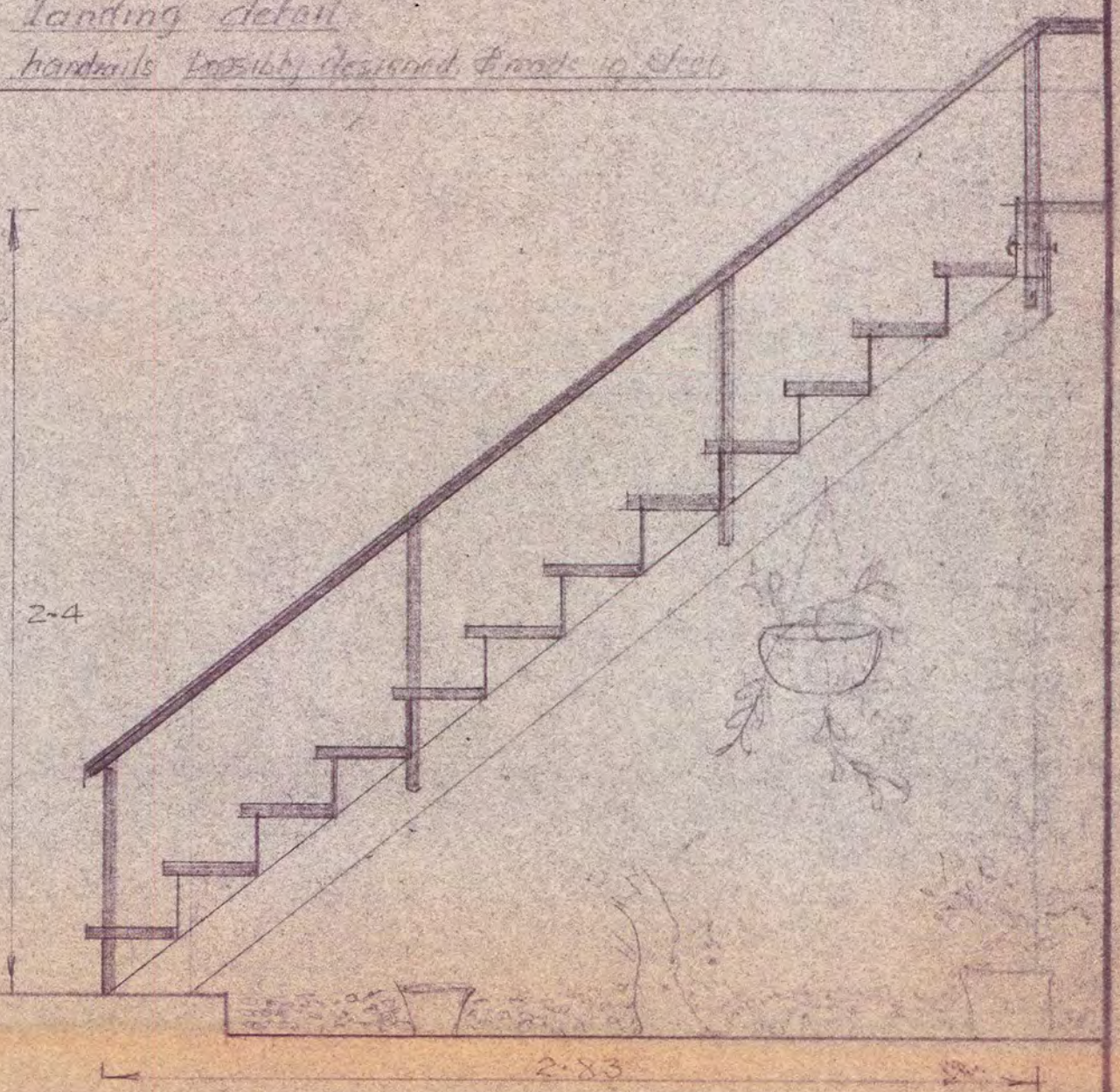
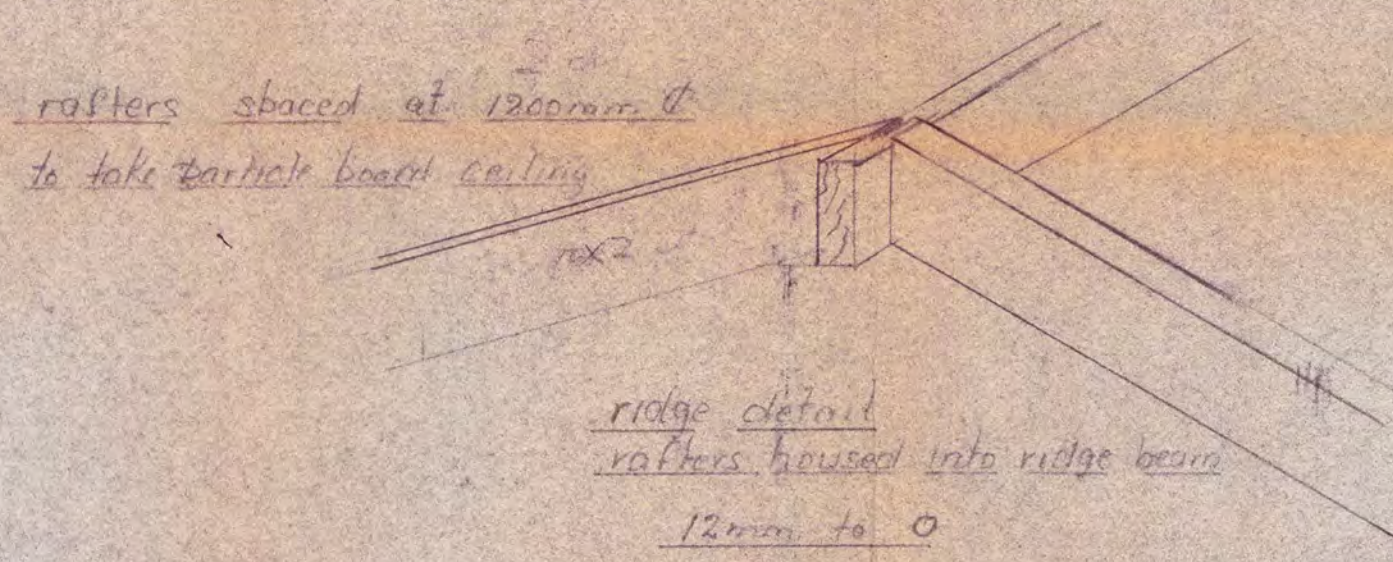
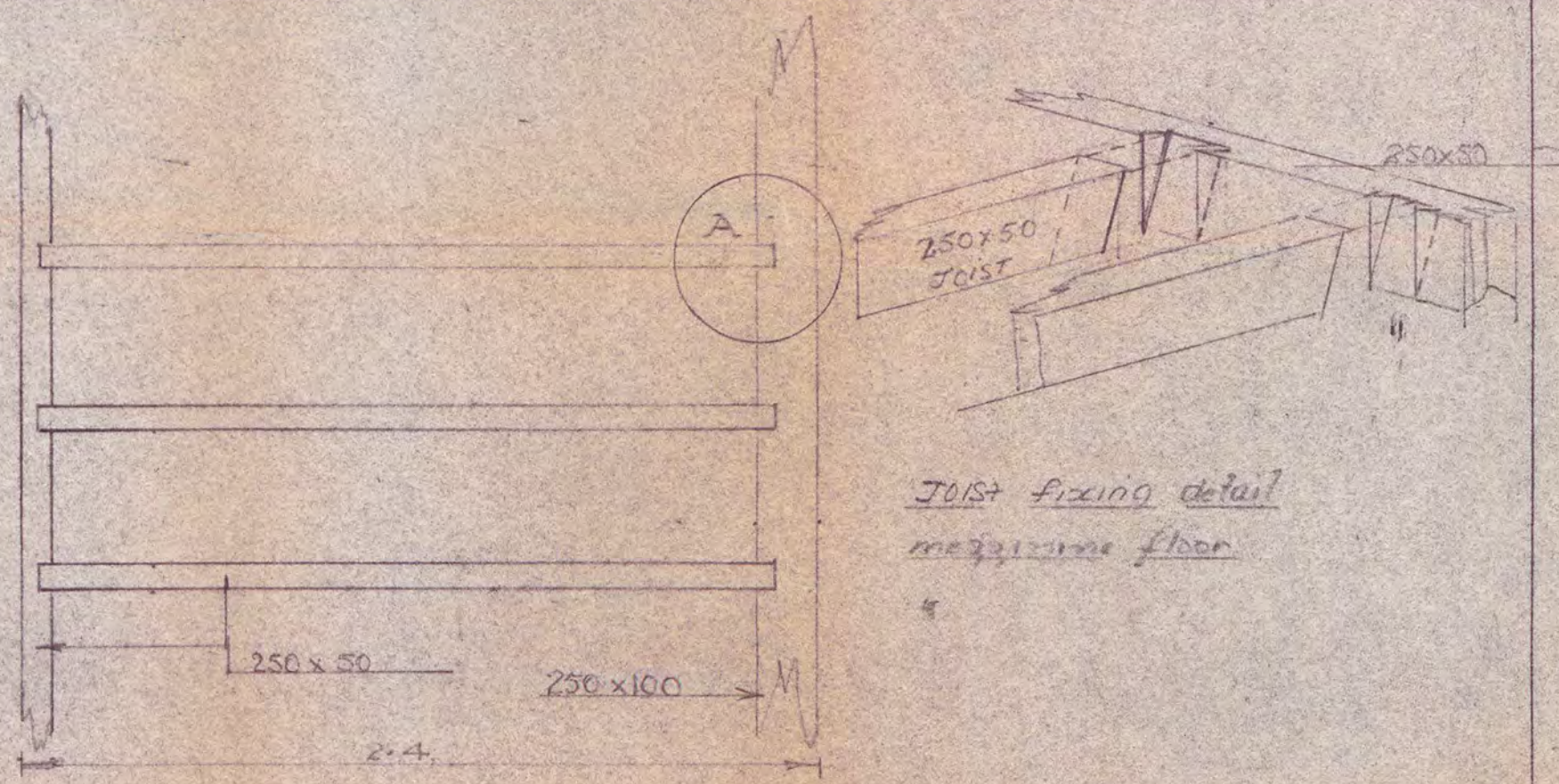
legal descrip	drawn by	scales	Sheet No
lot 12	R. S. Kenyon	1:150	1
d.p.s 4797		1:100	



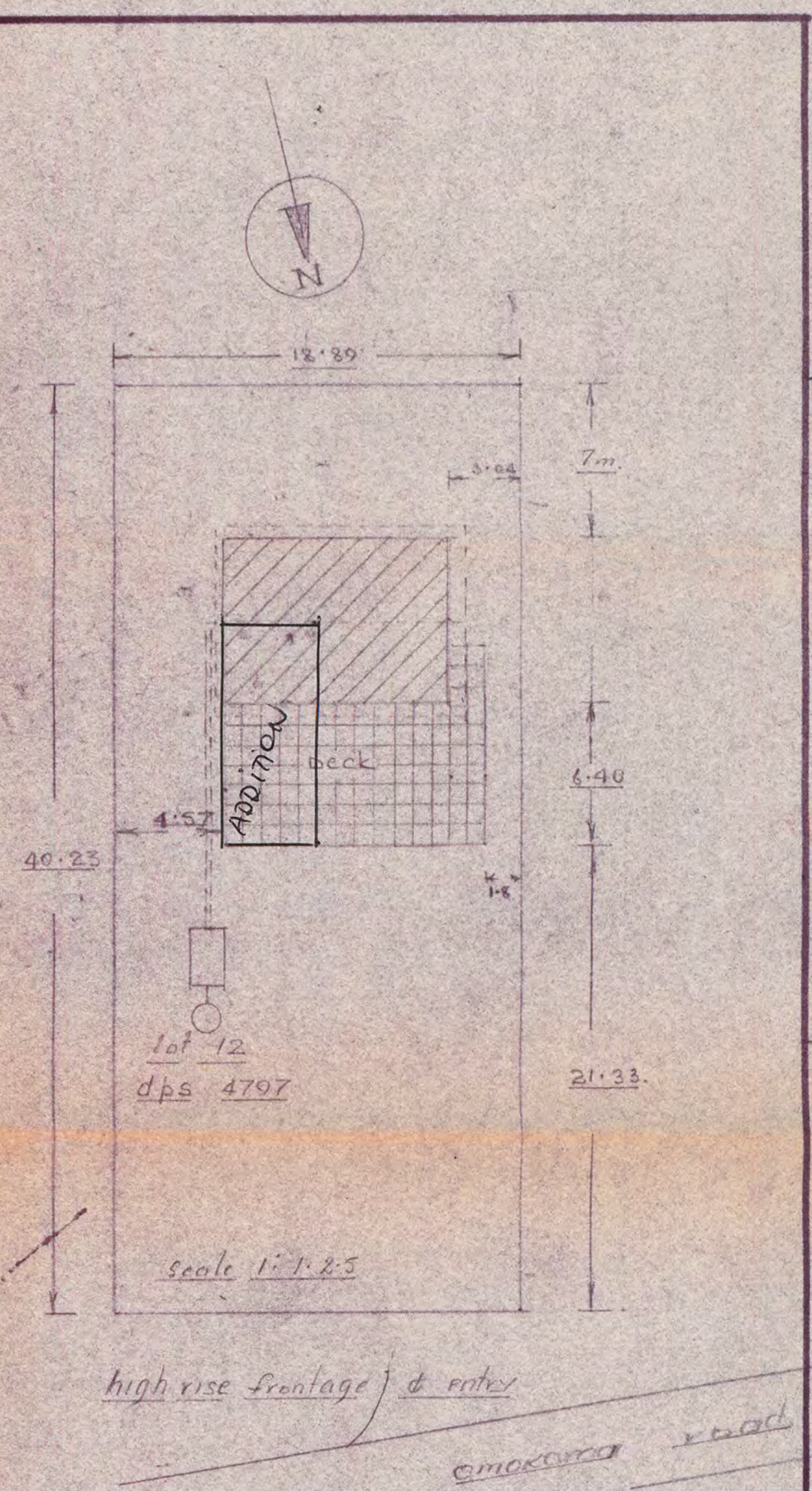
Cross Section



landing detail
handrails possibly designed & made up steel



STAIR CASE DETAIL
Strings 150 RHS
TREND 250x35 wooden bolted to steel brackets



Site plan

TAURANGA COUNTY COUNCIL

PRIVATE BAG,
TAURANGA.

To the COUNTY ENGINEER,

I hereby apply for a Building Permit to

TYPE

Add to
Dwelling

ERECT, ALTER, REPAIR, ADD TO, RE-ERECT or REMOVE
House, Flats, Commercial Units, Shed, Garage, etc.

At LOCATION

OHOKOROA

For OWNER

Name

J HAMMOND

Phone No.

27302

FEES PAID BY:

Postal Address

36 OHOKOROA Rd RD2

86-488 Bus.

By BUILDER

Name

E.G. KENYON.

Phone No.

63089

Postal Address

Box 2022

I SUBMIT IN SUPPORT OF THIS APPLICATION

Step 1.

I SITE PLAN. plus 2 PLANS. plus 2 SPECIFICATIONS.

Siting of Building on Section
Distance from All Boundaries

Framing and Footings
Reinforcing

Materials, Size, Spacing

Step 2.

LOT No.

12

DP(s)

4797

VALUATION No.

6881/511

LEGAL DESCRIPTION

See By Law 2.5.2. on back of this form.

SECTION No.

Allot No.

Block No.

Survey District

Area

Riding

Step 3.

AREA OF BUILDING

31.41

Sq. m.

Exterior measurement

I DO/NOT REQUIRE VEHICLE CROSSING
I DO/NOT REQUIRE WATER CONNECTED
(Strike out that which does not apply)

FOR OFFICE USE ONLY

Step 4.

ESTIMATED VALUE at the discretion of the Engineer

BUILDING

\$ 5,500.00

PLUMBING

\$

DRAINAGE

\$

TOTAL

\$ 5,500.00

Levy

FEES

\$ 30

\$

\$

\$ 6

\$

\$

\$

\$ 36

\$

Permit or Ref. No.

1080277

Water

Crossing

Kerb Deposit

REC. No.

3878

Date

23-5-79

Step 5.

USE OF BUILDING (Dwelling, Rent, Spec. etc.)

Dwelling

Step 6.

PLUMBING AND DRAINAGE ON SEPARATE FORM

BUILDING INSPECTOR:

Plans and Specifications Approved.

Michael Date 16/5/79

TOWN PLANNING OFFICER:

Complies with Town Planning Scheme.

[Signature] Date 16/5/79

PLEASE SIGN:

Applicants Signature

[Signature]

Date of Application

Extracts from:—

N.Z. STANDARD MODEL BUILDING BY LAW NZSS 1900

CHAPTER TWO — BUILDING PERMITS

(Adopted by Tauranga County Council as County By Law, June 6th, 1968)

"ERECTION OF A BUILDING" includes the re-erection of a building and the reconditioning of a building and the making of any alteration, repair, or addition to any building heretofore or hereafter erected and the removal, either in whole or in part, of a building from any place within or without the Council district to any place within such district or from one position to another position on the same lot of land, and "ERECT" has a corresponding meaning: Provided that maintenance work other than structural shall not be deemed a repair.

BUILDING PERMIT REQUIRED

- 2.1.1 No person shall erect or commence to erect any building without first obtaining a building permit from the Engineer.
- 2.1.2 No person shall cause or permit the commencement of the erection of or the erection of any building if a building permit in that behalf has not first been obtained from the Engineer.

APPLICATION FOR PERMIT

2.3.1 Any person desiring to obtain a building permit shall make application at the office of the Engineer on the form provided for that purpose. The applicant or person acting on his behalf shall complete the form by filling in the particulars and signing the form.

CONTENTS OF APPLICATION

- 2.4.1 Every application shall set out:
- (i) The legal description and particulars of the site.
 - (ii) The full name and address of the applicant, and of the person for whom the work is to be done, the locality of the proposed work, and the estimated value of the work.
- 2.4.2 Where not clearly shown or stated in the drawings and specifications required under clause 2.5, the following information shall be given as a signed statement on, or attached to the application form.
- (i) The proposed use or occupancy of every part of the building.

PLANS AND SPECIFICATIONS

2.5.1 Together with every application there shall be submitted to the Engineer, in duplicate, detailed plans, elevations, cross-sections, and specifications, which shall together furnish complete details of design and qualities and descriptions of all materials of construction and workmanship, and which shall be of sufficient clarity to show to the satisfaction of the Engineer the exact nature and character of the proposed undertaking and the provision made for full compliance with the requirements of this bylaw and any other relevant bylaw for the time being in force.

- (i) For every building, except as set out in clause 2.6, with a framework or bearing-wall system wholly or partly subject to structural design under this bylaw, and in every other case where the Engineer may reasonably require it, there shall also be submitted to the Engineer such stress diagrams, computations, and other data as are necessary to show that the design complies with all the requirements of this bylaw and any other relevant bylaw in force:
- (ii) Computations shall be preceded by a brief report describing the bracing system and integration of the structure and the manner in which the designer expects it to function with a clear statement of all assumptions such as materials, stresses appropriate to the standard of supervision, and live, wind, and seismic loadings. Computations shall include a summation of dead, live, seismic, and other required loadings, floor by floor, and calculations of bents (or the equivalent) in each direction, and of any special features:
- (iii) Drawings of reinforced concrete work shall show clearly the dimensions of all members and the size, length, shape, position, and overlap of all reinforcement:
- (vi) Drawings of structural steelwork shall be complete working drawings showing in figured dimensions the exact length and position of each part in such detail that the steel may be supplied and the work fabricated from such drawings:
- (v) Detailed drawings shall be in such form and on such scale as the Engineer may consider necessary to ensure certainty of interpretation:
- (vi) All drawings other than detailed drawings shall be accurately, clearly, and indelibly executed to scale and shall be drawn in ink upon drawing paper or tracing cloth, or printed upon cloth or approved paper. Except in the case of detailed drawings all drawings shall be to scale of $\frac{1}{4}$ in. or $\frac{1}{2}$ in. to the foot.

2.5.2 The drawings shall be accompanied by a locality plan. This locality plan shall be drawn to scale and shall show the site of the building, together with the land, streets, private streets, public places, private ways, public reserves and buildings immediately surrounding the site, and shall be sufficient to enable the Engineer to locate the precise situation of the site not only relative to the boundaries of its own land, but also relative to any buildings erected upon immediately adjoining lands.

2.5.5 In addition to the structural details, etc. required, the plans and sections shall show as regards every floor of the proposed building the dimensions of rooms, the situation of flues, fireplaces, stoves, and chimneys, and the position of all the several parts of the building and every water closet, fuel store, washhouse, and all other appurtenances. The plan and section shall further show the proposed means of water supply, and the level of the lowest floor of the intended building and of the yard and ground belonging thereto, and also the means whereby it is proposed to deal with all stormwater and drainage.

2.5.6 When lodged, the application and drawings and other documents accompanying the application shall become the absolute property of the Council.

NOTE—Specifications should cover types, grading, spacing (centres) and sizes of materials. It is important that the position of existing foul drainage (especially gully traps, terminal vent, etc.) should be shown on the plans.

PERMIT MAY BE WITHHELD (without further notice) until Applicant fully complies with the above requirements.

OMO.

J. HAMMOND.

36 OMOKOROA. ROAD

16.5.79

R.G. KENYON.

ADDITIONS TO HOUSE.

~~Foundation - still some steel to go in~~
~~but OK so far~~

22-8-79 Extra drawing to go in
Owner told.

Completed - 12-11-79

TAURANGA COUNTY COUNCIL

YOUR SITE PLAN FORM

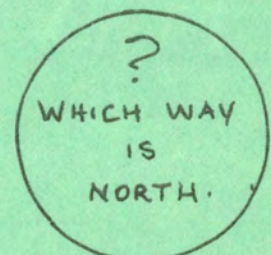
X CHECK LIST (FROM INFORMATION ONLY YOU CAN SUPPLY - DIRECT US TO FIND YOUR WORK)

- X All dwellings shown on property site plan.
- X Distances shown from boundaries to proposed building
- X Name of road shown clearly.
- X Position of water connection shown on front boundary.
- X Position of kerb-crossing shown on front boundary.
- X Direction of NORTH Marked onto Plan.
- X Accurate information to us avoids costly delays to you.

<u>BUILDERS NOTE!</u> Signpost your job with the owners name. IDENTIFICATION HELPS EVERYONE	36 OMOKORO Rd.
--	---

ROAD (FRONTAGE)

- | | | |
|--------------------------|-------------------------------------|--------------------------------|
| YES | NO | |
| ☐ | ☐ | IS KERB AND CHANNEL EXISTING ? |
| ☐ | <input type="checkbox" value="No"/> | IS WATER REQUIRED ? |
| ☐ | <input type="checkbox" value="No"/> | IS SEWER AVAILABLE ? |



X HAVE YOU SHOWN ALL EXISTING BUILDINGS ?

TAURANGA COUNTY COUNCIL

SPECIFICATION FOR MINOR BUILDING WORK

All work to be carried out to conform with the requirements of the N.Z.S.S. 1900 Building Code, the Drainage and Plumbing Regulations 1959, the County Code of Ordinances, and all other relevant legislation. The principles of good trade practice shall be observed.

TYPE OF BUILDING WORK:

Location: OMOKORO

Timber Framing

Owner: J HAMMOND

TYPE OF GROUND:

N-A

APPLICANT INDICATE BY TICKING WHICH DETAIL WILL APPLY TO YOUR BUILDING

FOUNDATIONS:

Concrete - 300 mm x 300 mm

300 mm x 200 mm

Other ✓

Piles - 200 mm x 200 mm on

300 mm x 300 mm x 100 mm pads

INSULATION

BLOCKWORK:

In accordance with Council's blockwork schedule available on request.

UNDER-FLOOR TIMBERS:

Floor Joists (@ 450 mm crs) 150 mm x 50 mm

Jack Studs (@ 1.35 m crs) 100 mm x 75 mm

Sleeper Plates 100 mm x 75 mm

EXTERIOR SHEATHING:

Weatherboard

Asbestos Sheet ✓

Masonry

Other

Building Paper

TIMBER:

Timber Treatment - Tanalised, Boric Treated, Untreated

Framing - 100 mm x 50 mm ✓

Studs - 100 mm x 50 mm @ 600 mm centres ✓

Bracing - Flat metal strap, metal angle, 150 mm x 25 mm, checked in, 75 mm x 50 mm cut ✓

Roof Frame - Gang nail - other 150x50 Rafter.

Purlins - 75 mm x 50 mm @ 750 mm 150x50 cut in.

Rafters - @ 750 mm, 1200 mm, 1350 mm crs

ROOF SHEATHING:

Corrugated Iron, T. Clip, Decramastic Tile, Other 6 Rib.

FLOORING:

T. and G.

Particle Board ✓

75 mm, 88 mm, 100 mm Concrete Slab, reinforced with 668 or 665 mesh.

Damp proof P.V.C. ✓

WALL LINING:

Gibraltar Board ✓

Hardboard - Softboard

Fibrous Plaster

Other

CEILINGS:

Soft Board - Fibrous Plaster

Gibraltar Board

Other Sealing 150x20

PLUMBING / DRAINAGE: - To be installed
- Not Required

S P E C I F I C A T I O N

This Specification to cover all aspects for the additions to the Residence of Mr. & Mrs. J. HAMMOND OMOKOROA.

GENERAL

All work shall comply with the local authority by-laws.
Workmanship shall be of the highest quality and the best available materials used.
Builder's Risk insurance shall be taken out by the owner and shall be for the duration of the work.
The owner shall purchase and supply all materials and sub-trades when required.
The Builder shall charge Labour and mileage and shall keep a daily record of such costs.
The Builder shall supply a schedule of quantities and costs for the Owner's guidance, but such costs shall not allow for any escalation in material or sub-prices.
The basis of the work shall be on a labour only undertaking.

PERMIT

The owner shall apply for and obtain the necessary permits to carry out the work.

TIMBER SCHEDULE

Joists	100x50 Tan. G.	spaced	400mm	ø	on D.P.S.
Plates	100x50 B.T. Pine or Douglas Fir.				
Studs	100x50 " "	"	"	400mm	ø
Nogs	100x50 " "	"	"	3 rows.	
Bracing	100x50 " "	"	"	placed as plan.	
Rafters	150x50 " "	"	"	1200mm	C/
Ridge Bd.	250x100	"	"	checked to house rafter ends.	
Mezzanine Floor.	250x100	"	"	front beam.	
Floor joists	250x50	"	"	checked as shown on plan.	
Soffit Framing.	75x 32	"			
Purlins	75x50	"	"	spaced at 1200	ø
Fascia Bd.	200x32	Hutt-loc.			
Barge Bds.	200x32	" "			
Joists over Bed Rm.	200x50	" "	spaced at	400mm	ø
Flooring.					Particle Bd (Carpet Grade)

CEILINGS

All Particle Board fixed to the top of the rafters.

ROOFING

Corrugated Iron on Light weight Building paper.

Joinery

To dimensions shown on plan and in Aluminium of a reputable make.

STAIRS

Construct stairs as shown on plan detail. Selected wooden treads bolted to steel brackets welded to R.H.S. strings. Top fixing lugs to be welded to top of strings for fixing to the landing.

HAND-RAIL & BALUSTRADE

Owner to select between timber and steel at a later date.

LANDING & MEZZANINE FLOOR.

Construct as shown on plan. All end joints to be housed neatly and well nailed.

INTERIOR LINING.

Walls to be lined with Gibraltar Board well nailed and all joints stopped.

EXTERIOR SHEATHING.

Line all walls with flat fibrolite on Light weight Building paper. To be well nailed with Galv. clouts and left ready for external texture spraying. Owner will have whole house sprayed when additions are completed.

ELECTRICAL.

Install light and power points as directed by the owner. Allow for radio and television entries.

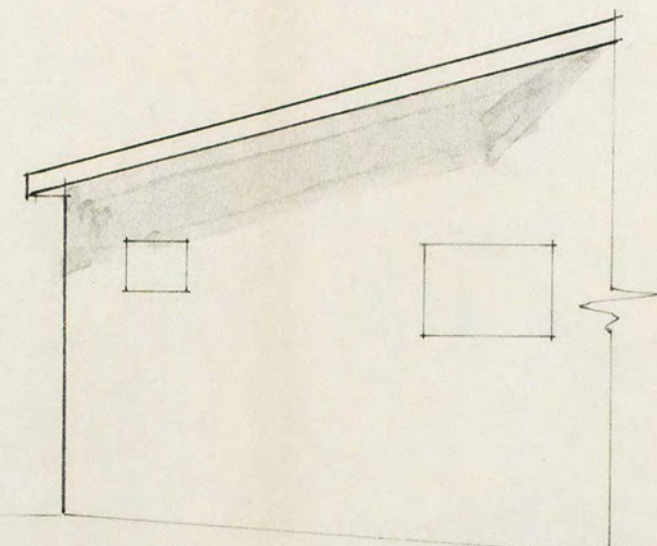
PLUMBING

Supply and fix 5" galv. spouting and down-pipe- all flashings- barge rolls as required.

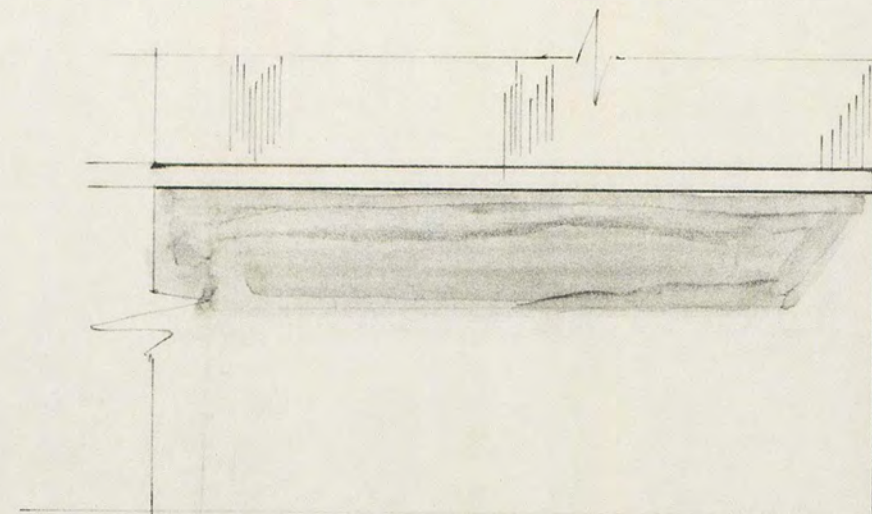
PAINTING

Prime all exposed timbers to the exterior.
Provide 1 coat of under coat and 2 coats of finish to the exterior.
External walls do not have to be painted as these will be sprayed at a later date.

Receive directions from the owner regarding the interior trim and colour scheme.

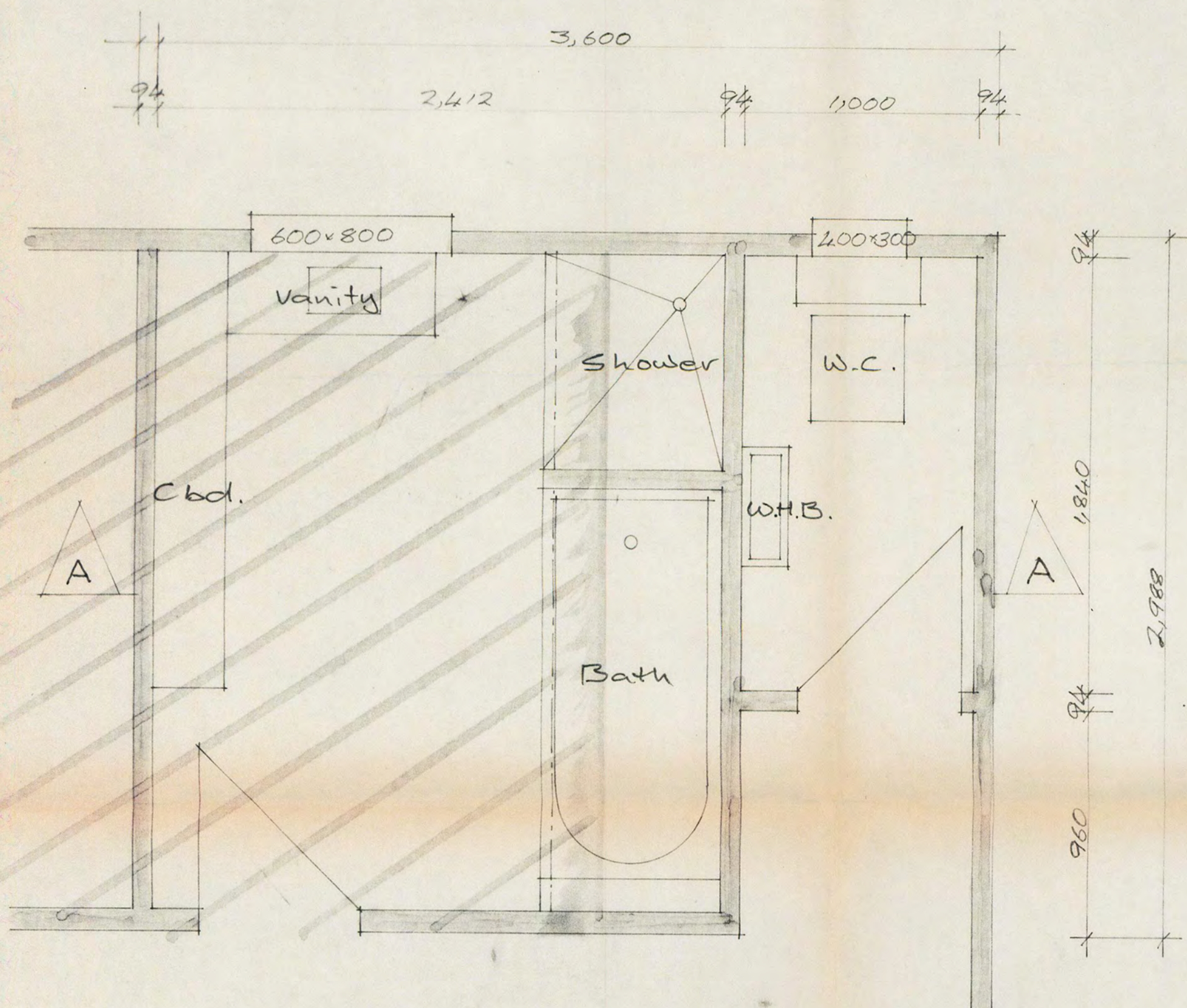


Side Elevation

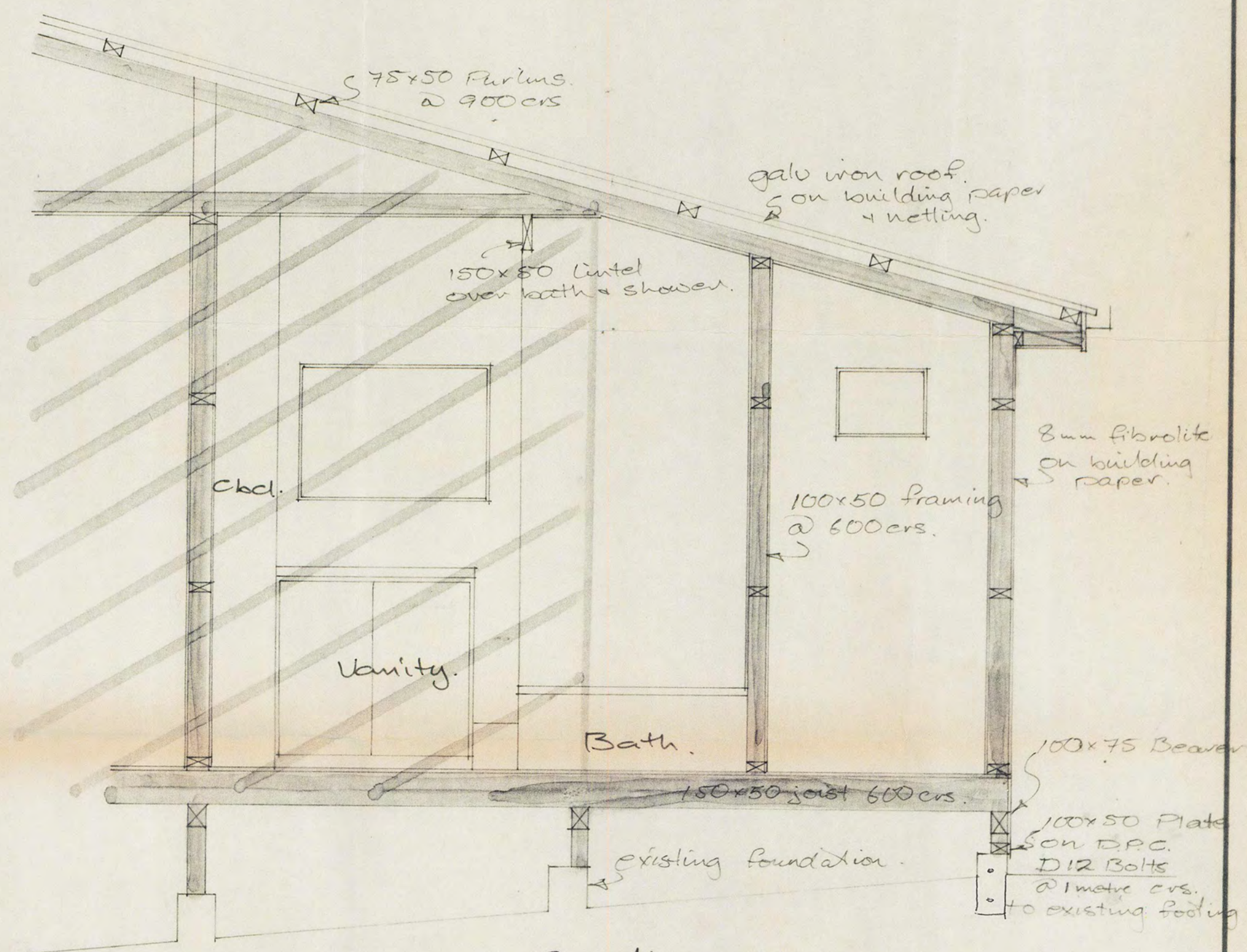


Rear Elevation

50:1



Floor Plan 20:1



Section A-A 20:1

Existing building shown shaded.

Note: Stormwater to be piped to street channel in smooth bore 90mm PVC pipe

W & E. RAMS
36 Beach Rd., OMOKOROA
R.D.2. TGA

DRAWN	CHECKED	SCALES
TRACED	DATE	

SHEET

SERIES OF
REF

Application for BUILDING PERMIT

(See Building By Law requirements on back of this form)

TAURANGA COUNTY COUNCIL

PRIVATE BAG,
TAURANGA.

To the COUNTY ENGINEER,
I hereby apply for a Building Permit to

ENTERED

No: 7220

TYPE ALTER + ADD TO
PUTE HOUSE.

ERECT, ALTER, REPAIR, ADD TO, RE-ERECT or REMOVE
House, Flats, Commercial Units, Shed, Garage, etc.

At LOCATION 36 BEACH Rd, OMOKOROA, R.D.2. TGA.

For OWNER Name WAYNE + ELIZABETH RAINS Phone No 480-308 FEES PAID BY: ☒

Postal Address 36 Beach Rd, OMOKOROA, R.D.2. TGA.

By BUILDER Name JOHN REID. Phone No 480-480

Postal Address FRANCIS Rd, R.D.6, TAURANGA.

I SUBMIT IN SUPPORT OF THIS APPLICATION

1 SITE PLAN. plus 2 PLANS. plus 2 SPECIFICATIONS.

Step 1.

Siting of Building on Section Framing and Footings Materials, Size, Spacing
Distance from All Boundaries Reinforcing

Step 2.

LOT No. 12 DP(s) 4797

VALUATION No. 6881 511 00

SECTION No. Allot No. Block No.

Survey District Area Riding

LEGAL DESCRIPTION

See By Law 2.5.2. on back of this form.

Step 3.

I DO REQUIRE VEHICLE CROSSING
I DO REQUIRE WATER CONNECTED
(DELETE IF NOT APPLICABLE)

AREA OF BUILDING 47 Sq.m.
Exterior measurement

Step 4.

ESTIMATED VALUE

at the discretion of the Engineer

BUILDING \$ 600 1250.-
PLUMBING \$ 700 250
DRAINAGE \$ 300 100
TOTAL \$ 1,600

Levy

FEES

\$ 10
60.-
\$ 15.-
\$ 6.-

Permit or Ref. No.

B093605/5989

Refund \$50 - 4.6.84

Water

Crossing

Kerb Deposit

\$ 31
81.-

REC. No. 604-15

Date
30.3.84

Step 5.

USE OF BUILDING (Dwelling, Rent, Spec. etc).

TOILET, BATHROOM, PRIVATE
RESIDENCE, WHICH I RESIDE.

Step 6.

PLUMBING AND DRAINAGE ON
SEPARATE FORM

PLEASE SIGN:

Applicants Signature W. Rains

Date of Application 8-3-84

BUILDING INSPECTOR:

Plans and Specifications Approved.

Mark [Signature] Date 4.6.84

TOWN PLANNING OFFICER:

Complies with Town Planning Scheme.

[Signature] Date 6.6.84

Extracts from:—

**N.Z. STANDARD MODEL BUILDING BY LAW NZSS 1900
CHAPTER TWO — BUILDING PERMITS**

(Adopted by Tauranga County Council as County By Law, June 6th, 1968)

“ERECTION OF A BUILDING” includes the re-erection of a building and the reconditioning of a building and the making of any alteration, repair, or addition to any building heretofore or hereafter erected and the removal, either in whole or in part, of a building from any place within or without the Council district to any place within such district or from one position to another position on the same lot of land, and **“ERECT”** has a corresponding meaning. Provided that maintenance work other than structural shall not be deemed a repair.

BUILDING PERMIT REQUIRED

2.1.1 No person shall erect or commence to erect any building without first obtaining a building permit from the Engineer.

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2.3.1 Any person desiring to obtain a building permit shall make application at the office of the Engineer on the form provided for that purpose. The applicant or person acting on his behalf shall complete the form by filling in the particulars and signing the form.

CONTENTS OF APPLICATION

2.4.1 Every application shall set out:

- (i) The legal description and particulars of the site.
- (ii) The full name and address of the applicant, and of the person for whom the work is to be done, the locality of the proposed work, and the estimated value of the work.

2.4.2. Where not clearly shown or stated in the drawings and specifications required under clause 2.5, the following information shall be given as a signed statement on, or attached to the application form.

- (i) The proposed use or occupancy of every part of the building.

PLANS AND SPECIFICATIONS

2.5.1 Together with every application there shall be submitted to the Engineer, in duplicate, detailed plans, elevations, cross-sections and specifications, which shall together furnish complete details of design and qualities and descriptions of all materials of construction and workmanship, and which shall be of sufficient clarity to show to the satisfaction of the Engineer the exact nature and character of the proposed undertaking and the provision made for full compliance with the requirements of this bylaw and any other relevant bylaw for the time being in force.

- (i) For every building, except as set out in clause 2.6, with a framework or bearing-wall system wholly or partly subject to structural design under this bylaw, and in every other case where the Engineer may reasonably require it, there shall also be submitted to the Engineer such stress diagrams, computations, and other data as are necessary to show that the design complies with all the requirements of this bylaw and any other relevant bylaw in force:
- (ii) Computations shall be preceded by a brief report describing the bracing system and integration of the structure and the manner in which the designer expects it to function with a clear statement of all assumptions such as materials, stresses appropriate to the standard of supervision, and live, wind, and seismic loadings. Computations shall include a summation of dead, live, seismic, and other required loadings, floor by floor, and calculations of bents (or the equivalent) in each direction, and of any special features:
- (iii) Drawings of reinforced concrete work shall show clearly the dimensions of all members and the size, length, shape, position, and overlap of all reinforcement:
- (iv) Drawings of structural steelwork shall be complete working drawings showing in figured dimensions the exact length and position of each part in such detail that the steel may be supplied and the work fabricated from such drawings:
- (v) Detailed drawings shall be in such form and on such scale as the Engineer may consider necessary to ensure certainty of interpretation.
- (vi) All drawings other than detailed drawings shall be accurately, clearly, and indelibly executed to scale and shall be drawn in ink upon drawing paper or tracing cloth, or printed upon cloth or approved paper. Except in the case of detailed drawings all drawings shall be to scale of $\frac{1}{8}$ in. or $\frac{1}{4}$ in. to the foot.

2.5.2. The drawings shall be accompanied by a locality plan. This locality plan shall be drawn to scale and shall show the site of the building, together, with the land, streets, private streets, public places, private ways, public reserves and buildings immediately surrounding the site, and shall be sufficient to enable the Engineer to locate the precise situation of the site not only relative to the boundaries of its own land, but also relative to any buildings erected upon immediately adjoining lands.

2.5.5. In addition to the structural details, etc. required, the plans and sections shall show as regards every floor of the proposed building, the dimensions of rooms, the situation of flues, fireplaces, stoves, and chimneys, and the position of all the several parts of the building and every water closet, fuel store, washhouse, and all other appurtenances. The plan and section shall further show the proposed means of water supply, and the level of the lowest floor of the intended building and of the yard and ground belonging thereto, and also the means whereby it is proposed to deal with all stormwater and drainage.

2.5.6. When lodged, the application and drawings and other documents accompanying the application shall become the absolute property of the Council.

NOTE—Specifications should cover types, grading, spacing (centres) and sizes of materials. It is important that the position of existing foul drainage (especially gully traps, terminal vent, etc.) should be shown on the plans.

PERMIT MAY BE WITHHELD (without further notice) until Applicant fully complies with the above requirements.

Application for PLUMBING — DRAINAGE PERMIT

To the COUNTY ENGINEER,
TAURANGA COUNTY COUNCIL,
Private Bag,
GREERTON, TAURANGA.

I hereby apply for a permit to carry out Sanitary Plumbing and/or Drainage Work described below:—

✓ tick

1 OWNERS NAME WAYNE + ELIZABETH RAINS.	Phone No. 480-308
Postal Address 36 BEACH Rd, OMOKORO A, R.D.2. TAURANGA.	
PLUMBER L. SINGLETON.	Phone No. 480-316.
Postal Address 69. BEACH Rd, OMOKORO A, R.D.2. TGA.	
DRAINLAYER L. SINGLETON	Phone No. 480-316
Postal Address 69 Beach Rd, OMOKORO A R.D.2 TGA	

PERMIT FEES PAYABLE BY . . .

2 JOB LOCATION

Address 36 BEACH Rd, OMOKORO A.

Lot No. DP(s) No. Val. No. (Rate Demand)

3 DESCRIPTION OF WORK

✓ tick

☐
☒

Sanitary Plumbing and/or Drainage of new dwelling

Sanitary Plumbing and/or Drainage for alterations

or (describe) ALTERING BATHROOM + TOILET.

4 ESTIMATED COST of

PLUMBING \$ 700 250 .
DRAINAGE \$ 300 100

OFFICE USE ONLY

FEES	PERMIT Nos.
\$ 15	B093605
\$ 6	5989.
\$ 21	R.4014-15
	30/3/84
APPLICATION	WORK INSPECTED
APPROVED	APPROVED
Inspector	Inspector
Date	Date

Applicants Signature W. Rains

Date 8-3-84

TAURANGA COUNTY COUNCIL

YOUR SITE PLAN FORM

X CHECK LIST (FROM INFORMATION ONLY YOU CAN SUPPLY - DIRECT US TO FIND YOUR WORK)

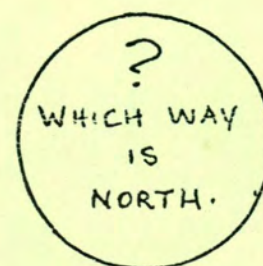
- X All dwellings shown on property site plan.
- X Distances shown from boundaries to proposed building
- X Name of road shown clearly.
- X Position of water connection shown on front boundary.
- X Position of kerb-crossing shown on front boundary.
- X Direction of NORTH Marked onto Plan.
- X Accurate information to us avoids costly delays to you.

VACANT SECTION

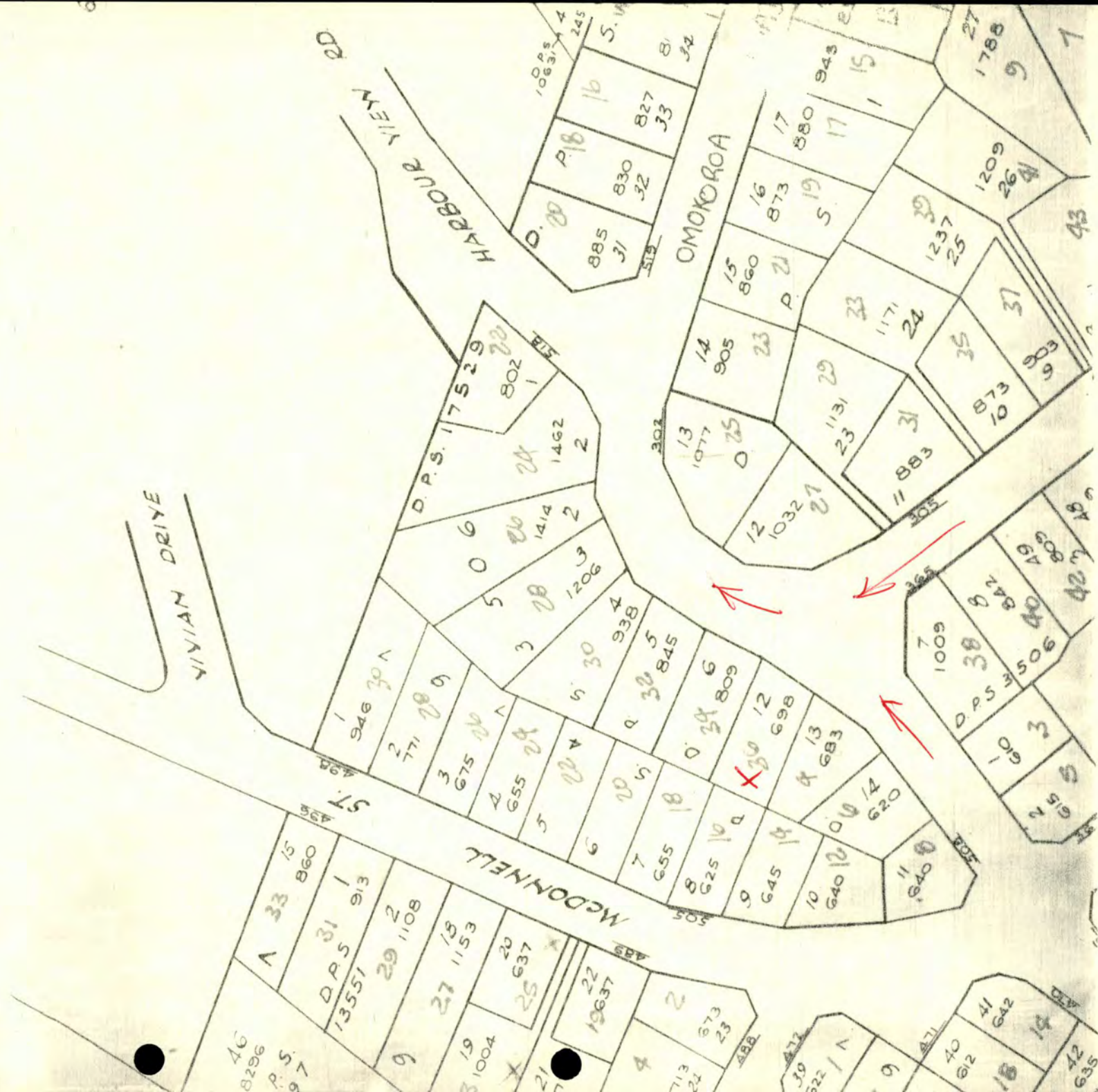
BUILDERS NOTE: Signpost your job with the owners name. IDENTIFICATION HELPS EVERYONE	
---	--

Onokoroa Beach Rd. ROAD (FRONTAGE)

YES	NO	
☐	☒	IS KERB AND CHANNEL EXISTING ?
☐	☒	IS WATER REQUIRED ?
☒	☐	IS SEWER AVAILABLE ?



X HAVE YOU SHOWN ALL EXISTING BUILDINGS ?



TAURANGA COUNTY COUNCIL

SPECIFICATION FOR MINOR BUILDING WORK

All work to be carried out to conform with the requirements of the N.Z.S.S. 1900 Building Code, the Drainage and Plumbing Regulations 1959, the County Code of Ordinances, and all other relevant legislation. The principles of good trade practice shall be observed.

TYPE OF BUILDING WORK:

Location: 36 Beach Rd Ohakura

Owner: W & E Rami

TYPE OF GROUND:

APPLICANT INDICATE BY TICKING WHICH DETAIL WILL APPLY TO YOUR BUILDING

FOUNDATIONS:

Concrete - 300 mm x 300 mm

300 mm x 200 mm

Other _____

Piles - 200 mm x 200 mm on ☒

300 mm x 300 mm x 100 mm pads

INSULATION

BLOCKWORK:

In accordance with Council's blockwork schedule available on request.

UNDER-FLOOR TIMBERS:

Floor Joists (@ 450 mm crs) 150 mm x 50 mm ☒

Jack Studs (@ 1.35 m crs) 100 mm x 75 mm ☒ Sleeper Plates 100 mm x 75 mm ☒

EXTERIOR SHEATHING:

Weatherboard

Asbestos Sheet ☒

Masonry

Other _____

Building Paper ☒

TIMBER:

Timber Treatment - Tanalised, Boric Treated, Untreated ☒

Framing - 100 mm x 50 mm ☒

Studs - 100 mm x 50 mm @ 600 mm centres ☒

Bracing - Flat metal strap, metal angle, 150 mm x 25 mm, checked in, 75 mm x 50 mm cut in ☒

Roof Frame - Gang nail - other 100x50 @ 900 q's ☒

Purlins - 75 mm x 50 mm @ 750 mm ☒

Rafters - @ 750 mm, 1200 mm, 1350 mm crs ☒

ROOF SHEATHING:

Corrugated Iron, T. Clip, Decramastic Tile, Other _____

FLOORING:

T. and G.

Particle Board ☒

75 mm, 88 mm, 100 mm Concrete Slab, reinforced with 668 or 665 mesh.

Damp proof P.V.C.

WALL LINING:

Gibraltar Board ☒

Hardboard - Softboard

Fibrous Plaster

Other _____

CEILINGS:

Soft Board - Fibrous Plaster

Gibraltar Board ☒

Other _____

PLUMBING / DRAINAGE: - To be installed ☒
- Not Required ☒

P/1207/4787/1

Application for **PLUMBING - DRAINAGE PERMIT**

ENTERED

To the COUNTY ENGINEER,
TAURANGA COUNTY COUNCIL,
Private Bag,
TAURANGA.

No: 7221

I hereby apply for a permit to carry out Sanitary Plumbing and/or Drainage Work described below:—

✓ tick

OWNERS NAME	<u>SOMY HADIMON</u>	Phone No.	<u>27 302</u>
Postal Address	<u>36 OMOKOROA RD.</u>		
PLUMBER	<u>CLIVE WILLIAMS</u>	Phone No.	
Postal Address			
DRAINLAYER		Phone No.	
Postal Address			

PERMIT FEES PAYABLE BY**2 JOB LOCATION**Address 178 RISOUE.

Lot No. _____ DP(s) No. _____

Val. No. (Rate Demand) 6881/511**3 DESCRIPTION OF WORK**

✓ tick

☐
☐

Sanitary Plumbing and/or Drainage of new dwelling

Sanitary Plumbing and/or Drainage for alterations

or (describe)

INSTALL RANGE & VISION
Pipe.**4 ESTIMATED COST of**

PLUMBING

X \$

300.00

DRAINAGE

\$

OFFICE USE ONLY

FEES

\$ 18

\$

\$ 18

PERMIT Nos.

3802R.28119

APPLICATION

APPROVED

Inspector

Date 24/7/80

WORK INSPECTED

APPROVED

Inspector

Date

Applicants Signature

Date

22-7-80

D. Kote Print

Application for BUILDING PERMIT

(See Building By Law requirements on back of this form)

TAURANGA COUNTY COUNCIL

PRIVATE BAG,
TAURANGA.

To the COUNTY ENGINEER,
I hereby apply for a Building Permit to

ENTERED

No: 7220

TYPE ALTER + ADD TO
PUTE HOUSE.

ERECT, ALTER, REPAIR, ADD TO, RE-ERECT or REMOVE
House, Flats, Commercial Units, Shed, Garage, etc.

At LOCATION 36 BEACH Rd, OMOKOROA, R.D. 2, TGA.

For OWNER Name WAYNE + ELIZABETH RAINS Phone No 480-308

Postal Address 36 Beach Rd, OMOKOROA, R.D. 2, TGA.

By BUILDER Name DONN REID Phone No 480-480

Postal Address FRAIS Rd, R.D. 6, TAURANGA.

FEES PAID BY:

I SUBMIT IN SUPPORT OF THIS APPLICATION

1 SITE PLAN. plus 2 PLANS. plus 2 SPECIFICATIONS.

Step 1.

Siting of Building on Section Framing and Footings Materials, Size, Spacing
Distance from All Boundaries Reinforcing

Step 2.

LOT No. 12 DP(s) 4797

VALUATION No. 6881 511 00

SECTION No. Allot No. Block No.

Survey District Area Riding

LEGAL DESCRIPTION

See By Law 2.5.2. on back of this form.

Step 3.

I DO REQUIRE VEHICLE CROSSING
I DO REQUIRE WATER-CONNECTED
(DELETE IF NOT APPLICABLE)

AREA OF BUILDING 47 Sq.m.
Exterior measurement

Step 4.

ESTIMATED VALUE

at the discretion of the Engineer

BUILDING \$ 600 1250.-
PLUMBING \$ 700 250
DRAINAGE \$ 300 100
TOTAL \$ 1,600

FEES

\$ 60 10
\$ 15.-
\$ 6.-

Levy \$

Permit or Ref. No.

B093605/5989

Refund \$50 - 4.6.84

Water

Crossing

Kerb Deposit

Step 5.

USE OF BUILDING (Dwelling, Rent, Spec. etc).

TOILET, BATHROOM, PRIVATE
RESIDENCE, WHICH I RESIDE.

Step 6.

PLUMBING AND DRAINAGE ON
SEPARATE FORM

PLEASE SIGN:

Applicants Signature W. Rains

Date of Application 8-3-84

BUILDING INSPECTOR:

Plans and Specifications Approved.

Donn Reid Date 4.6.84

TOWN PLANNING OFFICER:

Complies with Town Planning Scheme.

Donn Reid Date 4.6.84

Extracts from:—

N.Z. STANDARD MODEL BUILDING BY LAW NZSS 1900

CHAPTER TWO — BUILDING PERMITS

(Adopted by Tauranga County Council as County By Law, June 6th, 1968)

"ERECTION OF A BUILDING" includes the re-erection of a building and the reconditioning of a building and the making of any alteration, repair, or addition to any building heretofore or hereafter erected and the removal, either in whole or in part, of a building from any place within or without the Council district to any place within such district or from one position to another position on the same lot of land, and **"ERECT"** has a corresponding meaning. Provided that maintenance work other than structural shall not be deemed a repair.

BUILDING PERMIT REQUIRED

- 2.1.1 No person shall erect or commence to erect any building without first obtaining a building permit from the Engineer.
- 2.1.2. No person shall cause or permit the commencement of the erection of or the erection of any building if a building permit in that behalf has not first been obtained from the Engineer.

APPLICATION FOR PERMIT

- 2.3.1 Any person desiring to obtain a building permit shall make application at the office of the Engineer on the form provided for that purpose. The applicant or person acting on his behalf shall complete the form by filling in the particulars and signing the form.

CONTENTS OF APPLICATION

- 2.4.1 Every application shall set out:
- (i) The legal description and particulars of the site.
 - (ii) The full name and address of the applicant, and of the person for whom the work is to be done, the locality of the proposed work, and the estimated value of the work.
- 2.4.2. Where not clearly shown or stated in the drawings and specifications required under clause 2.5, the following information shall be given as a signed statement on, or attached to the application form.
- (i) The proposed use or occupancy of every part of the building.

PLANS AND SPECIFICATIONS

2.5.1 Together with every application there shall be submitted to the Engineer, in duplicate, detailed plans, elevations, cross-sections and specifications, which shall together furnish complete details of design and qualities and descriptions of all materials of construction and workmanship, and which shall be of sufficient clarity to show to the satisfaction of the Engineer the exact nature and character of the proposed undertaking and the provision made for full compliance with the requirements of this bylaw and any other relevant bylaw for the time being in force.

- (i) For every building, except as set out in clause 2.6, with a framework or bearing-wall system wholly or partly subject to structural design under this bylaw, and in every other case where the Engineer may reasonably require it, there shall also be submitted to the Engineer such stress diagrams, computations, and other data as are necessary to show that the design complies with all the requirements of this bylaw and any other relevant bylaw in force;
- (ii) Computations shall be preceded by a brief report describing the bracing system and integration of the structure and the manner in which the designer expects it to function with a clear statement of all assumptions such as materials, stresses appropriate to the standard of supervision, and live, wind, and seismic loadings. Computations shall include a summation of dead, live, seismic, and other required loadings, floor by floor, and calculations of bents (or the equivalent) in each direction, and of any special features;
- (iii) Drawings of reinforced concrete work shall show clearly the dimensions of all members and the size, length, shape, position, and overlap of all reinforcement;
- (iv) Drawings of structural steelwork shall be complete working drawings showing in figured dimensions the exact length and position of each part in such detail that the steel may be supplied and the work fabricated from such drawings;
- (v) Detailed drawings shall be in such form and on such scale as the Engineer may consider necessary to ensure certainty of interpretation.
- (vi) All drawings other than detailed drawings shall be accurately, clearly, and indelibly executed to scale and shall be drawn in ink upon drawing paper or tracing cloth, or printed upon cloth or approved paper. Except in the case of detailed drawings all drawings shall be to scale of 1/8 in. or 1/4 in. to the foot.

2.5.2. The drawings shall be accompanied by a locality plan. This locality plan shall be drawn to scale and shall show the site of the building, together, with the land, streets, private streets, public places, private ways, public reserves and buildings immediately surrounding the site, and shall be sufficient to enable the Engineer to locate the precise situation of the site not only relative to the boundaries of its own land, but also relative to any buildings erected upon immediately adjoining lands.

2.5.5. In addition to the structural details, etc. required, the plans and sections shall show as regards every floor of the proposed building, the dimensions of rooms, the situation of flues, fireplaces, stoves, and chimneys, and the position of all the several parts of the building and every water closet, fuel store, washhouse, and all other appurtenances. The plan and section shall further show the proposed means of water supply, and the level of the lowest floor of the intended building and of the yard and ground belonging thereto, and also the means whereby it is proposed to deal with all stormwater and drainage.

2.5.6. When lodged, the application and drawings and other documents accompanying the application shall become the absolute property of the Council.

NOTE—Specifications should cover types, grading, spacing (centres) and sizes of materials. It is important that the position of existing foul drainage (especially gully traps, terminal vent, etc.) should be shown on the plans.

PERMIT MAY BE WITHHELD (without further notice) until Applicant fully complies with the above requirements.

Application for PLUMBING — DRAINAGE PERMIT

To the COUNTY ENGINEER,
TAURANGA COUNTY COUNCIL,
Private Bag,
GREERTON, TAURANGA.

I hereby apply for a permit to carry out Sanitary Plumbing and/or Drainage Work described below:—

✓ tick

1 OWNERS NAME WAYNE + ELIZABETH RAINS. Phone No. 480-308
Postal Address 36 BEACH Rd, OMOKOROA, R.D.2. TAURANGA.
PLUMBER L. SINGLETON. Phone No. 480-316.
Postal Address 69. BEACH Rd, OMOKOROA, R.D.2. TGA.
DRAINLAYER L. SINGLETON Phone No. 480-316
Postal Address 69 Beach Rd, OMOKOROA R.D.2 TGA

PERMIT FEES PAYABLE BY . . .

2 JOB LOCATION

Address 36 BEACH Rd, OMOKOROA.

Lot No. **DP(s) No.** **Val. No. (Rate Demand)**

3 DESCRIPTION OF WORK

✓ tick

☐
☒

Sanitary Plumbing and/or Drainage of new dwelling

Sanitary Plumbing and/or Drainage for alterations

or (describe) ALTERING BATHROOM + TOILET.

4 ESTIMATED COST of

PLUMBING \$ 700 250.
DRAINAGE \$ 300 100

OFFICE USE ONLY

FEES \$ 15 \$ 6 \$ 21	PERMIT Nos. B093005 5989. R.4014-15 30/3184
APPLICATION APPROVED Inspector Date	WORK INSPECTED APPROVED Inspector Date

Applicants Signature W. Rains

Date 8-3-84

TAURANGA COUNTY COUNCIL

YOUR SITE PLAN FORM

X CHECK LIST (FROM INFORMATION ONLY YOU CAN SUPPLY - DIRECT US TO FIND YOUR WORK)

- X All dwellings shown on property site plan.
- X Distances shown from boundaries to proposed building
- X Name of road shown clearly.
- X Position of water connection shown on front boundary.
- X Position of kerb-crossing shown on front boundary.
- X Direction of NORTH Marked onto Plan.
- X Accurate information to us avoids costly delays to you.

VACANT SECTION

NEW ALTERATION 000

6 meters

4 meters

SHED

7 M

BUILDERS NOTE:
Signpost your job with the owners name.

IDENTIFICATION
HELPS EVERYONE

BEACH Rd.

Omukoroa Beach Rd. ROAD (FRONTAGE)

YES

NO

☐
☒

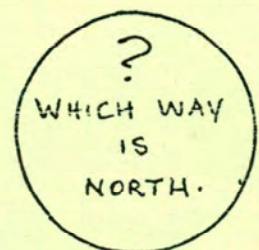
IS KERB AND CHANNEL EXISTING ?

☐
☒

IS WATER REQUIRED ?

☒
☐

IS SEWER AVAILABLE ?



X HAVE YOU SHOWN ALL EXISTING BUILDINGS ?



TAURANGA COUNTY COUNCIL

SPECIFICATION FOR MINOR BUILDING WORK

All work to be carried out to conform with the requirements of the N.Z.S.S. 1900 Building Code, the Drainage and Plumbing Regulations 1959, the County Code of Ordinances, and all other relevant legislation. The principles of good trade practice shall be observed.

TYPE OF BUILDING WORK:

Location: 36 Beach Rd Onukoua

Owner: W & E Rami

TYPE OF GROUND:

APPLICANT INDICATE BY TICKING WHICH DETAIL WILL APPLY TO YOUR BUILDING

FOUNDATIONS:

Concrete - 300 mm x 300 mm

300 mm x 200 mm

Other _____

Piles - 200 mm x 200 mm on ☒

300 mm x 300 mm x 100 mm pads

INSULATION

BLOCKWORK:

In accordance with Council's blockwork schedule available on request.

UNDER-FLOOR TIMBERS:

Floor Joists (@ 450 mm crs) 150 mm x 50 mm ☒

Jack Studs (@ 1.35 m crs) 100 mm x 75 mm ☒

Sleeper Plates 100 mm x 75 mm ☒

EXTERIOR SHEATHING:

Weatherboard

Asbestos Sheet ☒

Masonry

Other _____

Building Paper ☒

TIMBER:

Timber Treatment - Tanalised, ☒ Boric Treated, ☒ Untreated

Framing - 100 mm x 50 mm ☒

Studs - 100 mm x 50 mm @ 600 mm centres ☒

Bracing - Flat metal strap, metal ☒ angle, 150 mm x 25 mm, checked in, 75 mm x 50 mm cut in

Roof Frame - Gang nail - other 100x50 @ 900 q/s ☒

Purlins - 75 mm x 50 mm @ 750 mm ☒

Rafters - @ 750 mm, 1200 mm, 1350 mm crs

ROOF SHEATHING:

Corrugated Iron, ☒ T. Clip, Decramastic Tile, Other _____

FLOORING:

T. and G.

Particle Board ☒

75 mm, 88 mm, 100 mm Concrete Slab, reinforced with 668 or 665 mesh.

Damp proof P.V.C.

WALL LINING:

Gibraltar Board ☒

Hardboard - Softboard

Fibrous Plaster

Other _____

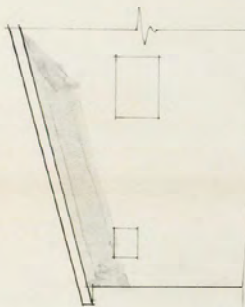
CEILINGS:

Soft Board - Fibrous Plaster

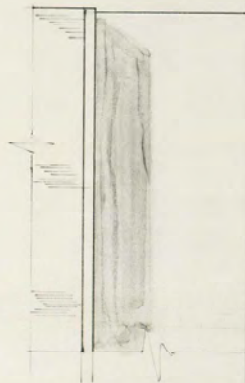
Gibraltar Board ☒

Other _____

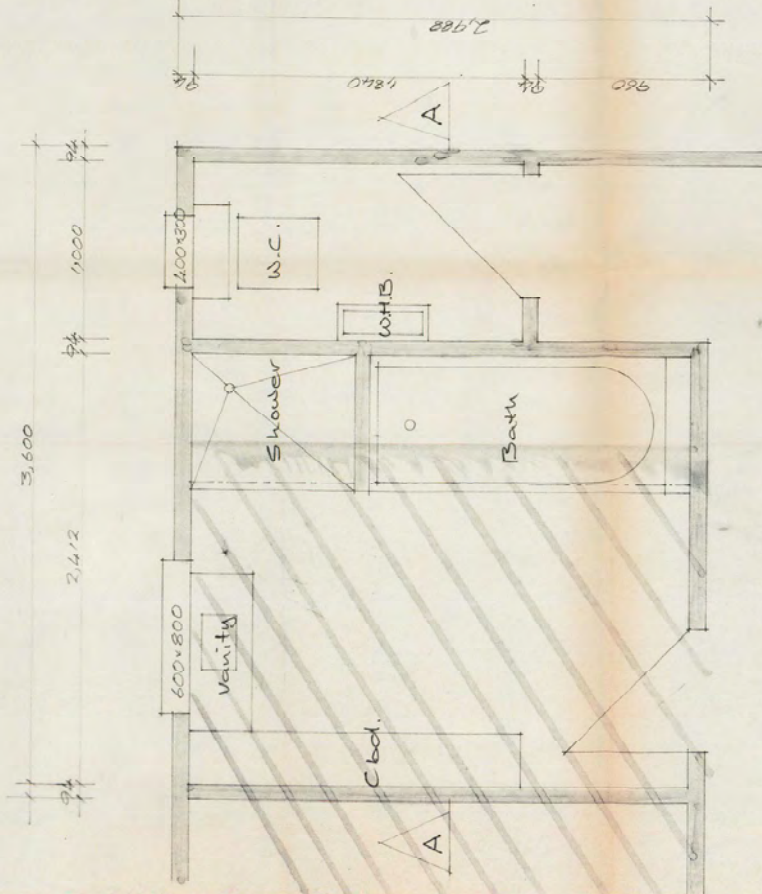
PLUMBING / DRAINAGE: - To be installed ☒
- Not Required ☒



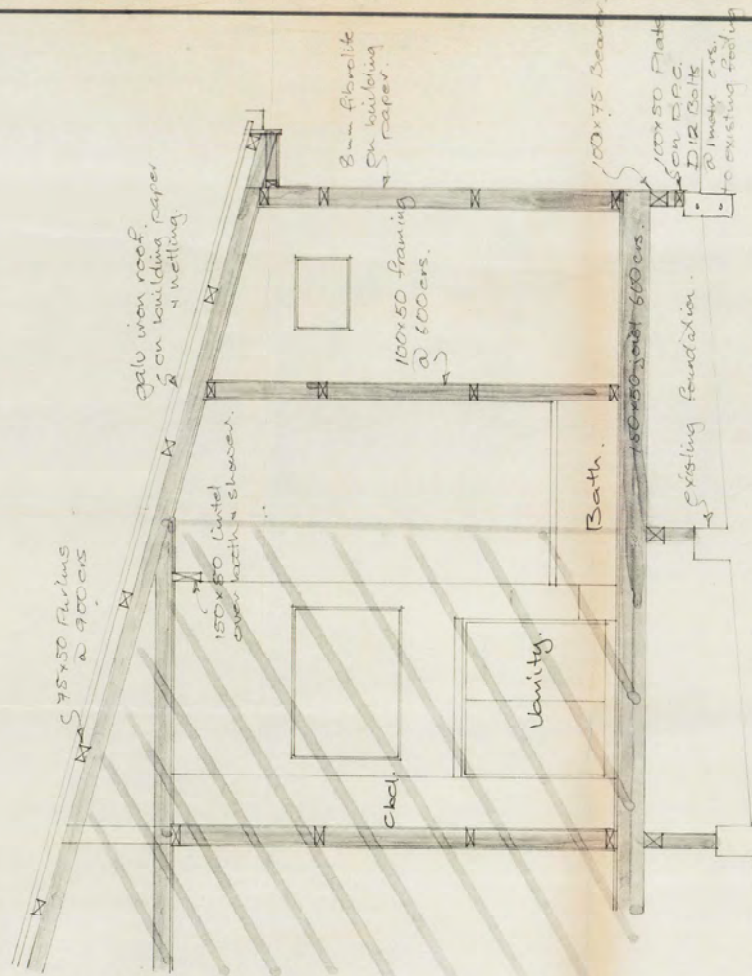
Side Elevation 50:1



Rear Elevation 50:1



Floor Plan 20:1



Section A-A 20:1

Existing building shown shaded.

Note: Stormwater to be piped to street channel in smooth bore 900 PVC pipe

W & E. Rants
36 Beach Rd. OMAREUA

DATE	SCALE	SHEET
1982	1:1	1
1982	1:1	1
1982	1:1	1

P120-7/4787/7

Subject **Drainage Easement**

Date **26 June 2003**

File Number **P/1276/58 /192/176/160/144/126/110/94/78/26/2/ 1264/26/2 & 1207/4787**

File Name **14 MCDONNELL STREET/ HAMURANA ROAD DRAINAGE
EASEMENT**

In 1947 Mr Thomas carried out the subdivision of Pt Allot 50 Parish of Te Puna.
Lot 9 on DP34522 had a "Drainage Easement" placed on it under Transfer 447327.

When the balance of the land being Pt Allot 50 was subdivided by Mr Unsworth in 1957 the
underlying Easement was not extinguished and transferred onto all the titles of the new
subdivision thus encumbering them with the drainage easement.

This matter has only recently come to Council attention due to an enquiry from a prospective
property buyer.

I have arranged for Council LINZ Agents to verify that the above is in fact correct and the
process required to have the easements removed off all the relevant properties titles on request
by the landowners.

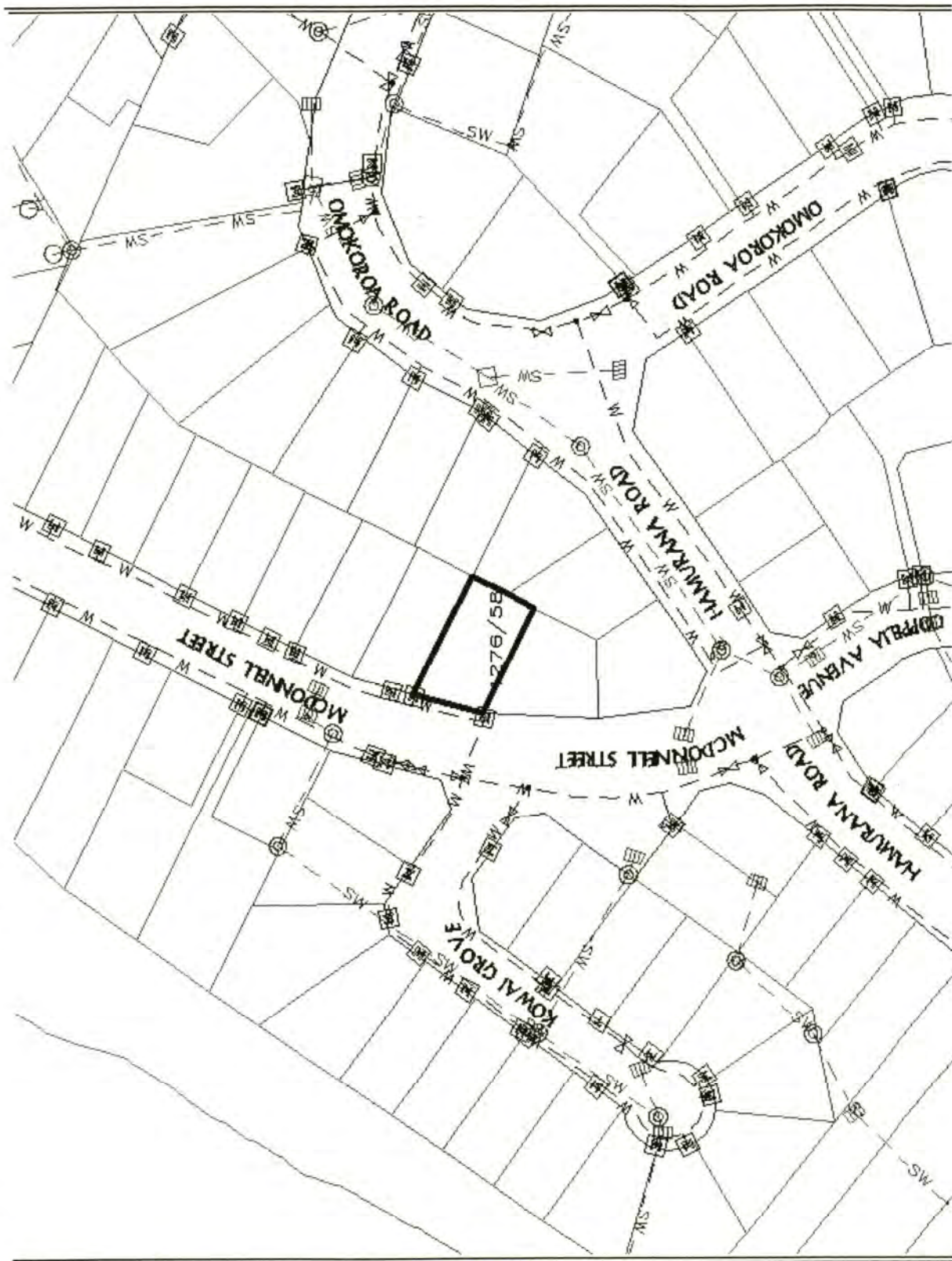
W O'Neill

Wendy O'Neill

Legal Officer Roading & Utilities

**F
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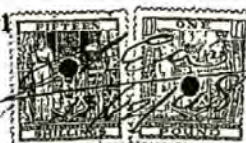


[Approved by District Land Registrar, Auckland, No. 604]

3/dec
[New Zealand.]

Memorandum of Transfer

447327 TE



I IRA WESLEY THOMAS of Omokoroa farmer (hereinafter called the Transferor)

being registered as proprietor

of an estate in fee simple

subject, however, to such encumbrances liens and interests as are notified by memoranda underwritten or endorsed hereon in this piece of land situated in the Provincial District of Auckland containing TWO ROODS EIGHTEEN DECIMAL ONE PERCHES -- (0:2:18.1) more or less being Lots 7, 8 and 9 on Deposited Plan 34522 being part of allotment 50 Parish of Te Puna and being part of the land in -- Certificate of Title Volume 808 Folio 299 Auckland Land Registry.

Image Quality due
to Condition
of Original

In consideration of the sum of TWO HUNDRED AND TWENTY FIVE POUNDS (£225)

paid to me/ the Transferor by HARRY MATTHEW LIVINGSTONE of Tauranga Commercial Traveler

(the receipt of which sum is hereby acknowledged) Do hereby Transfer to the said Harry Matthew Livingstone

all my estate or interest in the said piece of land SUBJECT HOWEVER and reserving to the Transferor the right to maintain a drain over and through that portion of said Lot 9 shown coloured blue in the plan endorsed hereon and for that purpose to enter upon said Lot 9 for the purpose of renewing repairing or clearing the said drain to the intent that this easement of drainage shall be for ever appurtenant to the lands of the Transferor being that portion of the lands in said Certificate of Title Volume 808 Folio 299 not comprised in said Deposited Plan 34522 PROVIDED HOWEVER that the Transferor shall not be liable or be called upon to fence or to contribute towards the cost of erecting or maintaining any dividing or boundary fence between the lands hereby transferred and adjoining lands belonging to the transferor BUT this proviso shall not enure for the benefit of any purchaser

of such adjoining lands the said adjoining lands being that portion of the land comprised in said Certificate of Title Volume 808 Folio 299 not comprised in said Deposited Plan 34522.

In witness whereof I have hereunto subscribed my name this 11th
day of October One thousand nine hundred and forty-eight.

Signed by the said IRA WESLEY THOMAS

I. W. Thomas

as Transferor in the presence of:

John And
Solinitor
Warranga

SIGNED and accepted by the said HARRY
MATTHEW LIVINGSTONE as transferee in
the presence of:-

H. M. Livingstone

John And
Solinitor
Warranga

TE

2

D.P. 12835

I. W. Thomas
C.T. 808/299

10

P. 34522

Public Road

Tauranga Harbour

AUCKLAND LAND DISTRICT
BLOCK IV TAURANGA S. D.
TAURANGA COUNTY.

SCALE: 1 CHAIN TO AN INCH.

Sufficient for easement.

C. A. Lamm

L.T.S.

21.12.48

447327

No.

Correct for the purposes of the Land Transfer Act.

TRANSFER of Lots 7, 8 and 9 on

D.P. 34522.

John Curd

I. W. THOMAS

Transferor.

Solicitor for the Transferee.

SOUTH

H. H. LIVINGSTONE

Transferee.

Particulars entered in the Register Book, Vol. 88

Folio

299 6M396 11C/1227

the

1

13

day of

December, 1946

at

2.22 o'clock,

J. H. Benjamin
District Land Registrar of the District of Auckland

918/31

24 9.4

*pt 880/299
Area = 0.2-18.1 being lots 7, 8,
7 9. on DP 34522. Town of Wai-
tangi 1. & being pt. of Allot. 50.
to Luna. psh.*

*From
D.P. 34522*

*From
20.12.48*

SHARP, TUDHOPE & CO.

SOLICITORS

TAURANGA

Bay of Plenty Times Print, Willow Street, Tauranga. 23964

92/193

124



Land Transfer Office
 Received 19/6/57
 This reference is to the
 100 referred to in T. Survey 19/6/57

SCHEDULE OF AREAS
 RES. LOTS 7: 1: 01:1
 COMM. LOTS 0: 2: 18:4
 RE TO BE DEEDS 1: 3: 26:8
 RECM RESERVE 0: 1: 23:1
 ESP. RESERVE 2: 0: 08
 TOTAL AREA 12: 1: 03:4

From D.A. 12855
 Boundary Report

HARBOUR
 ESPLANADE RESERVE

TAURANGA

PUBLIC ROAD

SUBDIVISION OF

PART ALLOTMENTS 49, 49A, 50 & 50A

TE PUNA PARISH

Town of Omokoroa

Part C.T. 1207-178

IV TAURANGA

Local Body TAURANGA COUNTY

Survey Block & District

Land District 57th AUCKLAND

Scale One chain to an inch

Surveyed by G. G. G. G. G.

Date December 1956

Approved

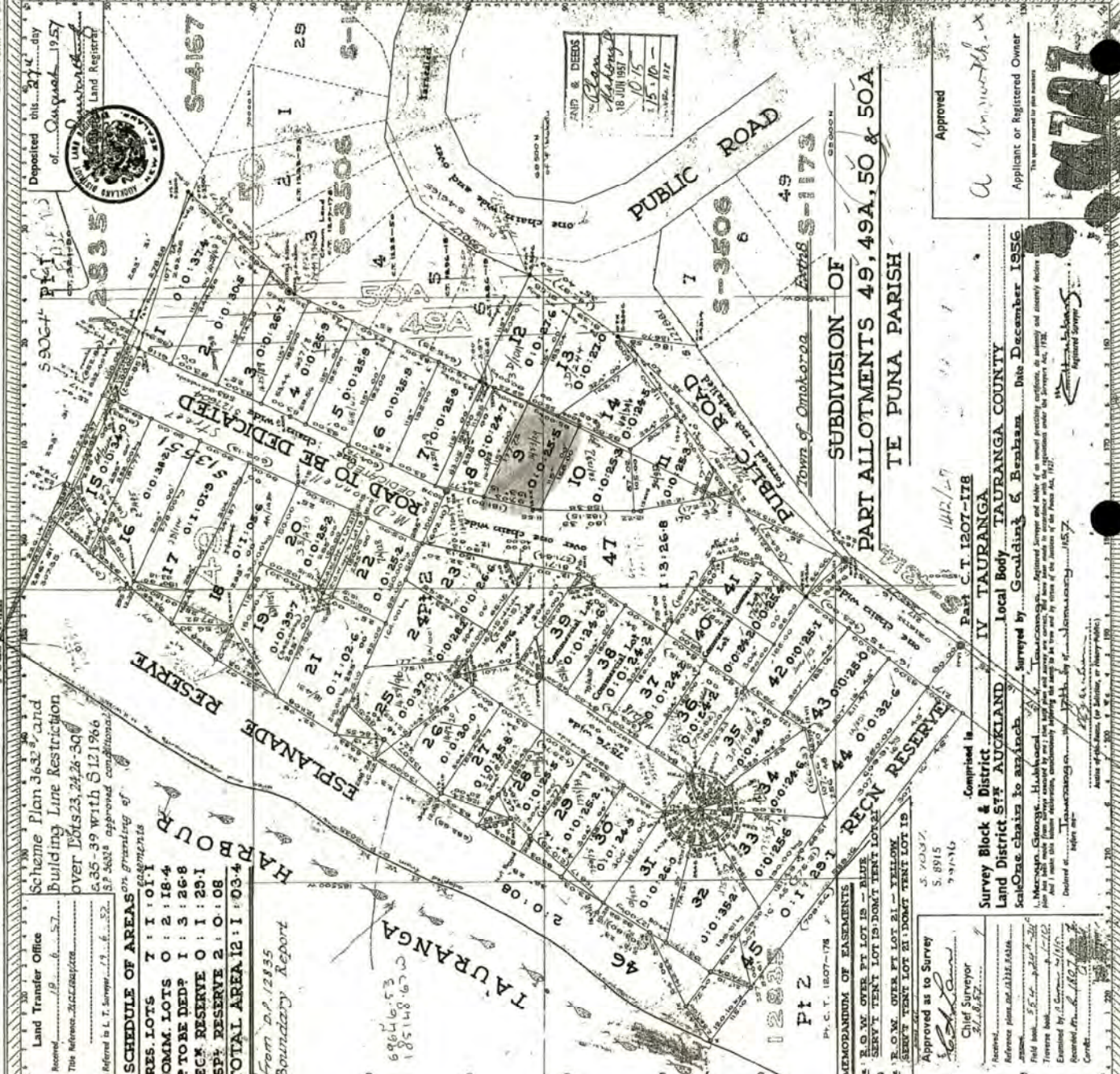
Applicant or Registered Owner

This map is to be used for the purpose of the Survey Act, 1952.

Approved

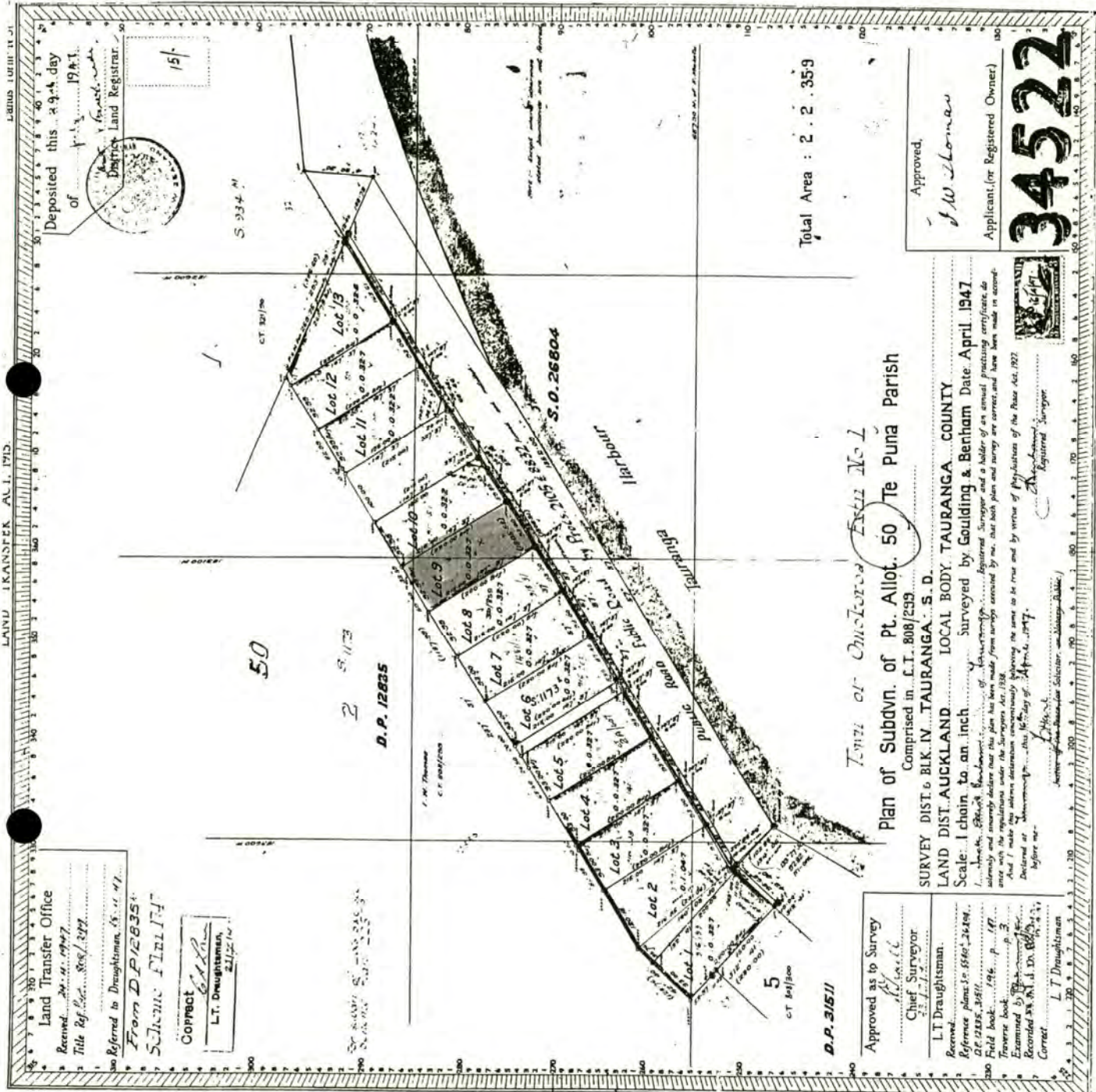
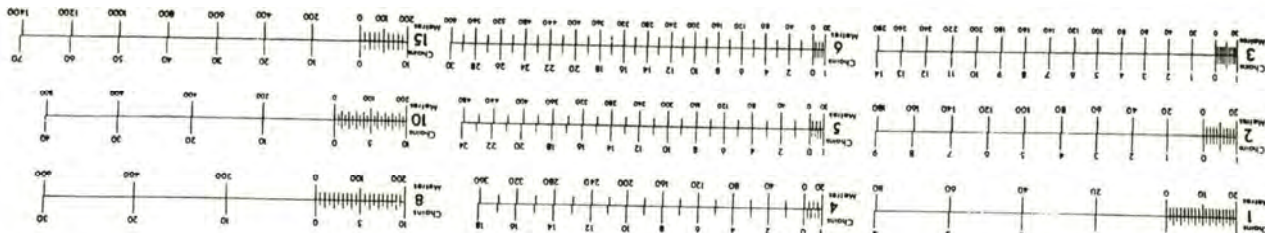
Applicant or Registered Owner

This map is to be used for the purpose of the Survey Act, 1952.



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14/2/73



Land Transfer Office

Received 24.11.1947

Title Ref. No. 808/299

Referred to Draughtsman, 18.11.47

From D.P. 12835

Schedule Plan 17

Correct

L.T. Draughtsman

21/12/47

Approved as to Survey

Chief Surveyor

L.T. Draughtsman

Received

Reference plan to 1880/2484

D.P. 12835, 1947

Transfer book 1946 p. 17

Examined by 1880/2484

Recorded in 1880/2484

Correct

L.T. Draughtsman

Plan of Subdivn. of Pt. Allot. 50 Te Puna Parish

Comprised in C.T. 808/299

SURVEY DIST. 6 BLK. IV. TAURANGA S.D.

LAND DIST. AUCKLAND

LOCAL BODY TAURANGA COUNTY

Surveyed by Goulding & Benham Date April 1947

Scale 1 chain to an inch

I, the undersigned, being a duly qualified and licensed Surveyor, do hereby certify that this plan has been made from surveys conducted by me, and that the same are correct, and have been made in accordance with the regulations under the Surveyors Act, 1938.

And I make my solemn declaration in conformity with the provisions of the Statute in that behalf made, viz. that I am a duly qualified and licensed Surveyor, and that I have not been convicted of any offence under the provisions of the Statute in that behalf made.

Declared at Tauranga, this 16th day of April, 1947.

before me

Notary Public for New Zealand

Total Area : 2.2.359

Approved

J.W. Sloman

Applicant (or Registered Owner)

34522



21 November 2011

Mr K & Mrs E Jones
36 Omokoroa Road
Omokoroa 3114

Dear Ken and Liz

Request for review of water charges

Thank you for your letter asking for a review of your water account. We have investigated your concerns and, in this instance, we are pleased to advise a reduction by 35% of your November 2011 water account has been approved and a revised invoice is enclosed. Please note that, under Council's policy, this reduction in your water account is permitted once only.

We would like to take this opportunity to remind you of Western Bay's Water Supply System 2008, Terms and Conditions for the Supply of Water, in particular, sections 3.3 Point of Supply and 4. Customer Responsibilities. A copy is enclosed for your information and updates are available on Council's website, **www.westernbay.govt.nz**, under Publications/General Publications/Bylaws, or on request from Council's offices. We would also like to recommend you regularly monitor your water use to ensure leaks are identified early. A leaflet is enclosed and the information is also available on Council's website.

If you have any queries about this reduction in your water charges, or the information enclosed with this letter, please contact me directly on **07 579 6645**, or speak to a member of our customer services team on 07 571 8008.

Yours faithfully

Kaye Henderson
Rates Financial Support Officer

21 January 2010

Ken Jones
36 Omokoroa Road
Omokoroa 3114

Dear Ken,

Connection to the Omokoroa Wastewater Scheme

It is now 2½ years since the wastewater scheme at Omokoroa was commissioned. Your property at 36 Omokoroa Road remains one of a handful of properties as yet unconnected to the scheme.

Council is determined to remove the detrimental effects that septic tanks, soak holes and drainage fields pose to the environment of Omokoroa. To this effect please make arrangements to have a registered drainlayer connect this property to the wastewater scheme before the 31st March 2010.

Several connection deadlines have come and gone, the 31st March however is the final cut-off date. If the property remains unconnected after this date, Council will invoke Section 459(6) of the Local Government Act 1974 which states:

"If the owner fails to do any work specified in the notice and as therein directed, the Council may, if it thinks fit, cause the work to be done and may recover from him the costs and expenses of the work together with 10 percent of those costs and expenses for supervision by the officers or agents of the Council, and interest at a rate per annum, as fixed by the Council, on the total sum until payment thereof. Where any work done by the Council pursuant to this subsection is on account of several owners, the Council may apportion the total amount as aforesaid between those owners, and the amount so apportioned to each such owner shall be the amount recoverable from him."

In other words Council will arrange a drainlayer to connect your property then pass that cost on to you. Obviously this option will prove more expensive and disruptive for you than organising the connection yourself.

Doug Green, Councils Field Engineer, will be following up this correspondence in the coming weeks and will be in touch with you to discuss what arrangements have been made.

Yours faithfully

Kelvin Hill
Utilities Manager

Cc: Sam Weiss, Environment Bay of Plenty

Notice of Rating Valuation

VALUATION NUMBER 06881 511 00

Please quote this number in all correspondence

MACDONALD, MALCOLM RODERICK
MACDONALD, CARON
36 OMOKOROA ROAD
OMOKOROA 3114

PROPERTY VALUE

Property value as at 01 July 2019 being the date of the latest revaluation of properties in the district.	Land Value	370,000
	Value of Improvements	385,000
	Capital Value	755,000
	Tree Value	0

PROPERTY DESCRIPTION

Property Address: 36 OMOKOROA ROAD
Owners Name: MACDONALD, MALCOLM RODERICK
MACDONALD, CARON
Ratepayers Name: MACDONALD, MALCOLM RODERICK
MACDONALD, CARON
Nature of Improvements: DWG OB OI
Area Of Land: 0.0698 hectares
Legal Description: LOT 12 DPS 4797 BLK IV TAURANGA SD

Nature of Improvements key: DWG=Dwelling, BLDG=Building, FG=Fencing, OI=Other Improvements, OB=Other Buildings

REASON FOR VALUATION NOTICE: CHANGE TO IMPROVEMENTS

OBJECTION DATE

If you wish to lodge an objection to your valuation or to information appearing on the Valuation Roll, you must do so within 20 working days from this date 26 August 2020. All correspondence can be directed to the address at the top of the page.

GENERAL

Local authorities use information contained in the district valuation roll to set rates. This notice details information on your property that is contained in the district valuation roll of Western Bay of Plenty District Council. The Rating Valuations Act 1998 obliges councils to maintain the valuation rolls but allows them to choose their valuation service provider.

The Valuer General regulates the maintenance of district valuation rolls to ensure that they meet the minimum standards set out in the Rating Valuations Act 1998, the Rating Valuations Regulations 1998 and the Rating Valuations Rules.

An owner or ratepayer (if different) may object to any information contained in a notice of valuation within the time and in the manner specified in regulations made under the Rating Valuations Act 1998. If you object to a value that is a component of your valuation, the Western Bay of Plenty District Council will review that value and may also review any other value components of the rating unit, ie land value, value of improvements, capital value, or annual value.

Western Bay of Plenty District Council has contracted Opteon Solutions to carry out this valuation.

The valuation of Maori Freehold land is adjusted to reflect the constraints of the Te Ture Maori Act 1993.