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**BUILDING CONSENT APPLICATION 2023 -
(previous owner, not submitted)**

GENERAL NOTES

- ALL WORKS SHALL COMPLY WITH RELEVANT CLAUSES OF THE NEW ZEALAND BUILDING ACT
- ALL TIMBER CONSTRUCTION TO COMPLY WITH NZS 3604. ALL WORKS OUTSIDE THIS SCOPE TO SPECIFIC ENGINEERS DESIGN AND DESIGN IT CERTIFICATE.
- ALL FRAMING SIZES NOMINAL. ALL DIMENSIONS OVER TIMBER FRAMING NOMINAL
- ALL TIMBER TREATMENT TO COMPLY WITH NZS 3604: SECTION 4, NZBC: SECTION B2 & NZS 3602
- EXISTING BUILDING ELEMENTS, DIMENSIONS AND LEVELS TO BE CHECKED ON SITE FOR CONFIRMATION.
- CONTRACTOR TO CONFIRM ALL DIMENSIONS & LEVELS ON SITE PRIOR TO COMMENCING ANY WORK. ANY AMBIGUITIES TO BE REFERRED TO THE ARCHITECTS.
- CONTRACTOR IS TO VERIFY & MARK THE POSITION OF ALL BELOW GROUND SERVICES ON OR ADJACENT TO THE SITE PRIOR TO BEGINNING CONSTRUCTION. POSITIONS SHOWN ON DRAWINGS ARE APPROXIMATE ONLY.
- SHOP DRAWINGS TO BE SUBMITTED TO ARCHITECT FOR REVIEW PRIOR TO MANUFACTURE.
- DRAWINGS TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL SPECIFICATION & FINISHES SCHEDULE.
- DRAWINGS TO BE READ IN CONJUNCTION WITH THE STRUCTURAL DRAWINGS & SPECIFICATION. REFER TO STRUCTURAL ENGINEERS DRAWINGS FOR STRUCTURAL ELEMENT SIZES AND DETAILS.
- ALL WORKMANSHIP TO BE CARRIED OUT TO BEST TRADE PRACTICE
- ALL SPECIFIED SYSTEMS MUST BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION DETAILS & SPECIFICATION
- ALL SPECIFIED SYSTEMS HAVE BEEN CONSENTED & AS SUCH ALTERNATIVES MAY REQUIRE A CONSENT AMENDMENT. ALL COSTS ASSOCIATED WILL BE BORNE BY THE CONTRACTOR UNLESS AGREED OTHERWISE.
- ALL JUNCTIONS BETWEEN DISSIMILAR MATERIALS REQUIRE SPECIFIC DETAILS. IF ONE IS NOT PROVIDED ENSURE ONE IS OBTAINED FROM THE ARCHITECT PRIOR TO CONSTRUCTION.

ABBREVIATIONS & ACRONYMS

ACP	Aluminium Composite Panel	G	Glass	RHS	Rectangular Hollow Section
ACM	Aluminium Composite Material	GT	Gully Trap	RL	Reduced Level
AP	Access Panel	HOR	Horizontal	R/O	Rough Opening
APPR	Approved	HT	Hose Tap	SB	Electric Switchboard
C/L	Centreline	HWC	hot water cylinder	SB	Electric Switchboard
C/C	Centre to Centre	ID	Inside Diameter	ROW	Right of Way
CODE	NZ Building Code	IL	Invert Level	SC	Saw Cut Joint
CONC	Concrete	IB	Inspection Bend	SCHD	Schedule
COS	Check on Site	IJ	Inspection Junction	SH	Shower
CHS	Circular Hollow Section	IT	Intertency Wall	SK	Sink
CRS	Centers	kW	Kilowatt	SHS	Square Hollow Section
CS	Coach Screw	L	Litre	SPEC	Specification
DB	Distribution Board	m	Metre	SEW	Sewer
DIA	Diameter	MAX	Maximum	SD	Sewer Drain
DIM	Dimension	MIN	Minimum	STC	Sound Transmission Class
DP	Down Pipe	MM	Millimeter	STST	Stainless Steel
DPC	Damp Proof Course	N/A	Not Applicable	SW	Stormwater
DPM	Damp Proof Membrane	NTS	Not to Scale	SWD	Stormwater Drain
DW	Dishwasher	NZS	New Zealand Standard	TBC	To Be Confirmed
DEG	Degree	O/A	Overall	TFC	Tapered Flange Channel
DWG	Drawing	O/H	Overhead	TV	Terminal Vent
EJ	Expansion Joint	OD	Outside Diameter	TYP	Typical
EX	Exit	OJF	Overflow	U/S	Underside
FLL	Finished Floor Level	PCP	Precast Concrete	UB	Universal Beam
FG	Fixed Glass	PC	Powder Coated	UNO	Unless Noted Otherwise
FH	Fire Hydrant	PFC	Parallel Flange Channel	UC	Universal Column
FHR	Fire Hose Reel	R	Radius	VAN	Vanity
FO	Floor Outlet	RAD	Radiata	VER	Vertical
FWO	Floor Waste Outlet	RC	Reinforced Concrete	W	Washing machine
FRR	Fire Resistance Rating	REF	Reference		

STEEL WORK FINISH & PROTECTION NOTES

- REFER TO STRUCTURAL DRAWINGS FOR ALL MEMBERS REQUIRING SPECIFIC PROTECTION
- REFER TO SPECIFICATION FOR PROTECTIVE COATINGS ON STEELWORK
- ALL EXPOSED STRUCTURAL STEEL TO BE F4 PAINT FINISH UNLESS CONCEALED ABOVE SUSPENDED CEILING.
- THE INTUMESCENT PAINT SYSTEM APPLICATOR IS TO APPLY DECORATIVE FINISH COATS & SUPPLY A CONTINUITY WARRANTY
- APPLY PRIMERS STRICTLY IN ACCORDANCE WITH SPECIFICATION.

1. THE CONTRACTOR SHALL REFER TO ALL CONSULTANTS' PLANS, SPECIFICATIONS AND DOCUMENTS. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE RELEVANT CLAUSES OF THE SPECIFICATION

DOOR NOTES

- REFER TO FLOOR PLANS FOR LOCATION AND HANDING OF DOORS.
- ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE THE COMMENCEMENT OF MANUFACTURE.
- ALL DIMENSIONS SHOWN ARE NOMINAL SIZES ONLY.
- JOINERY MANUFACTURER TO SUPPLY SHOP DRAWINGS OF ALL JOINERY UNIT & SAMPLE JOINERY SECTIONS TO ARCHITECT FOR APPROVAL PRIOR TO MANUFACTURE.
- ALLOW TO SIZE DOOR FRAME WIDTH TO SUIT WALL TYPE AND SKIRTINGS.
- REFER TO HARDWARE SCHEDULE FOR ALL HARDWARE ITEMS AND READ IN CONJUNCTION WITH DOOR SCHEDULE
- ALL EXPOSED EXTERIOR DOORS INCLUDING DOORS FACING INTO CARPARKS (SEMI-EXTERIOR) TO BE CAPPED ON 4 SIDES
- FOR DOORS ASSOCIATED WITH WINDOW FRAMES REFER TO WINDOW SCHEDULE
- REFER TO DOOR DETAILS IN 6000 DRAWING SERIES
- ALLOW CLEARANCE FOR FLOOR FINISH.

WALL NOTES

- WALLS ABOVE GROUND**
ALLOW FOR MARKHAM AQURON 1200 WATER REPELANT COATING TO EXTERNAL FACE OF ALL CONCRETE BLOCKWORK WALLS, INSITU CONCRETE WALLS/COLUMNS, PRECAST CONCRETE WALLS UNLESS NOTED OTHERWISE. CONTRACTOR TO COORDINATE WITH MARKHAM COATING SYSTEM SUPPLIER FOR SPECIFIC DETAILS
- CONCRETE BLOCKWORK**
SOLID FILL:
REFER STRUCTURAL ENGINEERS DRAWINGS FOR EXTENT OF SOLID FILL TO CONCRETE BLOCKWORK
BOND PATTERN:
WHERE ONE OR MORE FACES CLEAR SEALED FINISH ALLOW FOR STACK BOND FIRE RATING
- CONTRACTOR TO ALLOW FOR SOLID NOGGING TO ALL BATHROOM AS PER STANDARD DETAILS.
- CONTRACTOR TO ALLOW FOR H3.2 TIMBER BATTENS AND BLOCKING AROUND ALL STEEL MEMBERS INSIDE TIMBER WALL FRAMES.
- ALL EXTERIOR WALL FRAMING SHALL BE TREATED TO MIN H3 (OR APPROVED SIMILAR TREATMENT) AND SHALL BE SEPARATED FROM ANY CONCRETE WITH SELECTED DPC.

WINDOW NOTES

- GLASS TYPES, GAUGE AND FRAME SIZES TO BE CONFIRMED BY JOINERY MANUFACTURER. MINIMUM GLASS THICKNESS FOR ALL WINDOWS 6.38 PVB LAMINATED GLASS OR DOUBLE GLAZING.
- ALL DETAILS SHOWN ARE INDICATIVE ONLY AND SHOULD BE USED FOR DESIGN INTENT PURPOSES ONLY. WINDOW/DOOR MANUFACTURER TO PROVIDE SHOP DRAWINGS FOR APPROVAL BASED ON TYPICAL DETAILS SHOWN.
- ALL WINDOWS / DOORS VIEWED FROM OUTSIDE
- ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE THE COMMENCEMENT OF MANUFACTURE. MANUFACTURER TO ENSURE WATERTIGHT DETAILING OF ALL JOINERY.
- ALL ALUMINIUM JOINERY TO HAVE SPECIFIED FINISH
- ALLOW TO PROVIDE ALL HANDLES, LOCKS & HINGES UNLESS NOTED OTHERWISE.
- ALL SYSTEMS SHALL BE FULLY ENGINEERED, CERTIFIED AND QUALITY ASSURED. PROVIDE EXISTING EQUIVALENT TEST CERTIFICATES OR ALLOW TO TEST WINDOW/DOOR/CLADDING SYSTEMS TO NZ/AS 4284 PRIOR TO MANUFACTURE.
- ALL GLASS TO BE CLEAR UNLESS OTHERWISE STATED, CONFIRM WITH ARCHITECT PRIOR TO MANUFACTURE
- WINDOW MANUFACTURE TO ALLOW FOR WIND LOADS, SEISMIC MOVEMENT AND INTERSTORY DRIFT AS REQUIRED. REFER TO STRUCTURAL.

PLUMBING & DRAINAGE

WASTE PIPE BRANCH DRAIN MINIMUM GRADIENT

- 65Ø - 1:40 MINIMUM GRADIENT
- 80Ø - 1:60 MINIMUM GRADIENT
- 100Ø - 1:60 MINIMUM GRADIENT

FIXTURE MIN DN MINIMUM GRADE

- SINK 50Ø - 1:40 MINIMUM GRADIENT
- WHB 40Ø - 1:40 MINIMUM GRADIENT
- SHOWER 50Ø - 1:40 MINIMUM GRADIENT
- TUB 50Ø - 1:40 MINIMUM GRADIENT
- WC 80Ø - 1:60 MINIMUM GRADIENT
- STACK 100Ø - 1:60 MINIMUM GRADIENT

- ALL PLUMBING AND DRAINAGE TO BE INSTALLED & TESTED BY A REGISTERED TRADESMAN
- FOUL WATER SANITARY PLUMBING SHALL COMPLY WITH AS/NZS 3500
- WATER SUPPLY AND RETICULATION SHALL COMPLY WITH NZBC G12/AS1
- STORMWATER DRAINAGE SHALL COMPLY WITH NZBC E1/AS1
- ALL DRAINS SHALL BE PVC
- ALL PIPES RUNNING THROUGH FOUNDATIONS ARE TO BE WRAPPED WITH DENSO TAPE
- DRAINAGE PIPES TO RUN UNDER SLABS TO BRANCH DRAINS - MIN SIZE 65MM Ø
- CONCEAL ALL VENTS & PIPEWORK WITHIN THE WALLS

Use figured dimensions do not scale off drawings

Confirm all dimensions on site

All proprietary building products materials fixtures and fittings are to be used strictly in accordance with manufacturer's specifications

Underground services shown on the plan are not accurately located, confirm location of all underground services prior to any excavation work commencing

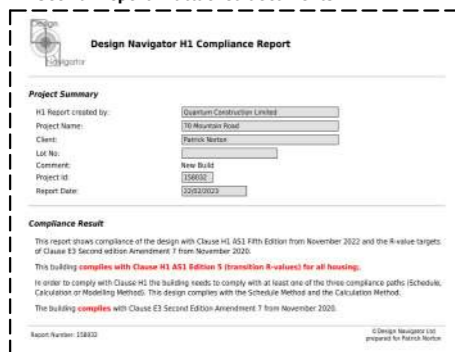


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H1 COMPLIANCE

Summary Sheet

See Full report in attached documents



H1 COMPLIANCE

SCALE @ A3 - 1 : 1 | SCALE @ A1 - HALVE A3 SCALE

70 Mountain Road

GENERAL NOTES

Issue 214

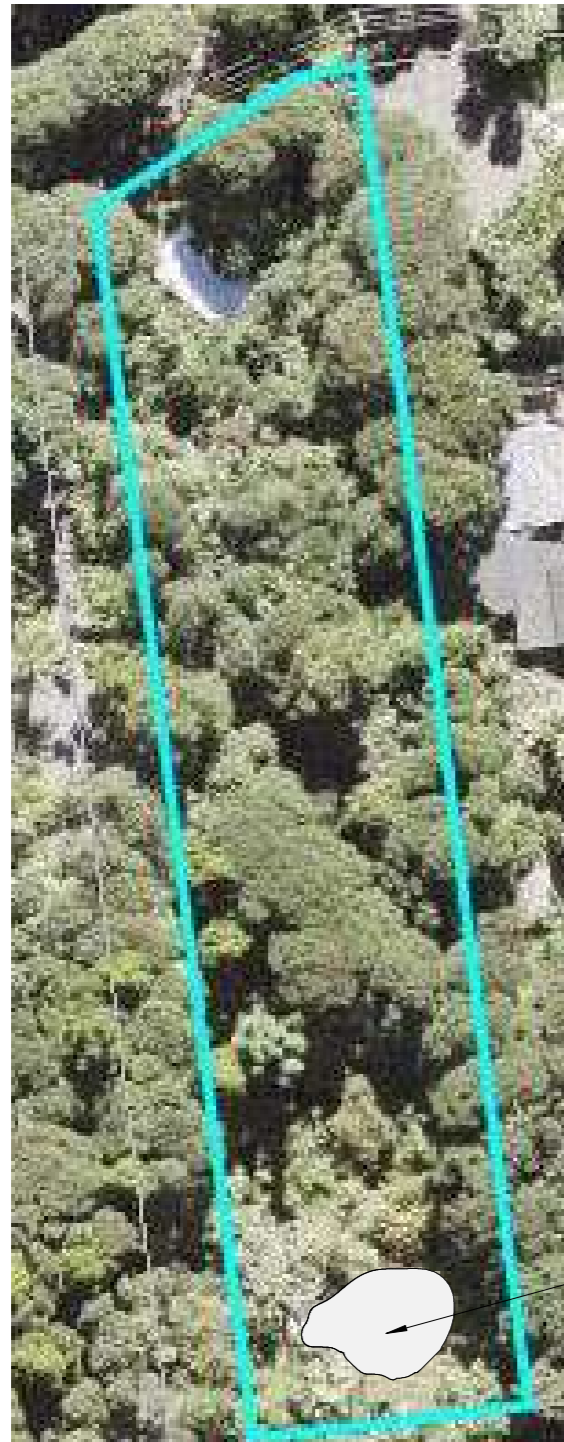
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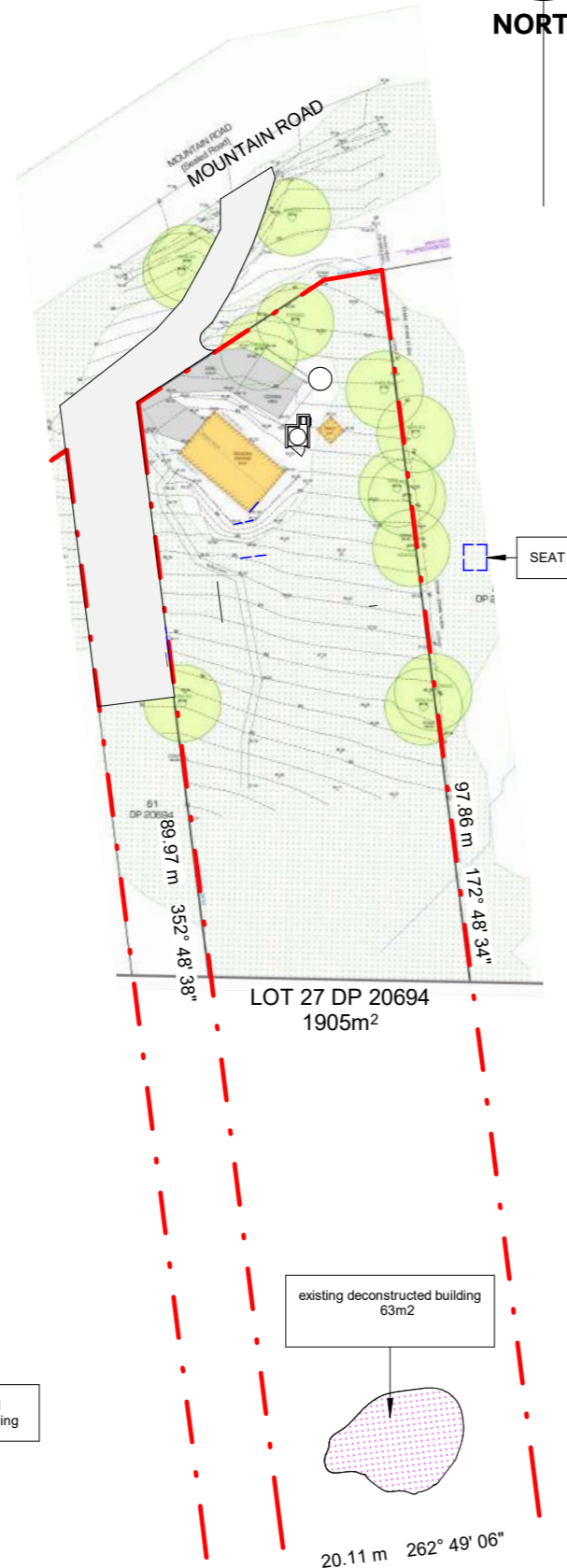
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A1-1

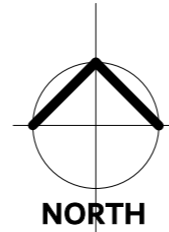
Scale As indicated



Aerial View
SCALE @ A3 - 1 : 500 | SCALE @ A1 - HALVE A3 SCALE



Existing site
SCALE @ A3 - 1 : 500 | SCALE @ A1 - HALVE A3 SCALE



H21- Unitary Plan – Rural - Waitakere Ranges Zone

COMPLIANCES

- H21.6.2. Building height**
Purpose: to manage the bulk and scale of buildings to ensure they are in keeping with the natural landscape, natural character and amenity values of the zone.
(1) Dwellings and buildings accessory to dwellings including minor dwellings and garages must not exceed 8m in height.
(2) Other accessory buildings must not exceed a height of 15m.

>> Maximum height of the proposed building is 5.96m. This complies with the above standard. Maximum height of the existing accessory buildings is 3.2m.

- H21.6.4. Building coverage**
(1) The maximum building coverage within the Overlay Subdivision Plan 7a-7g – Bush Living (Ranges) identified in D12 Waitakere Ranges Heritage Area Overlay must not exceed ten per cent of net site area or 300m² whichever is the lesser

>> The proposed building coverage is 115.9m² with existing outbuildings of 50.73m² giving a total of 166.63m². This is 8.74% of the total site building coverage. This complies with the above Standard

- H21.6.9. Dwellings**
The following standards apply to dwellings:
(1) there must not be more than one dwelling (not including a minor dwelling) on a site;
(2) a dwelling must be constructed to have colour reflectivity limited to the following:
(a) between 0 and 40 per cent for exterior walls; and
(b) between 0 and 25 per cent for roofs;
(3) standard H21.6.9(2) does not apply to unstained timber and natural materials;
(4) fencing around dwellings must comprise rural post and wire or post and rail fencing;
(5) water tanks must be buried or be screened from views; and
(6) driveways must be constructed with material that is visually recessive e.g. exposed aggregate concrete, asphalt, chip seal, concrete with charcoal oxide tint.

>> This proposal will result in one only dwelling on the site. Complies with (1) above.

>> Wall colour will be Resene Abacus (LRV 32) or similar.

>>The roof colour will be Resene Ivanhoe (LRV12) or similar.



>> The rainwater tank will be screened from view

>> Driveway material will be consistent with (6) above

Compliances
SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE

SITE INFORMATION

Address: 70 Mountain Road Henderson Valley
Legal Description: LOT27 DP20694
Record of Title Number: NA860/9
Property Area: 1905m²
Area Unit: M
Climate Zone: 1
Wind Zone: High
Wind Region: A
Earthquake Zone: Zone 1
Exposure Zone: Zone C
Rainfall Range: 90 - 100

Use figured dimensions do not scale off drawings

Confirm all dimensions on site

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70 Mountain Road

Site Plan

Issue 214

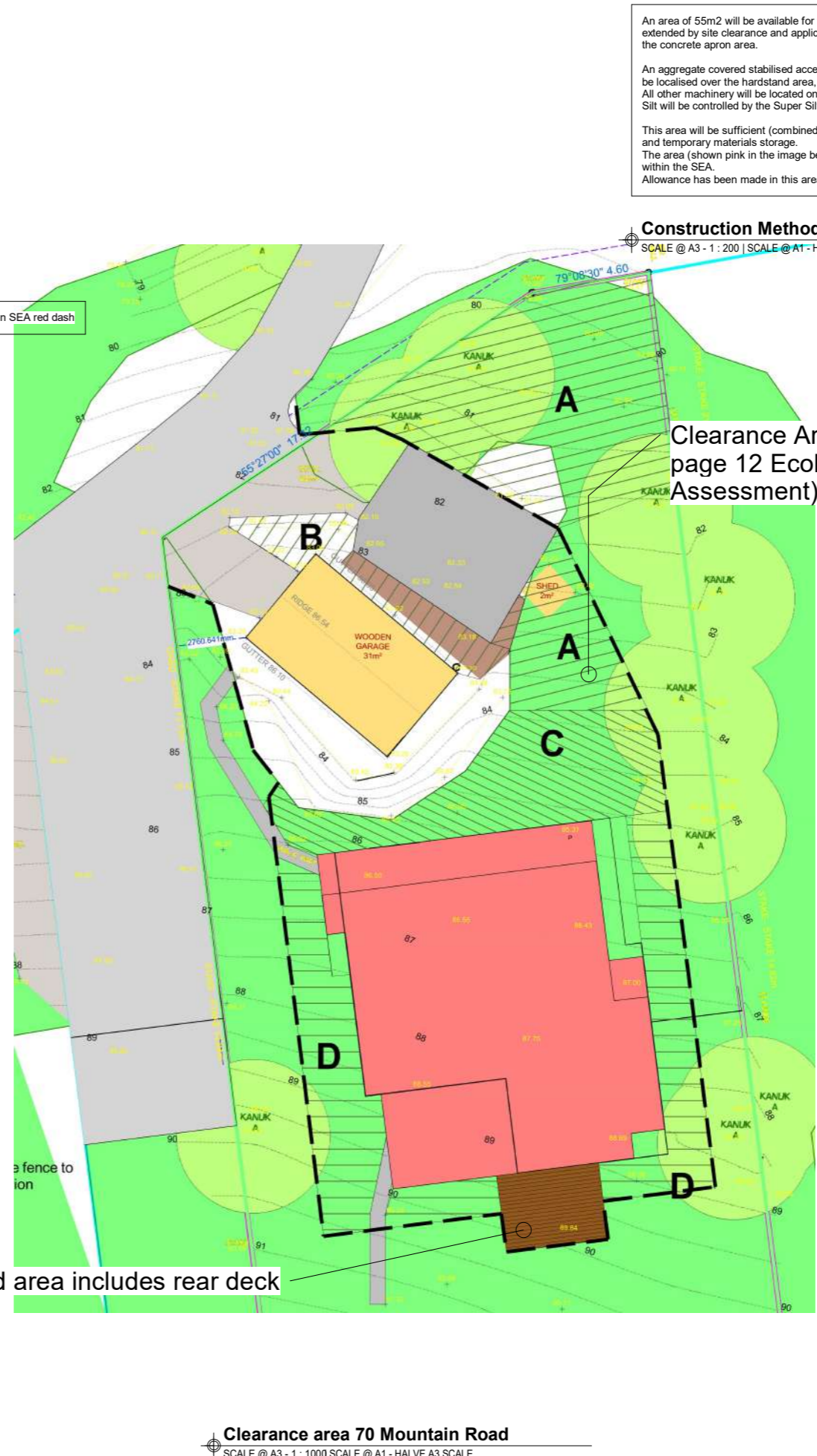
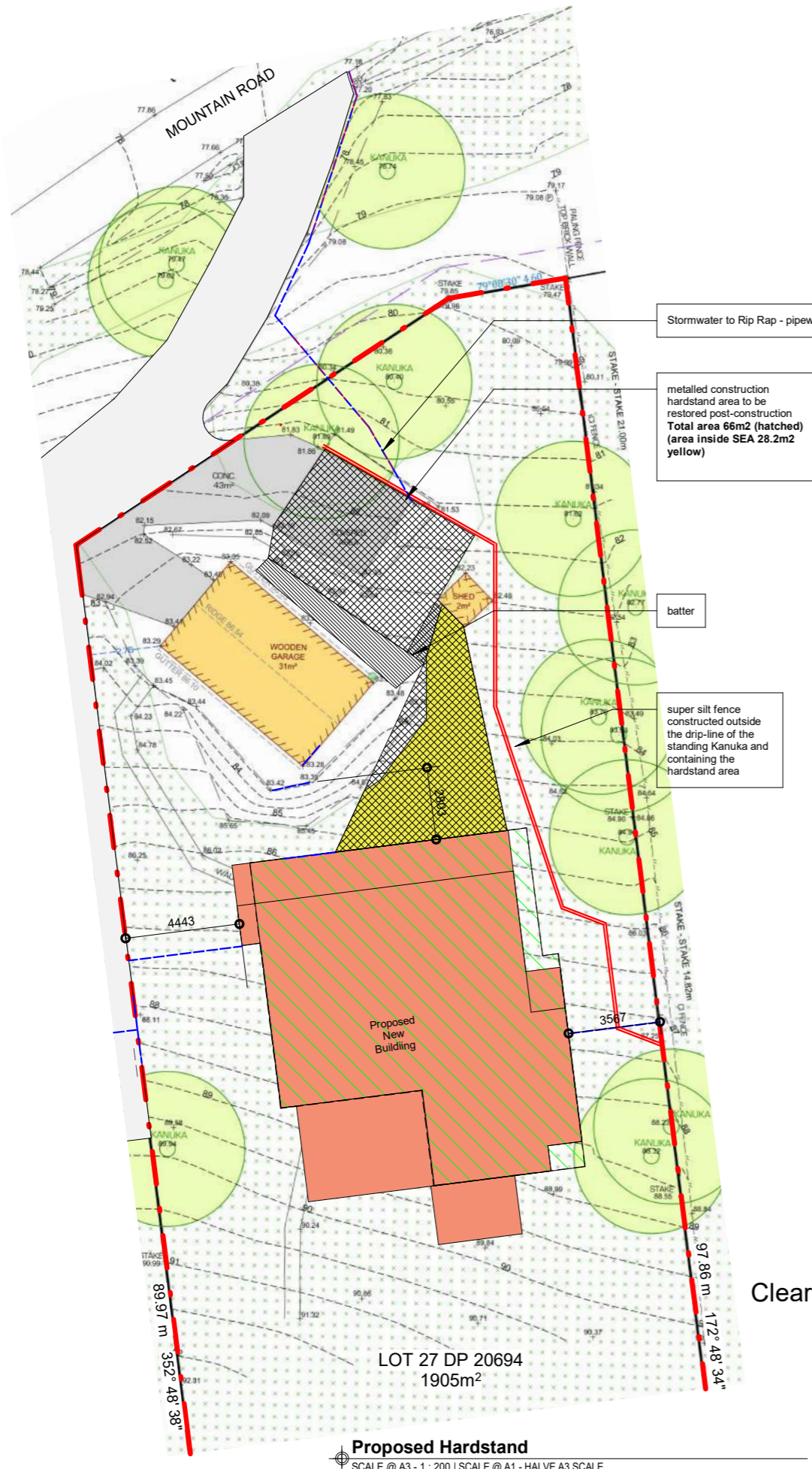
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A1-2

Scale As indicated



An area of 55m² will be available for vehicle access. This will comprise an existing concrete access apron extended by site clearance and application of 250mm SAP 60 compacted over the existing ground outside the concrete apron area.

An aggregate covered stabilised accessway will not be required. Machinery working on the excavation will be localised over the hardstand area, and will be cleaned down before being transported off site. All other machinery will be located on the hardstand area. Silt will be controlled by the Super Silt Fence shown on the site plan.

This area will be sufficient (combined with parking in and in front of the existing garage) for vehicle parking and temporary materials storage. The area (shown pink in the image below) will be sufficient for materials access and construction of the house within the SEA. Allowance has been made in this area for scaffolding.

Construction Methodology

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70 Mountain Road	
Proposed Site Plans	
Issue	214
Drawn by	BS
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Revision No.	Ecology
A1-3	
Scale	As indicated



Super Siltfence Construction

Use figured dimensions do not scale off drawings

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70 Mountain Road

Proposed Site Plan-2

Issue 214

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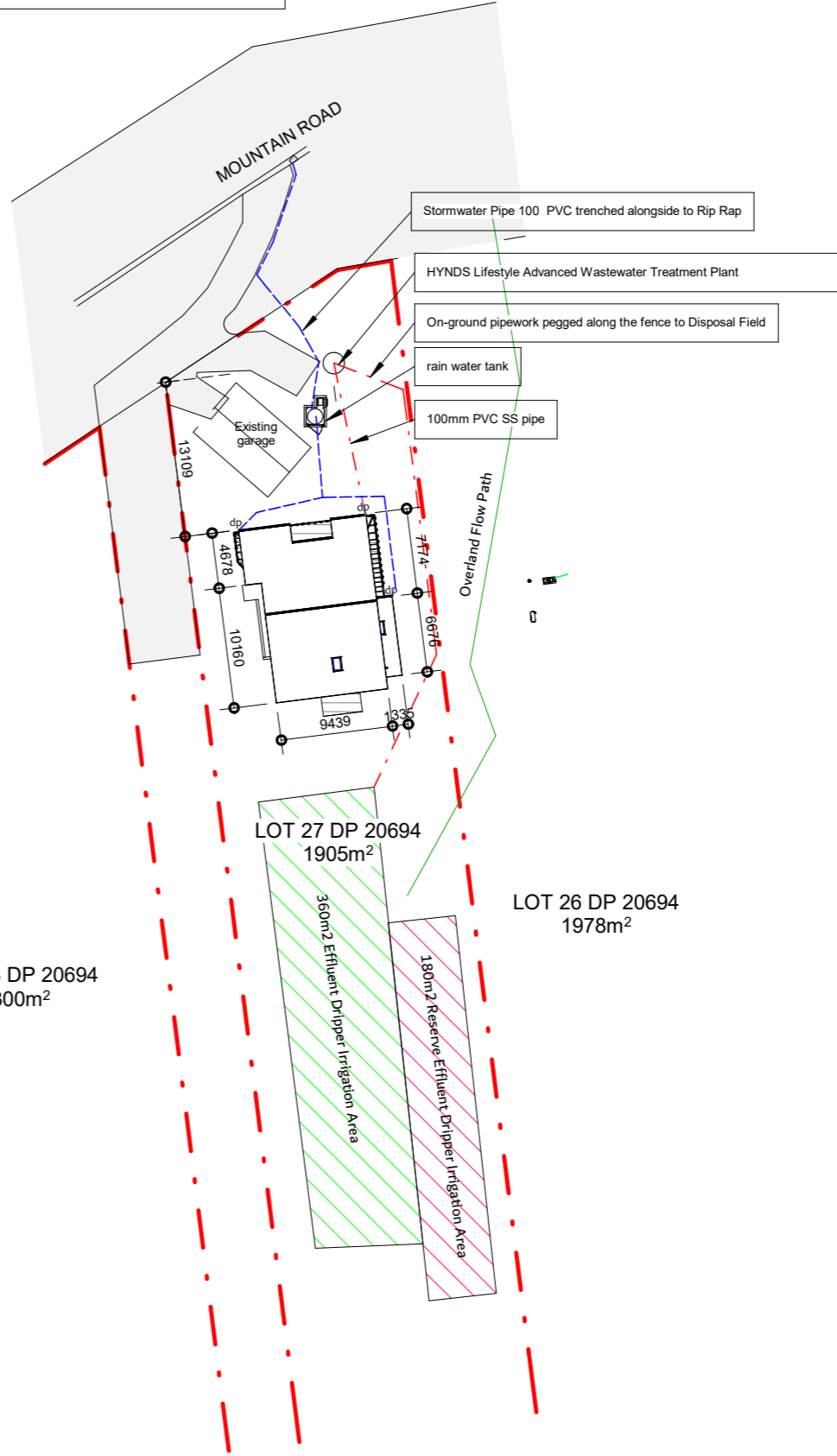
A1-4

Scale 1 : 200

REFER TO CBA REPORT CBA-1210
 PROPOSED DRAINAGE AND OVERLAND FLOW PATH SITE PLAN



Proposed Site Plan Manoeuvring
 SCALE @ A3 - 1 : 200 | SCALE @ A1 - HALVE A3 SCALE



Site Plan Drainage
 SCALE @ A3 - 1 : 500 | SCALE @ A1 - HALVE A3 SCALE

Use figured dimensions do not scale off drawings
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 Underground services shown on the plan are not accurately located, confirm location of all underground services prior to any excavation work commencing

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70 Mountain Road	
Site Drainage Plan/Manoeuvring	
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A1-5	
Scale	As indicated

LOT 28 DP 20694
 2300m²

LOT 27 DP 20694
 1905m²

LOT 26 DP 20694
 1978m²

CONSTRUCTION NOTES

- Contractor shall verify all details and dimension on site before commencement of work
- Wall dimensions generally from face of wall framing unless noted
- Timber framing is to be SG8 H3.2 treated, unless noted otherwise
- All work is to comply with NZS 3604:2011, NZBC and other applicable standards and codes
- Provide selected DPC between all timber and concrete
- All fixings generally stainless steel, unless noted otherwise
- All other fixings in closed environments and in roof spaces to be hot dipped galvanized steel
- All flashings are to be mechanically fixed
- Tolerance to rough openings for doors & windows to be +10mm
- Wet area floor & walls that are to be tiled, are to be protected with Ardex WPM 002 Superflex liquid waterproofing membrane & installed by an approved installer

Construction Notes

SCALE @ A3 - 1 : 1 | SCALE @ A1 - HALVE A3 SCALE

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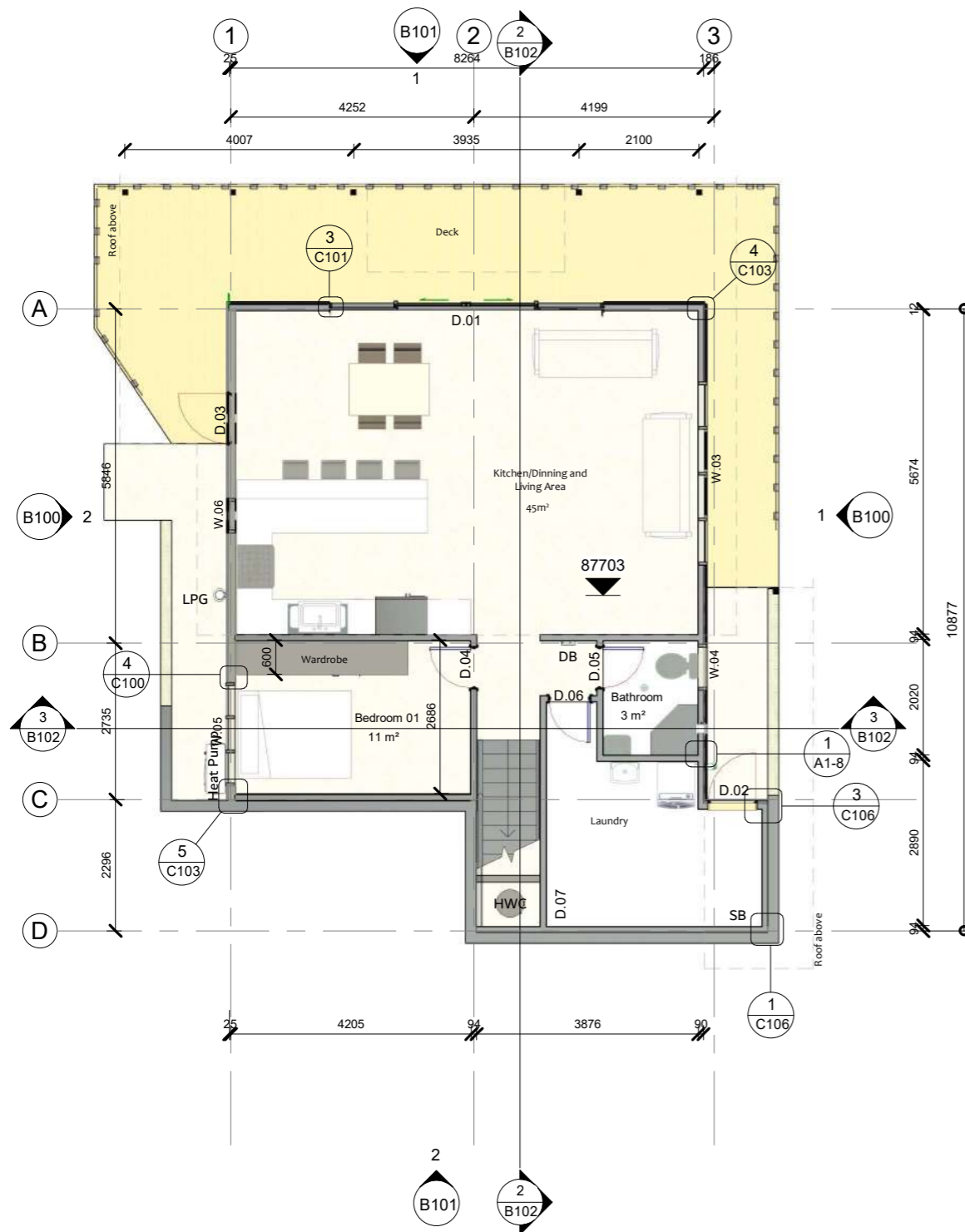
70 Mountain Road

Proposed Floor Plans

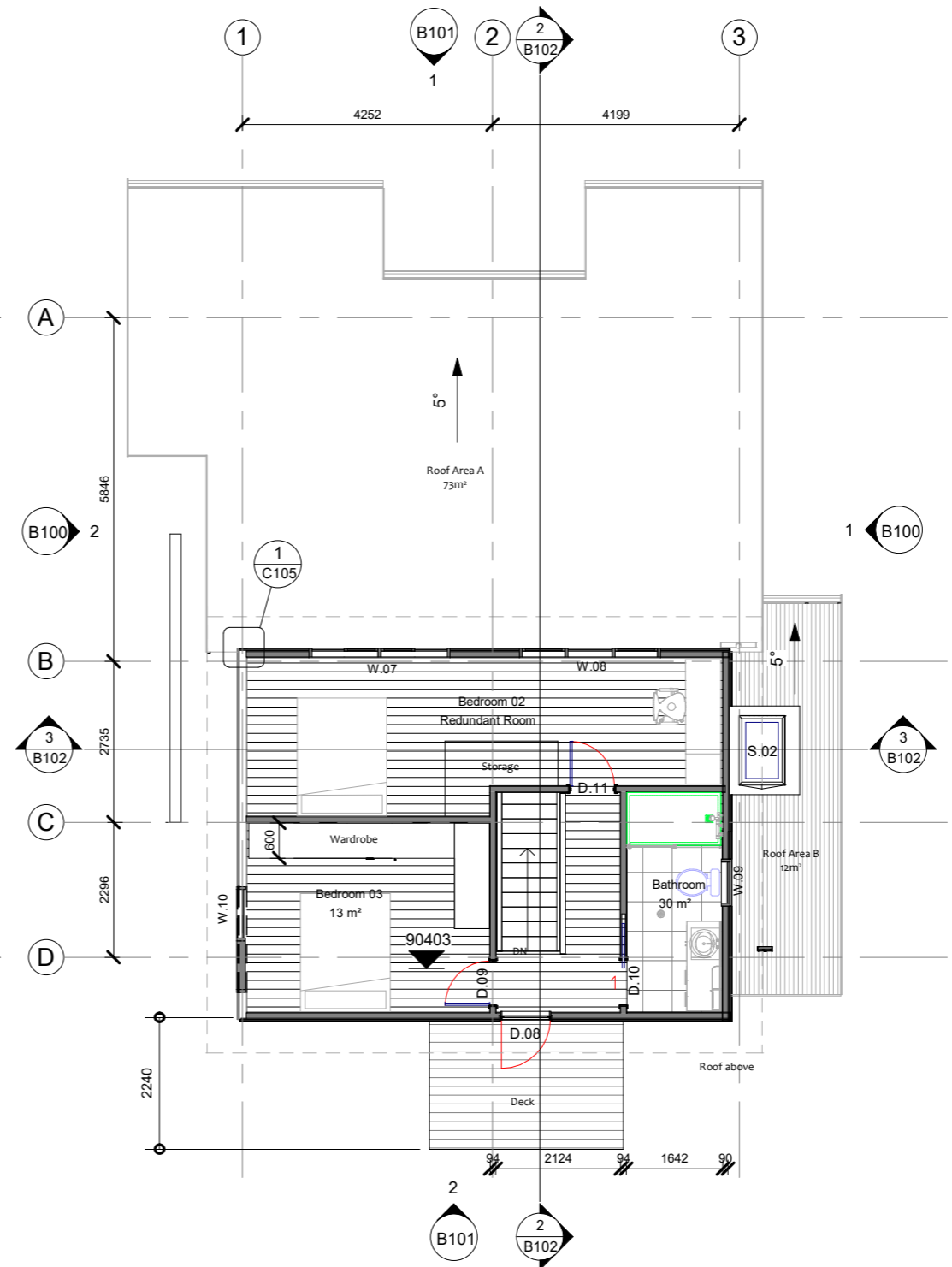
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A1-6

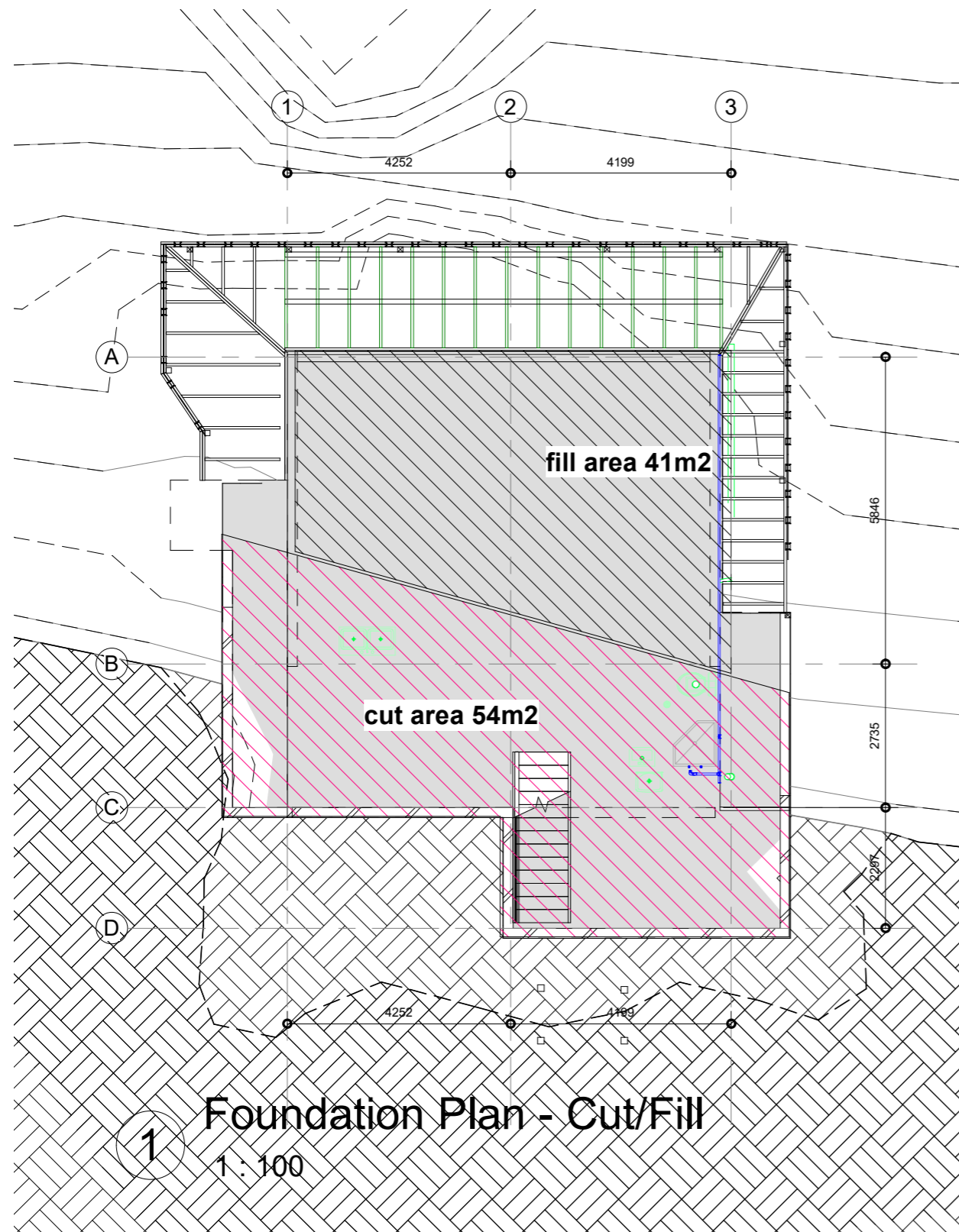
Scale As indicated



Ground Level
 SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE



First Level
 SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE



TOTAL EXCAVATION OUTSIDE SEA (NO CUT/FILL OUTSIDE SEA)		
EXCAVATION SPOIL REMOVED FROM SITE	DESCRIPTION	TOTAL
HYNDS treatment system	Excavate for tank installation	4.9m2 (5.25m3)
Trenching for SW	600 deep x 200 wide	1.35m3 (2.25m2)
TOTAL SPOIL REMOVED FROM SITE		6.6m3

TOTAL EXCAVATION INSIDE SEA		
CUT	FILL	NET CUT/FILL
HOUSE 54m2 (37.67m3)	41m2 (68.93m3)	31.25m3
SW TRENCHING 35.88m x .6m x .2m		REMOVAL FROM SITE
post/pile excavation	10 piles @400 diam	7.1m2 (4.3M3) 1.2m2 (1.43m3)
TOTAL REMOVED FROM SEA		5.73M3

Use figured dimensions do not scale off drawings

Confirm all dimensions on site

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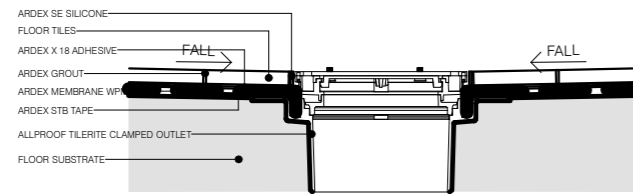
Underground services shown on the plan are not accurately located, confirm location of all underground services prior to any excavation work commencing

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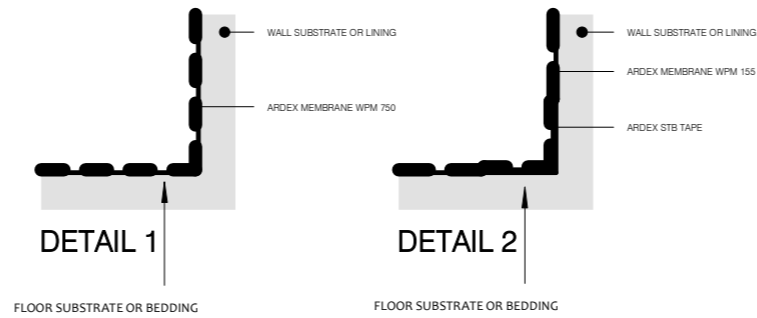
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70 Mountain Road	
Cut/Fill Detail	
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Scale	1 : 100

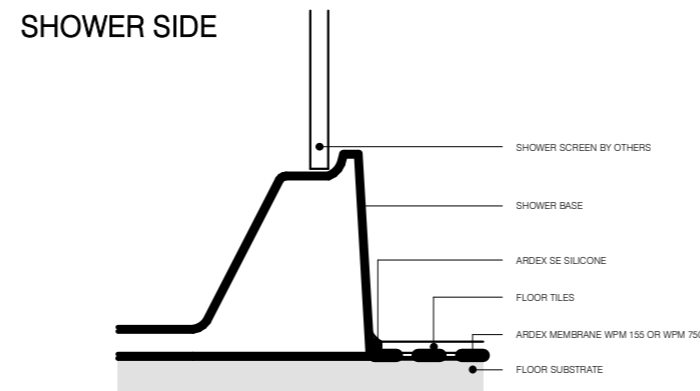
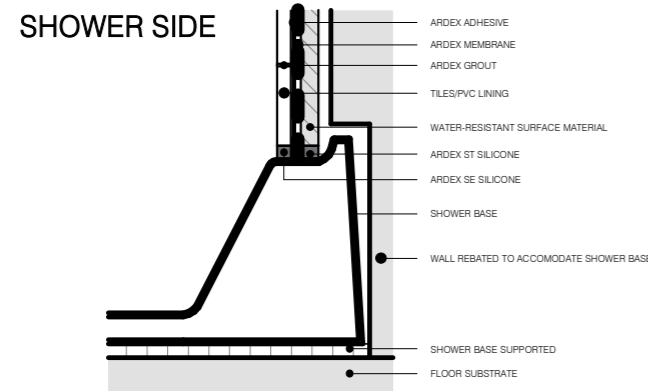
NOTE:
FLANGE PREPARED USING PLUMBERS CEMENT



TYPICAL ARDEX WASTE INSTALLATION



TYPICAL WALL/FLOOR JUNCTIONS



TYPICAL PREFORMED SHOWER BASE WALL AND FLOOR JUNCTION

Ardex Installation Details
SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE

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**Ardex
Installation**

Issue 214

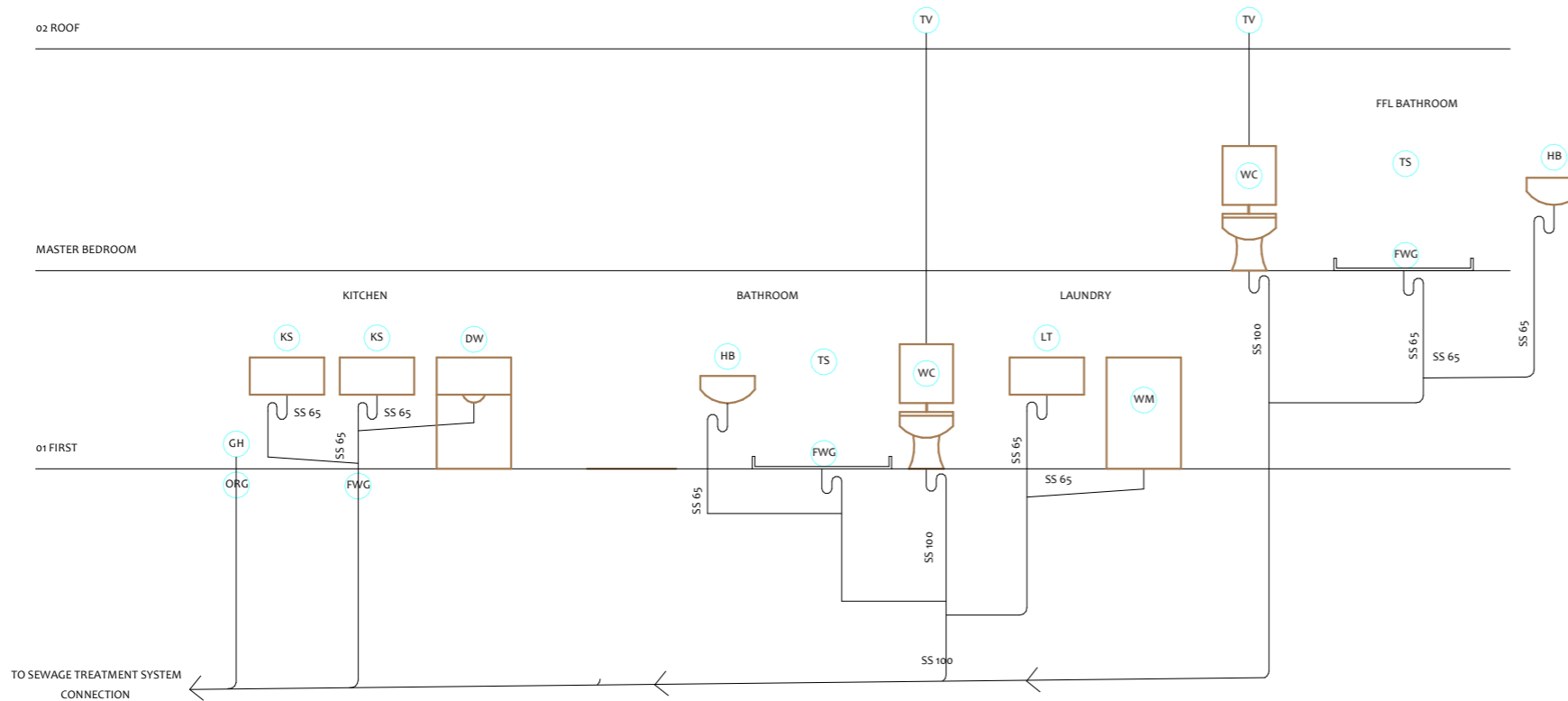
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Revision No. R3

A1-8

Scale 1 : 5



Plumbing Isometric
 SCALE @ A3 - 1 : 50 | SCALE @ A1 - HALVE A3 SCALE

SERVICES LEGEND	
SA	SMOKE ALARM. ENSURE MIN. 3m FROM BEDROOMS
WC	TOILET - (FU: 4) DN100 trap and discharge pipe.
HB	HAND BASIN - (FU: 1) DN40min. trap and discharge pipe. With overflow.
TS	SHOWER (MIN. 150 FALL) - (FU: 2) DN40min. trap and discharge pipe or discharge into (SD) shower drain.
B	BATH - (FU: 4) DN40min. trap and discharge pipe.
KS	KITCHEN SINK - (FU: 3) DN40min. trap and discharge pipe.
DW	DISHWASHER - (FU: 3) DN40min. trap and discharge pipe.
LT	LAUNDRY TUB - (FU: 5) DN40min. trap and discharge pipe.
WM	WASHING MACHINE
TV	TERMINAL VENT 40mm DIA.
DP	DOWNPIPE
ORG	OVERFLOW RELIEF GULLY - CHARGED BY GARDEN HOSE
IJ	INSPECTION JUNCTION
IB	INSPECTION BEND
FWG	FLOOR WASTE GULLY
AE	AIR EXHAUST FAN - VENT THROUGH ROOF
CD	CHANNEL DRAIN. REFER MANUFACTURERS INFORMATION.
GH	GARDEN HOSE
NF	110 DIA. NOVAFLO IN FILTER SOCK TO FOUNDATION EDGE CONNECTED TO STORMWATER SYSTEM
GC	RINNAI EXTERNAL GAS CALIFONT, INFINITY EF26 OR A-SERIES CONTINUOUS FLOW WATER HEATERS

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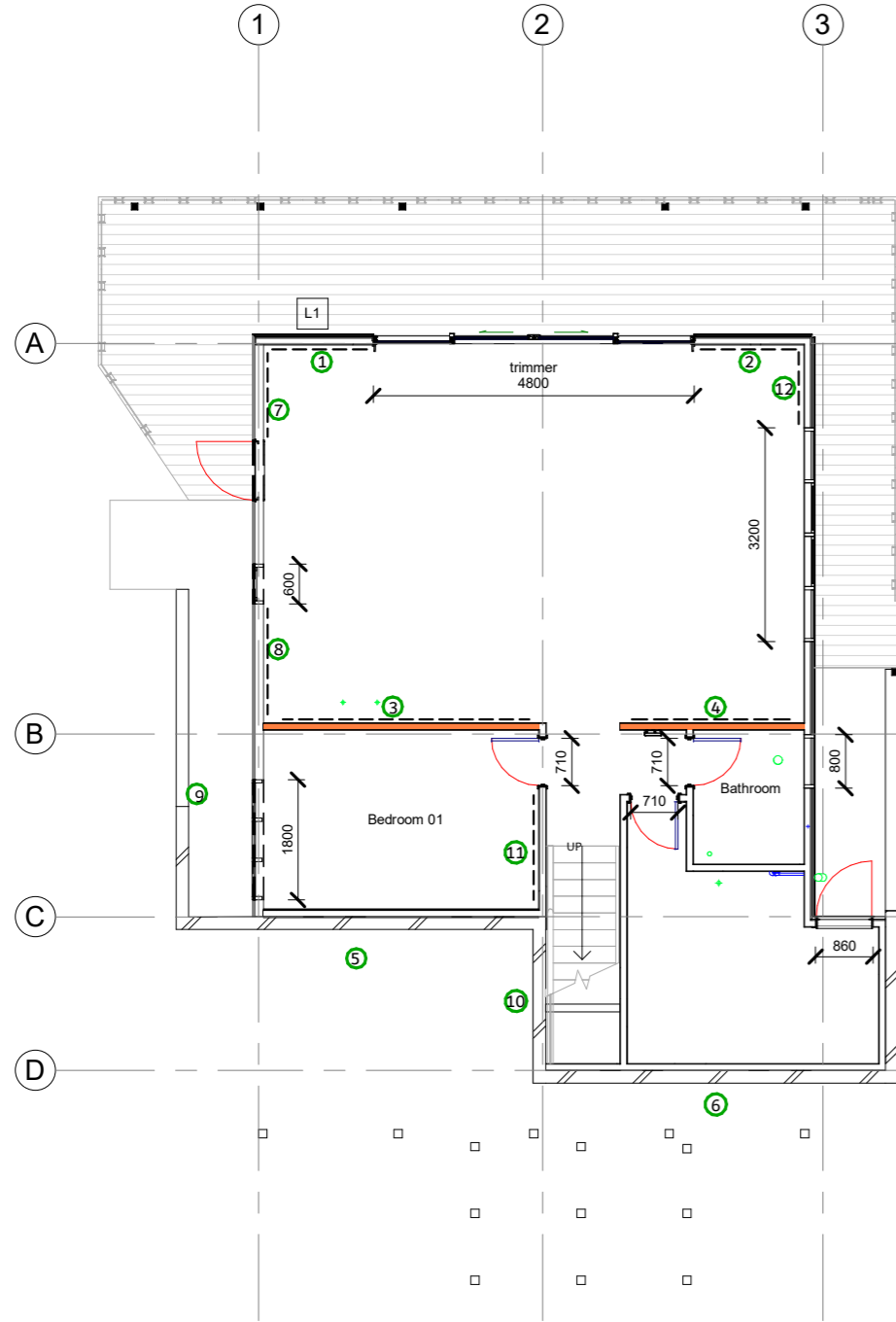
70 Mountain Road	
Plumbing Isometric	
Issue	214
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Scale	1 : 50

BRACING NOTES

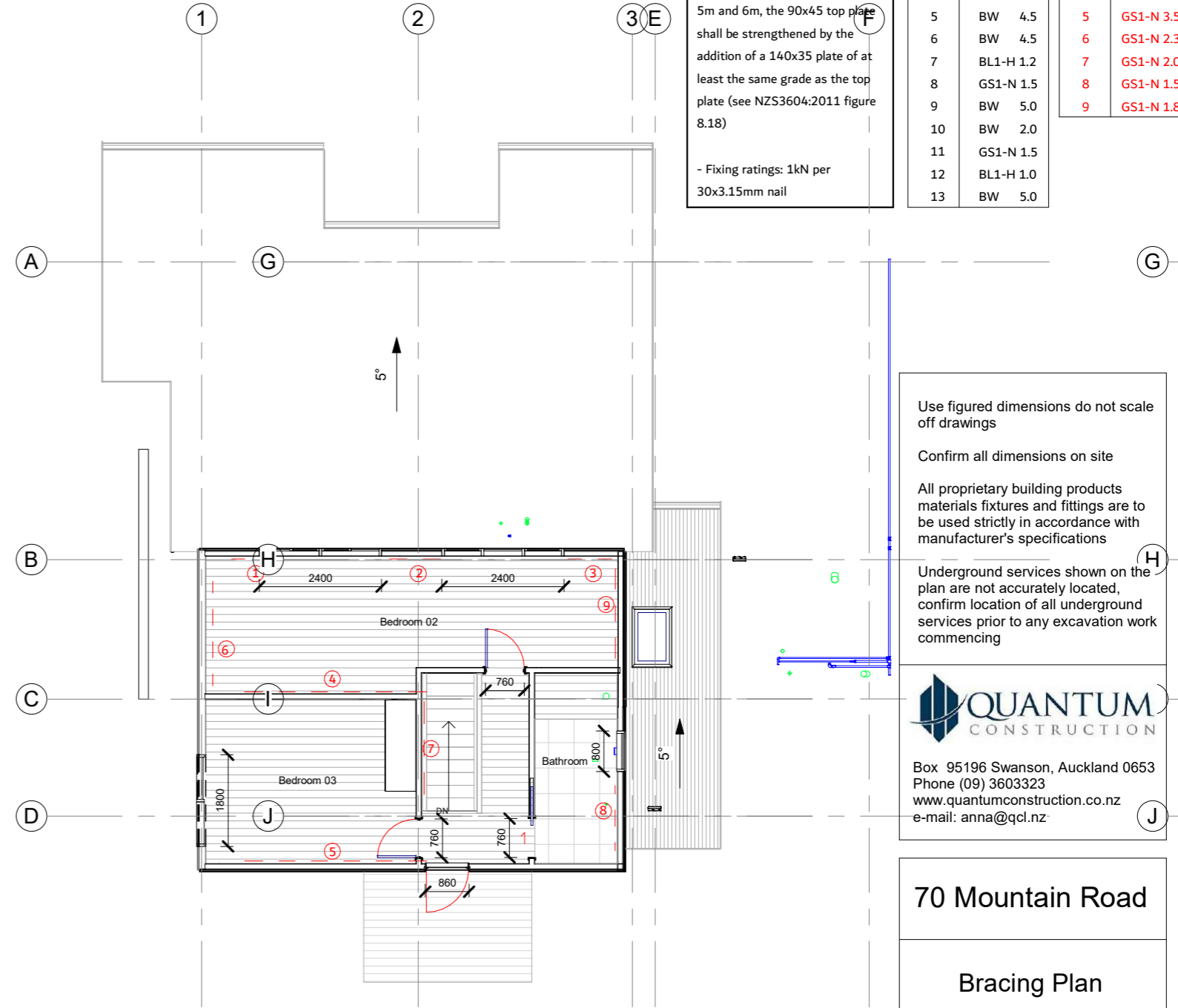
- When the top plate is on the boundary of a ceiling lining, and the distance between bracing lines at right angles to the plate is between 5m and 6m, the 90x45 top plate shall be strengthened by the addition of a 140x35 plate of at least the same grade as the top plate (see NZS3604:2011 figure 8.18)

- Fixing ratings: 1kN per 30x3.15mm nail

Ground Level		First Level	
Line	Brace	Line	Brace
1	BL1-H 1.5	1	BL1-H 0.8
2	BL1-H 1.5	2	BL1-H 0.9
3	GS1-N 3.5	3	BL1-H 0.8
4	GS1-N 2.2	4	GS1-N 3.5
5	BW 4.5	5	GS1-N 3.5
6	BW 4.5	6	GS1-N 2.3
7	BL1-H 1.2	7	GS1-N 2.0
8	BL1-N 1.5	8	GS1-N 1.5
9	BW 5.0	9	GS1-N 1.8
10	BW 2.0		
11	GS1-N 1.5		
12	BL1-H 1.0		
13	BW 5.0		



2 Bracing Plan - Ground Level
SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE



1 Bracing Plan - First Level
SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE

Use figured dimensions do not scale off drawings

Confirm all dimensions on site

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70 Mountain Road

Bracing Plan

Issue 214

Drawn by Author

Date Printed 16/02/2023

Revision No. A

A104

Scale As indicated

PL1	400 diam x 3.2m 6-HD12 R6 @ 300 ctr 75 cover 25mpa Concrete
PL2	150 diam H5 Poles set in 400 diam x 1.5 deep min 900 in good ground
PL3	400 diam x 900 deep min 125x125 SENTON COS
BR	100 x 75 H3.2 Brace 1- M16 Galv bolt

Pile Legend
SCALE @ A3 - 1 : 10 | SCALE @ A1 - HALVE A3 SCALE

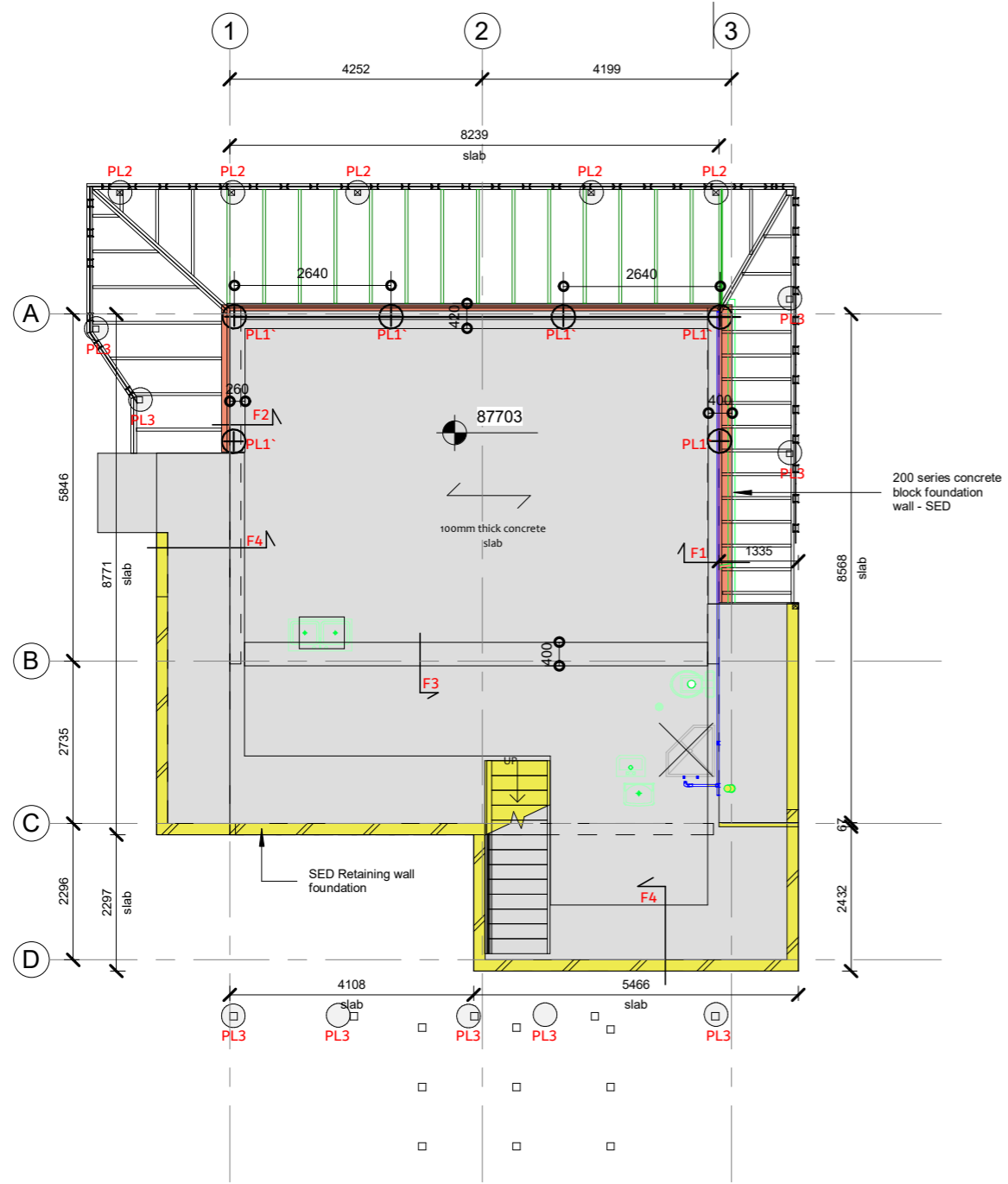
Foundation plans to be read in conjunction with Structural Engineers documentation
F1, F2 and F3 - 400w x 300 d RC
Footing 4 - HD12 R6 - 600 ctrs 75 cover 25mpa Concrete
F4 - See Structural Details for retaining wall footings

Foundation Legend
SCALE @ A3 - 1 : 10 | SCALE @ A1 - HALVE A3 SCALE

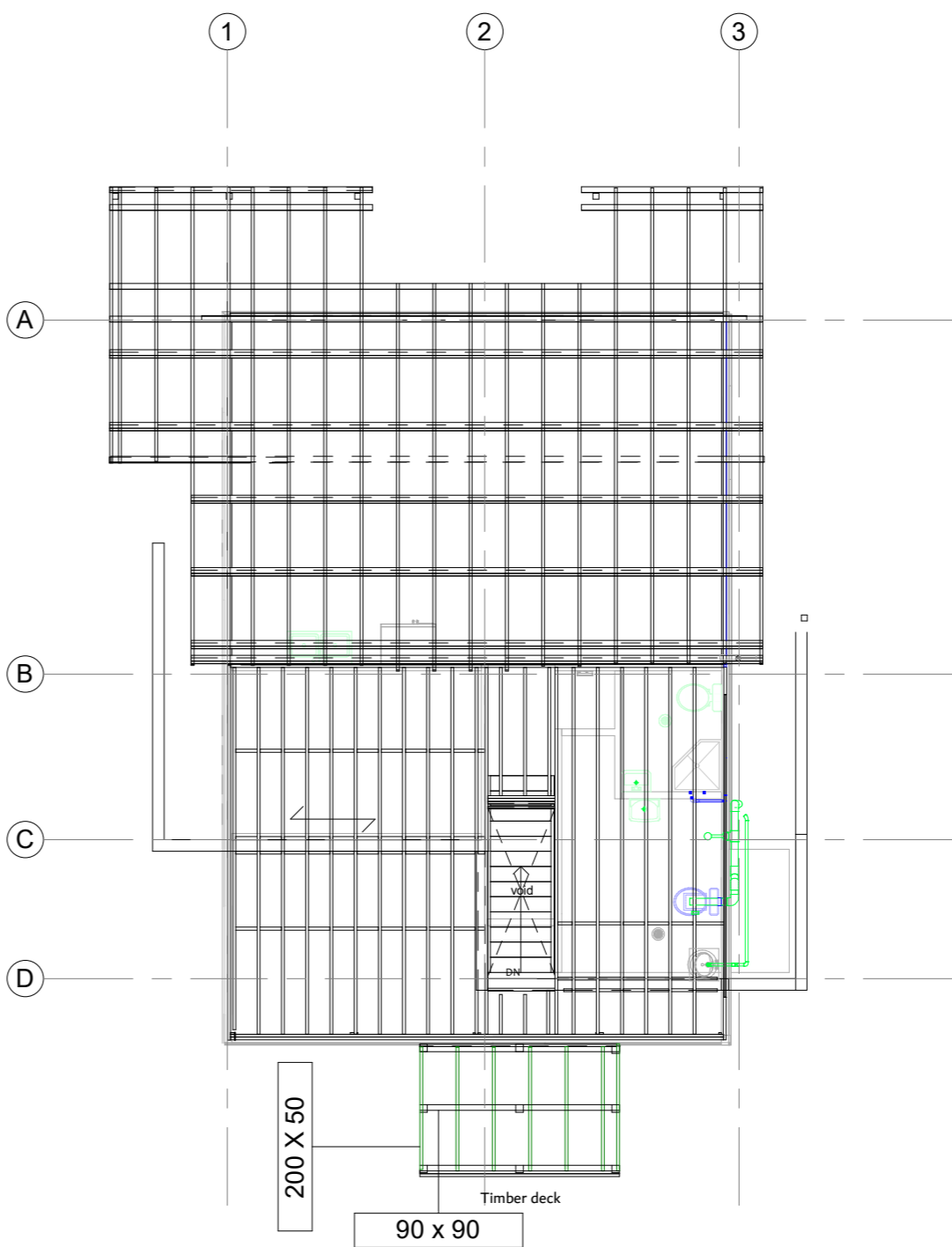
Use figured dimensions do not scale off drawings
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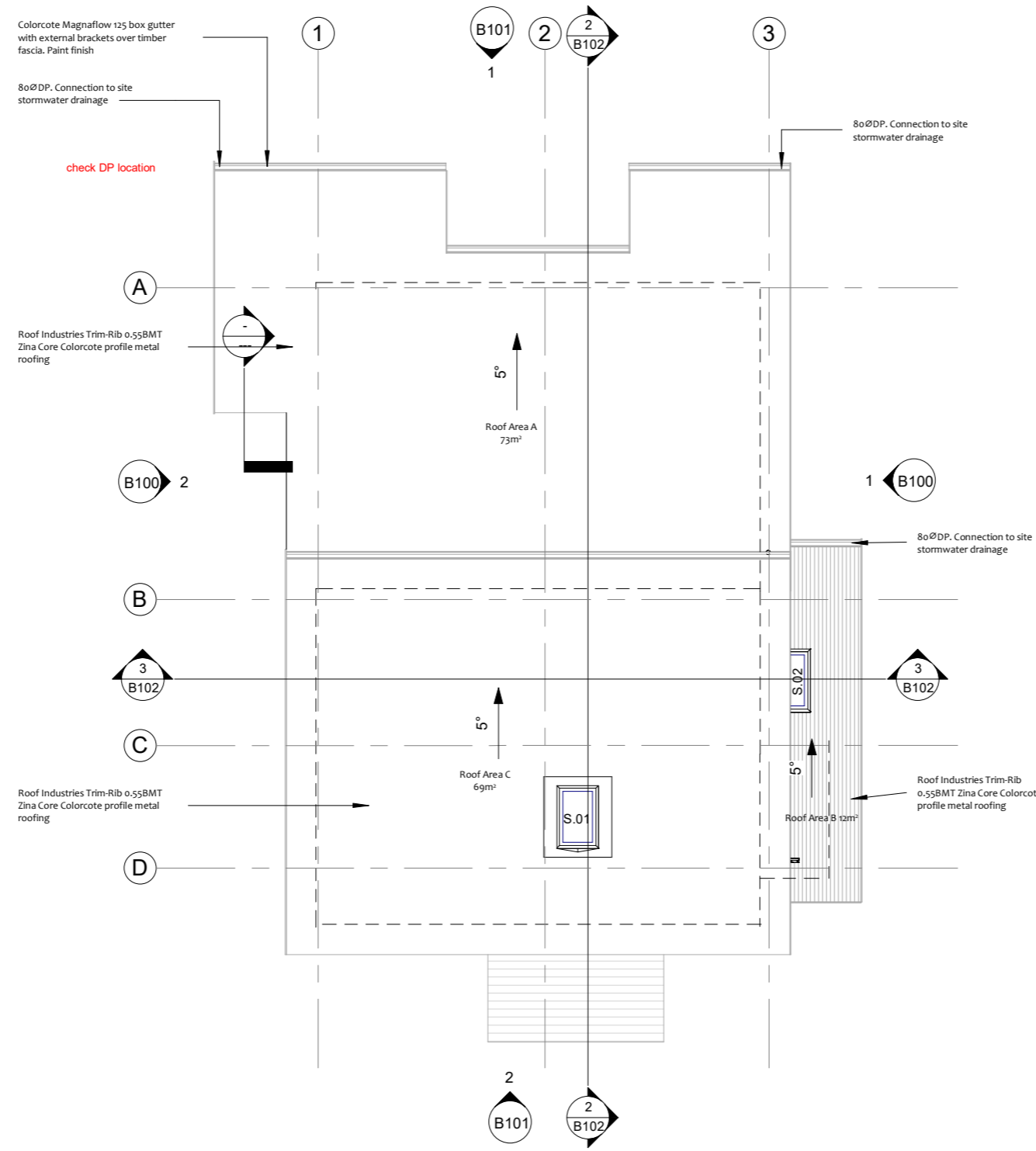
70 Mountain Road	
Foundation Plan	
Issue	214
Drawn by	Author
Date Printed	16/02/2023
Revision No.	Checker
A105	
Scale	As indicated



1 Foundation Plan & Deck Framing - Ground Level
SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE



2 Foundation Plan & Deck Framing - First Level
SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE



ROOF FRAMING NOTES

Roof framing plans are to be read in conjunction with all other details and framing plans

Solid block between roof rafters

Roof plane bracing not required due to wall framing extending to U/S of rafters and ceiling lining is attached directly to U/S of rafters

ROOF FRAMING LEGEND

Framing to comply with NZS3604

Rafters & spacing
Ground Level 240x45mm Hyspan @ 600mm centres
First Level 190x45 SG8 @ 600 Centres

Purlin size & spacing
 - 69x45mm H1.2 SG8 @ 900mm centres max

Purlin fixing
 - Purlin on flat fixed between rafters with 2x3.5x90mm skew nails each end

Soffit thickness & finish
 - 6mm Villaboard, flush stopped with control joints @ 7.2m centres max

Soffit framing & fixing
 - 69x45mm H1.2 blocking as required between rafters
 - 40x2.8mm 316 stainless steel HardieFlex nails @ 200mm centres down edge of sheets.

SURFACE WATER CALCULATIONS

ROOF AREA A
 Area: 73m²
 DP: 2x80diam (pvc)
 Roof Area Permitted for DP size: 155m²
 Gutter: Box Gutter 125
 Effective Cross Sectional Area: 7800m²
 Cross Sectional Area Permitted for Gutter Size: 8000m²

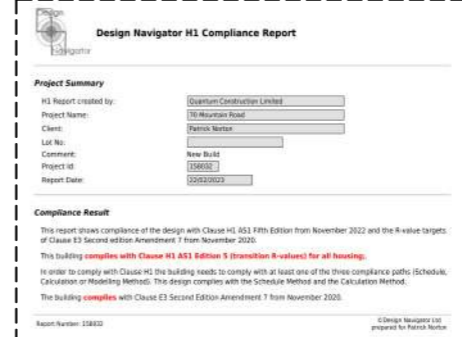
ROOF AREA B
 Area: 12m²
 DP: 80diam (pvc)
 Roof Area Permitted for DP size: 155m²
 Gutter: Box Gutter 125
 Effective Cross Sectional Area:
 Cross Sectional Area Permitted for Gutter Size: 8000m²

ROOF AREA C
 Area: 69m²
 DP: 80diam (pvc)
 Roof Area Permitted for DP size: 155m²
 Gutter: Box Gutter 125
 Effective Cross Sectional Area: 7000m²
 Cross Sectional Area Permitted for Gutter Size: 8000m²

H1 COMPLIANCE

Summary Sheet

See Full report in attached documents



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70 Mountain Road

Proposed Roof Plan

Issue	214
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Date Printed	16/02/2023
Revision No.	Checker

A106

Scale As indicated

1 Roof
 SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE

ROOF FRAMING NOTES
 Roof framing plans are to be read in conjunction with all other details and framing plans

Solid block between roof rafters

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ROOF FRAMING LEGEND

Framing to comply with NZS3604

Rafters & spacing
Ground Level 240x45mm Hyspan @ 600mm centres
First Level 190x45 SG8 @ 600 Centres

Purlin size & spacing
 - 69x45mm H1.2 SG8 @ 900mm centres max

Purlin fixing
 - Purlin on flat fixed between rafters with 2x3.5x90mm skew nails each end

Soffit thickness & finish
 - 6mm Villaboard, flush stopped with control joints @ 7.2m centres max

Soffit framing & fixing
 - 69x45mm H1.2 blocking as required between rafters
 - 40x2.8mm 316 stainless steel HardieFlex nails @ 200mm centres down edge of sheets.

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70 Mountain Road

Roof Framing Plan

Issue 214

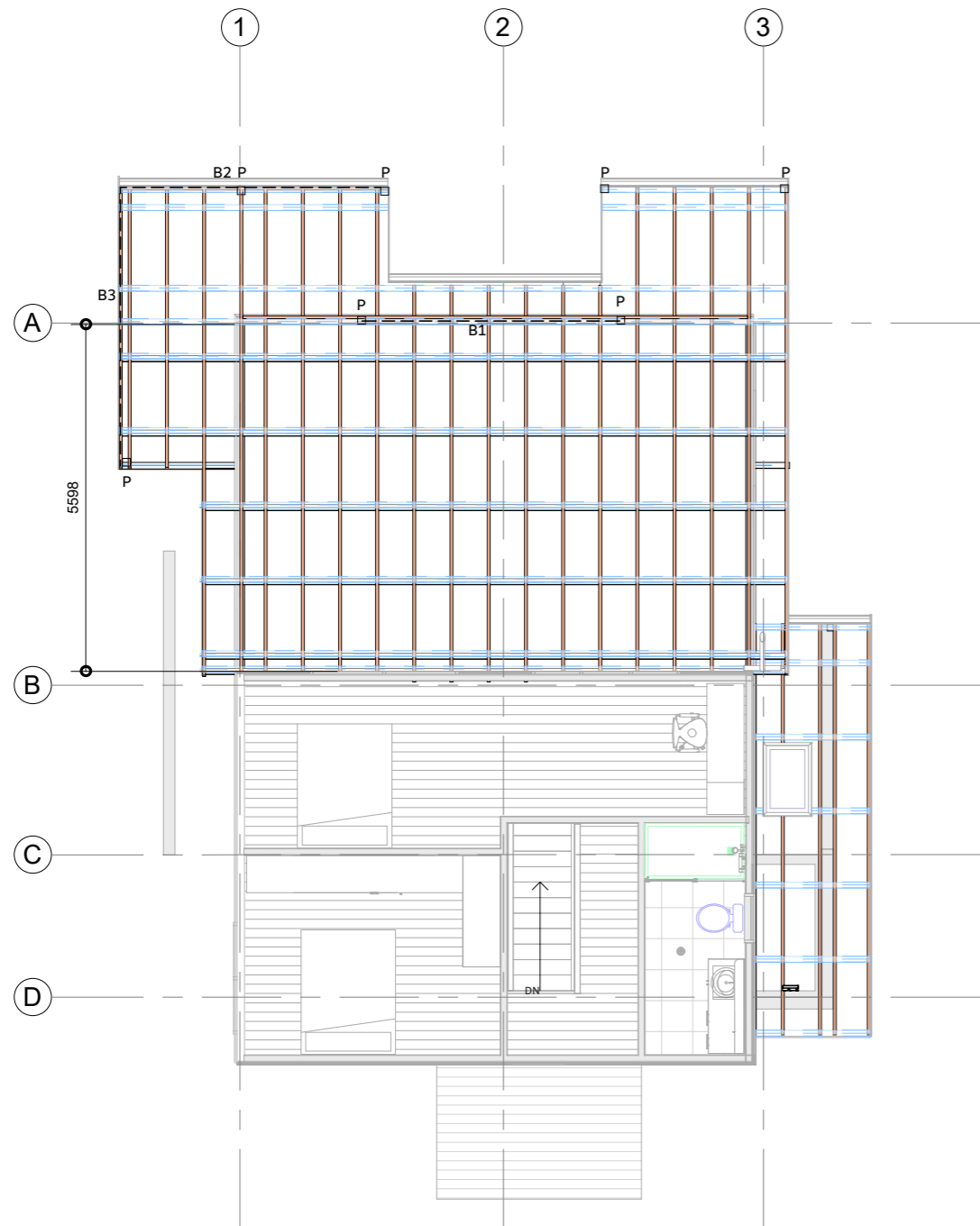
Drawn by Author

Date Printed 16/02/2023

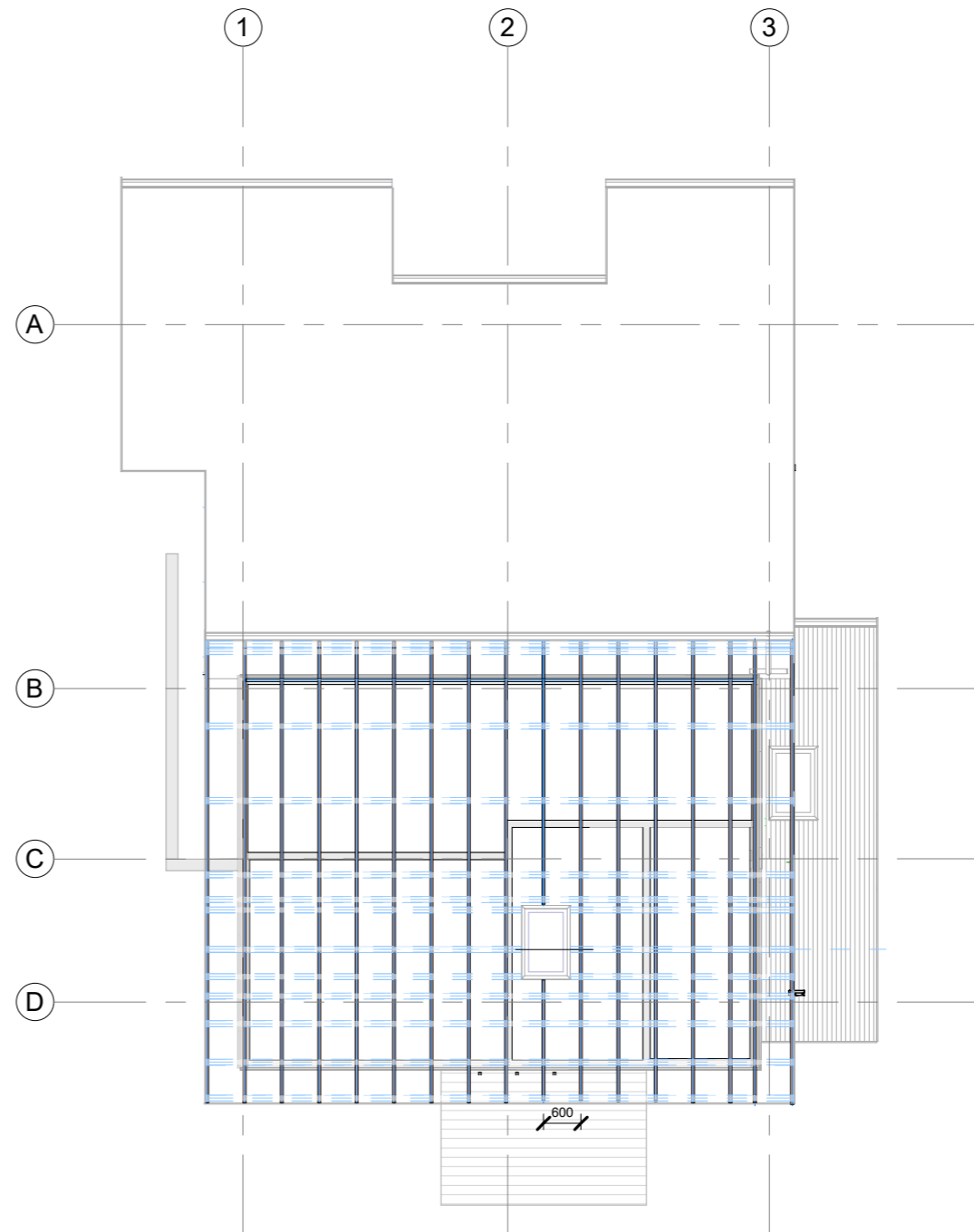
Revision No. Checker

A107

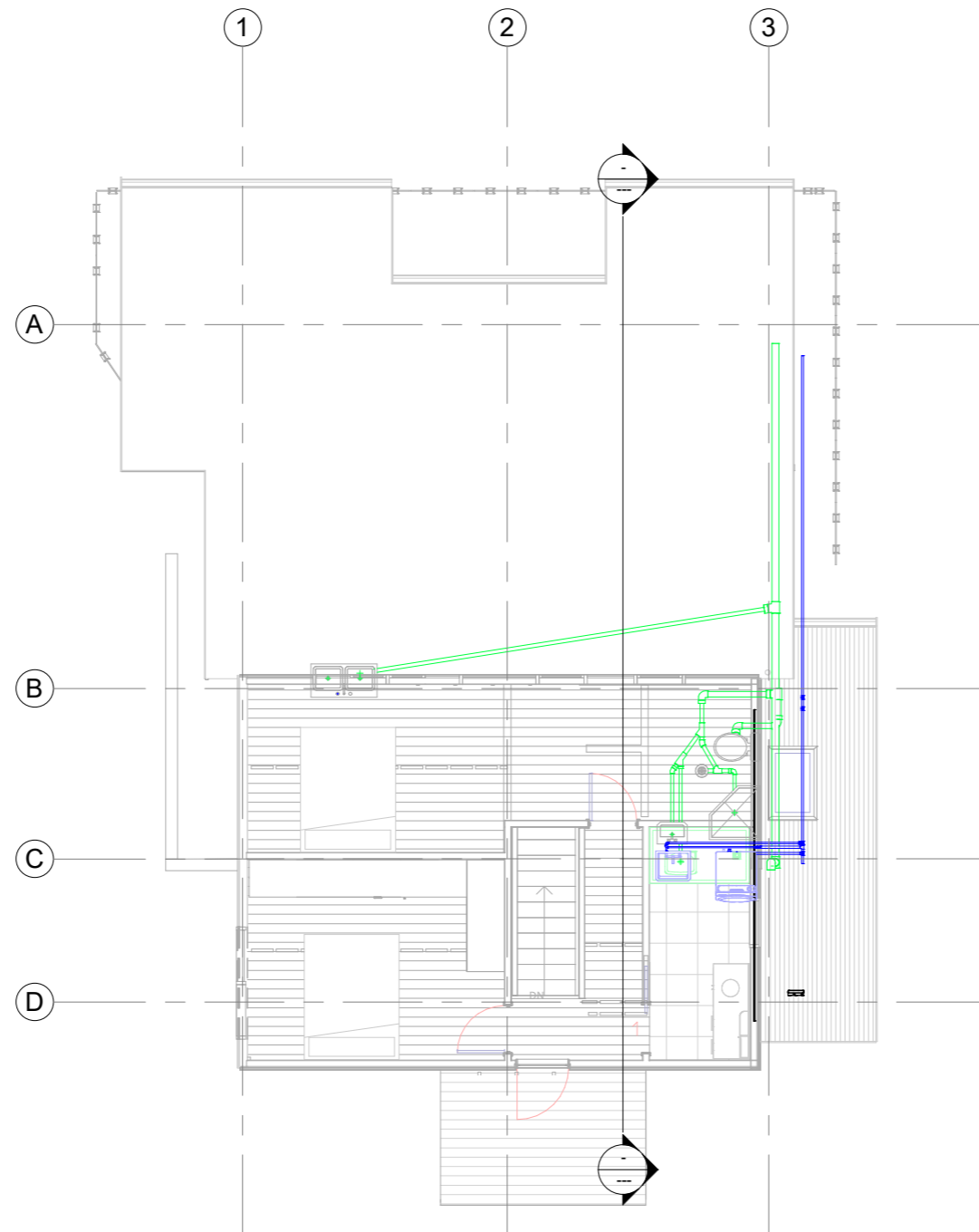
Scale As indicated



2 Roof Framing Plan - First Level
 B100 SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE



3 Roof Framing Plan - RL
 B100 SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE



PLUMBING & DRAINAGE

WASTE PIPE BRANCH DRAIN MINIMUM GRADIENT

65Ø - 1:40 MINIMUM GRADIENT
 80Ø - 1:60 MINIMUM GRADIENT
 100Ø - 1:60 MINIMUM GRADIENT

FIXTURE MIN DN MINIMUM GRADE

SINK 50Ø - 1:40 MINIMUM GRADIENT
 WHB 40Ø - 1:40 MINIMUM GRADIENT
 SHOWER 50Ø - 1:40 MINIMUM GRADIENT
 TUB 50Ø - 1:40 MINIMUM GRADIENT
 WC 80Ø - 1:60 MINIMUM GRADIENT
 STACK 100Ø - 1:60 MINIMUM GRADIENT

SITE WORKS LEGEND

- · — · — · Storm water
- - - - - Sewer
- Gas Line

- ALL PLUMBING AND DRAINAGE TO BE INSTALLED & TESTED BY A REGISTERED TRADESMAN

- FOUL WATER SANITARY PLUMBING SHALL COMPLY WITH AS/NZS 3500

- WATER SUPPLY AND RETICULATION SHALL COMPLY WITH NZBC G12/AS1

- STORMWATER DRAINAGE SHALL COMPLY WITH NZBC E1/AS1

- ALL DRAINS SHALL BE PVC

- ALL PIPES RUNNING THROUGH FOUNDATIONS ARE TO BE WRAPPED WITH DENSO TAPE

- DRAINAGE PIPES TO RUN UNDER SLABS TO BRANCH DRAINS - MIN SIZE 65MM Ø

- CONCEAL ALL VENTS & PIPEWORK WITHIN THE WALLS

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70 Mountain Road

Plumbing & Drainage Plan

Issue 214

Drawn by Author

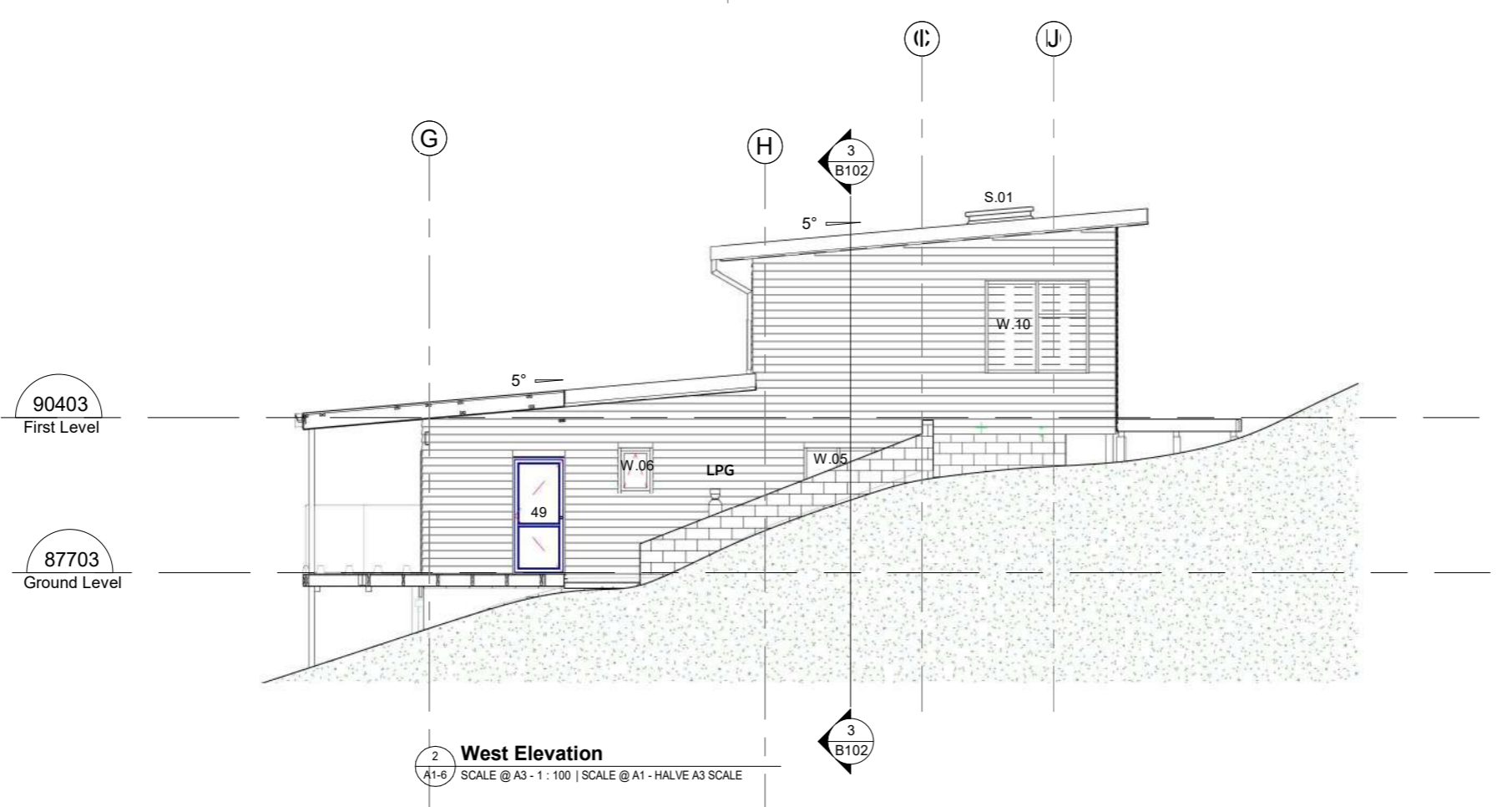
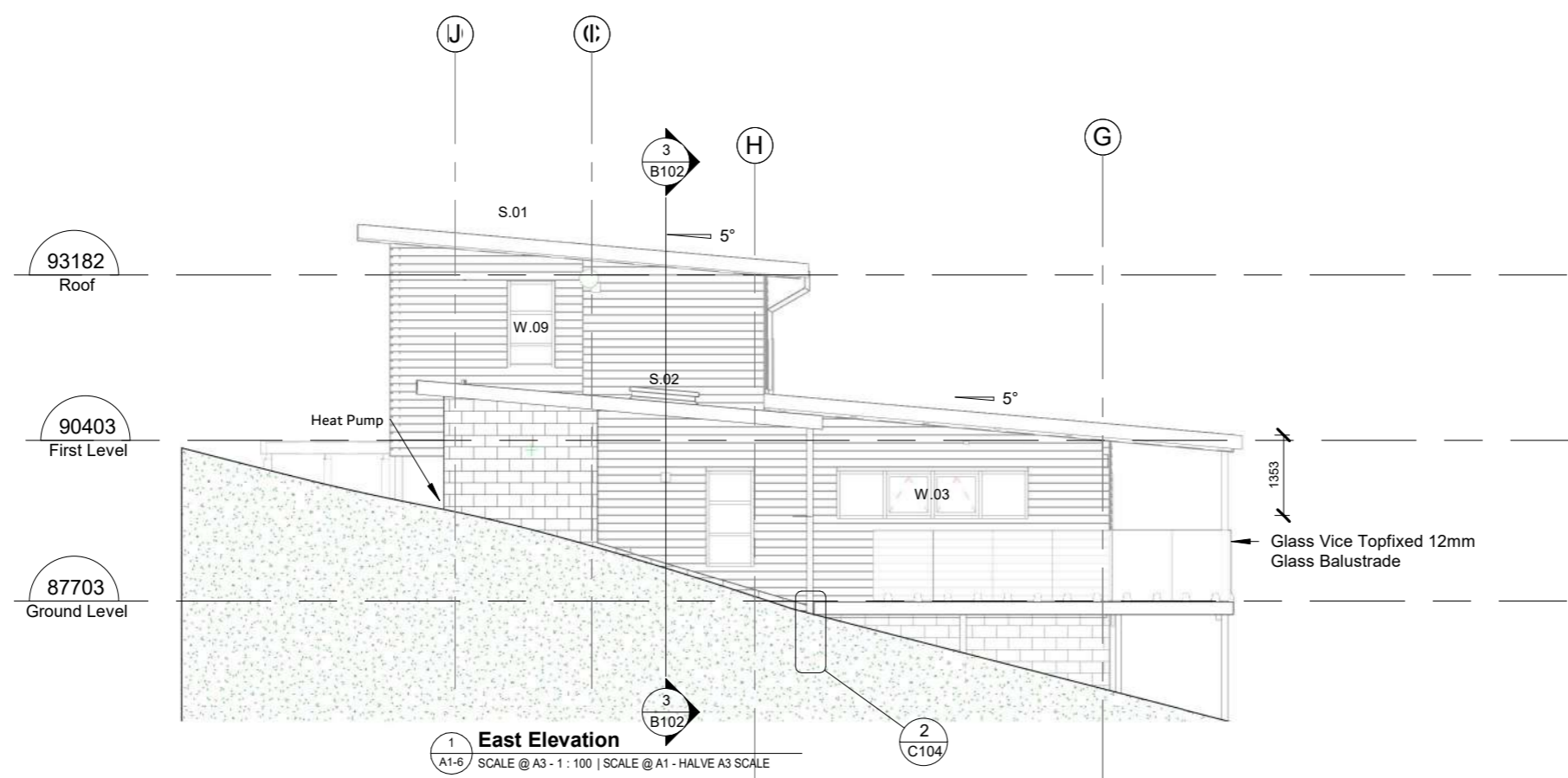
Date Printed 16/02/2023

Revision No. Checker

A108

Scale As indicated

2 Plumbing & Drainage Plan - Ground Level
 B100 SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE



BUILDING ENVELOPE RISK SCORES

Risk Factor	Risk Severity	Risk Score
A. Wind Zone	High	1
B. Number of Storeys	High	2
C. Roof/Wall Intersection Design	Low	0
D. Eaves Width	Medium	1
E. Envelope Complexity	Low	0
F. Deck Design	Medium	2
Total Risk Score		6

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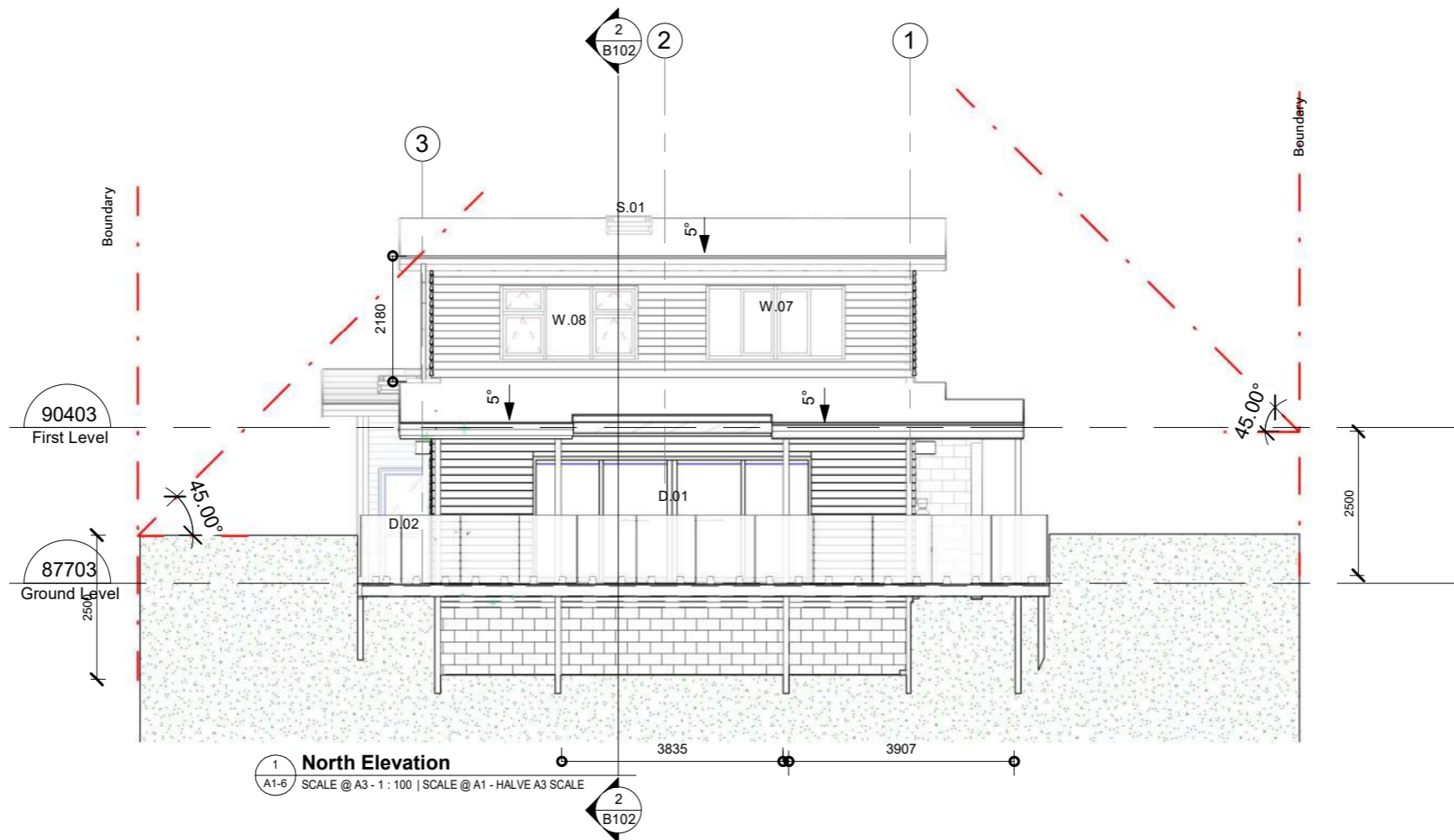
70 Mountain Road

Proposed East & West Elevations

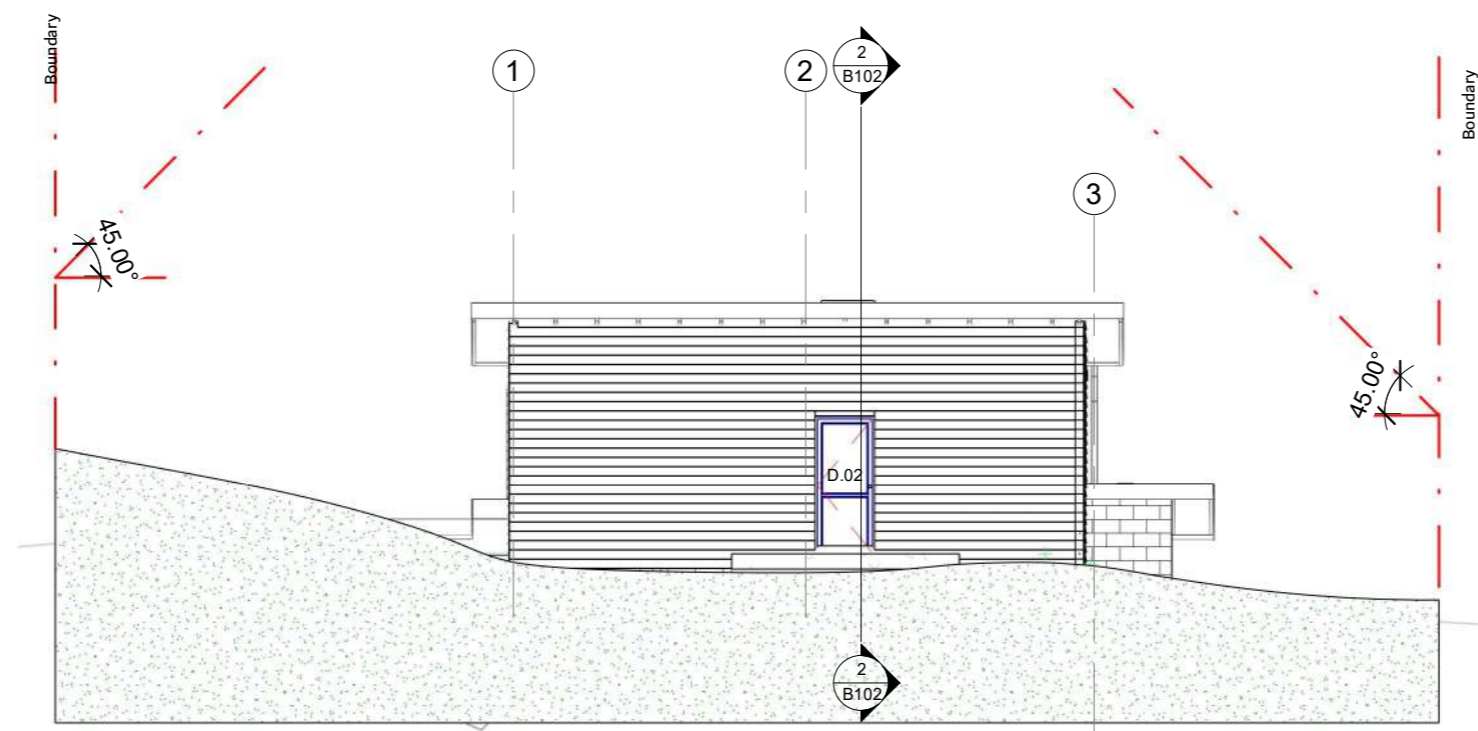
Issue	214
Drawn by	bruce
Date Printed	16/02/2023
Revision No.	rev 2

B100

Scale As indicated



1 North Elevation
A1-6 SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE



2 South Elevation
A1-6 SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE

BUILDING ENVELOPE RISK SCORES

Risk Factor	Risk Severity	Risk Score
A. Wind Zone	High	1
B. Number of Storeys	High	2
C. Roof/Wall Intersection Design	Low	0
D. Eaves Width	Medium	1
E. Envelope Complexity	Low	0
F. Deck Design	Medium	2
Total Risk Score		6

Use figured dimensions do not scale off drawings

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70 Mountain Road

Proposed North & South Elevations

Issue 214

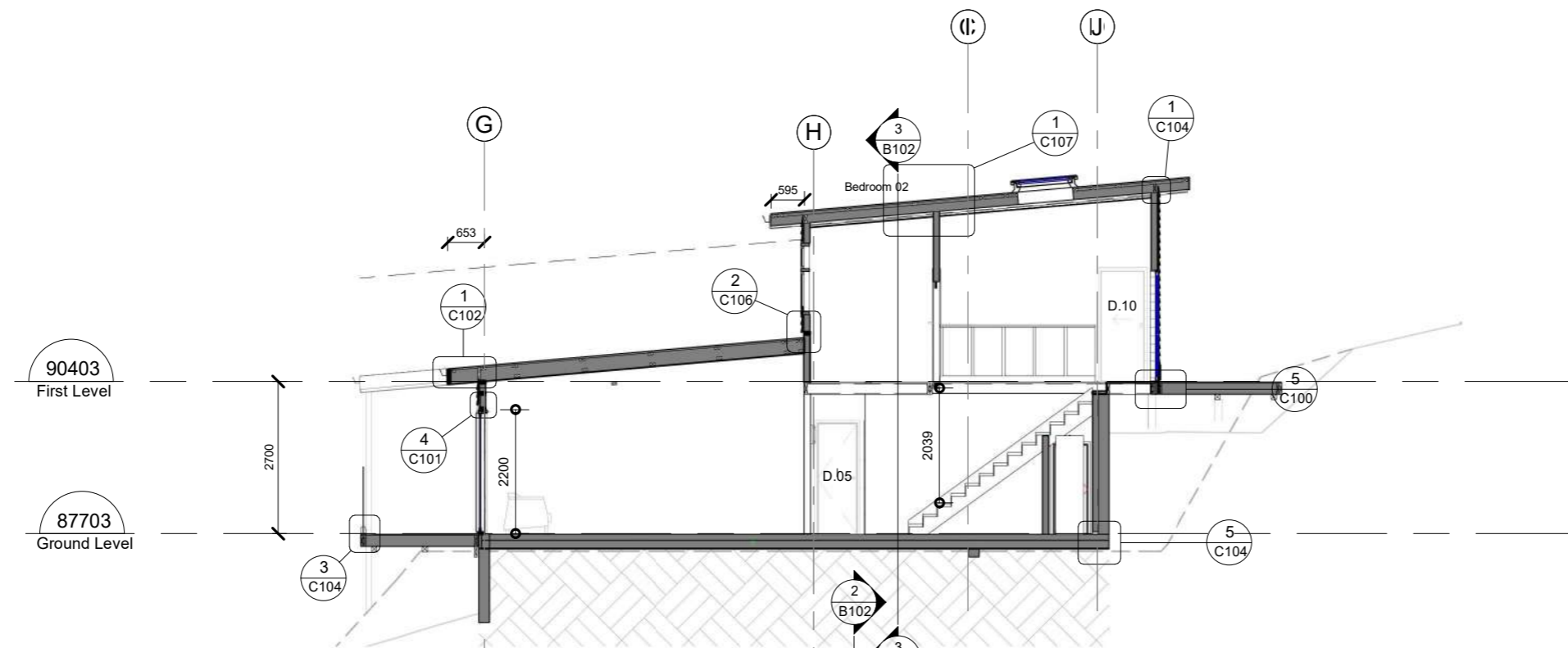
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Date Printed 16/02/2023

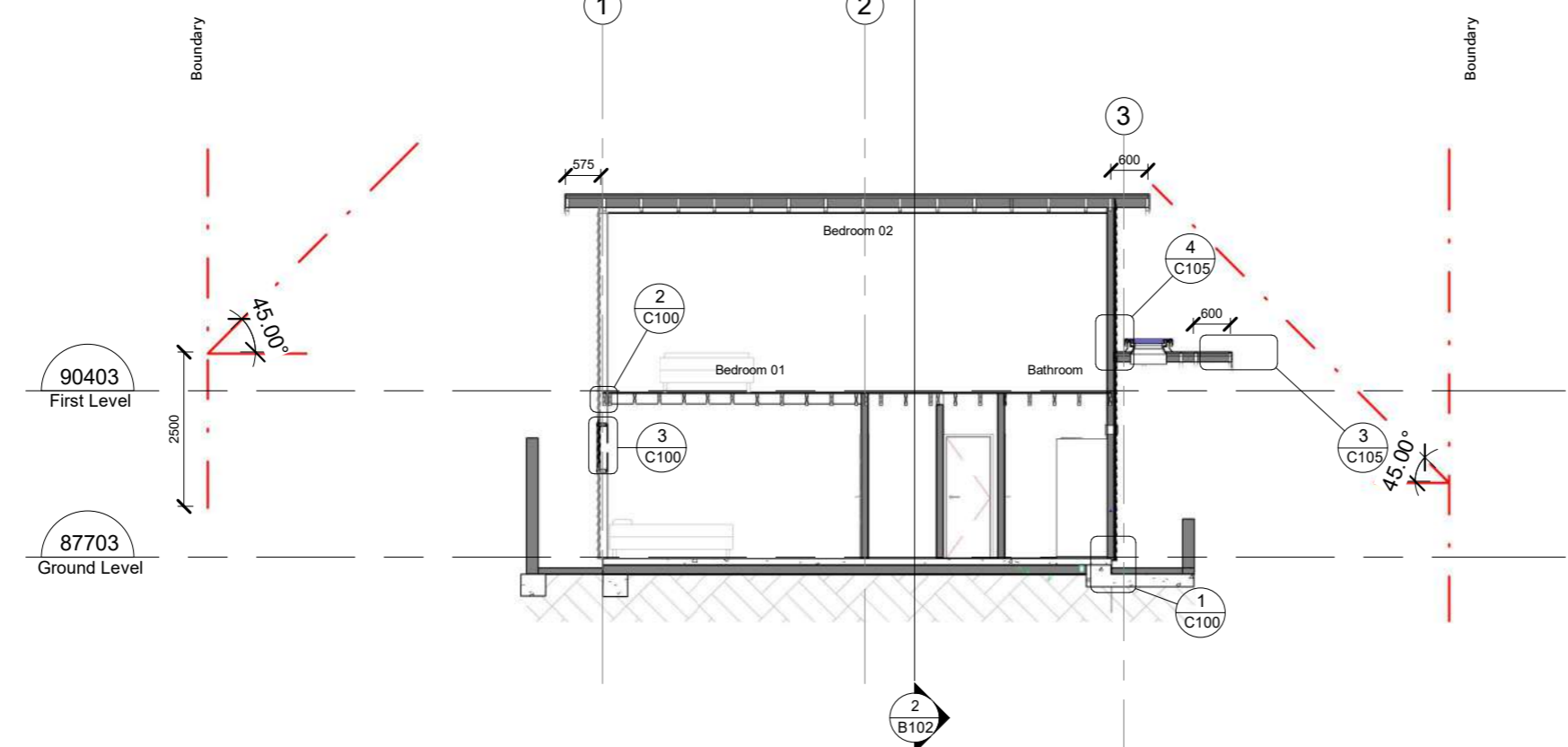
Revision No. rev 3

B101

Scale As indicated



Section AA
 A1-6 SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE



Section 1
 A1-6 SCALE @ A3 - 1 : 100 | SCALE @ A1 - HALVE A3 SCALE

Use figured dimensions do not scale off drawings

Confirm all dimensions on site

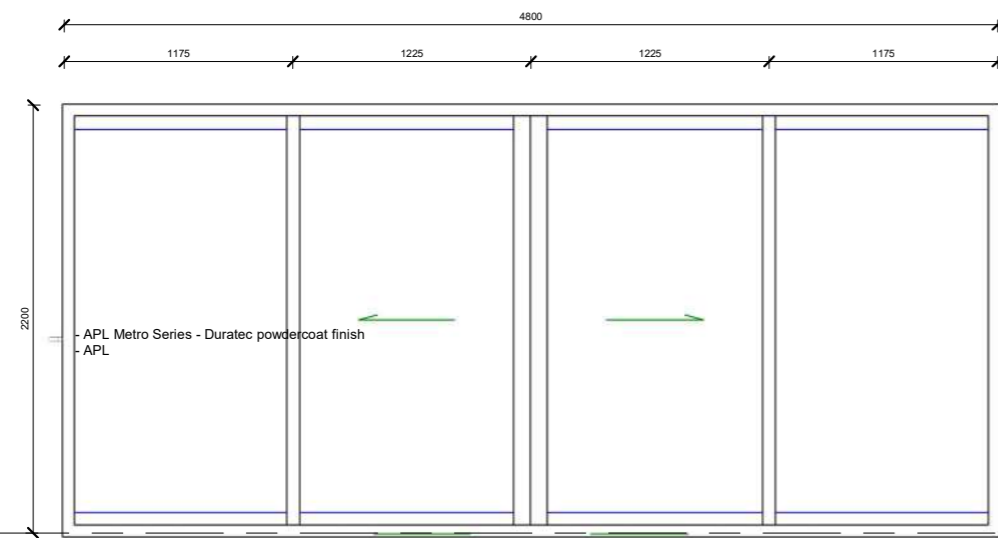
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70 Mountain Road	
Proposed Sections	
Issue	214
Drawn by	bruce
Date Printed	16/02/2023
Revision No.	rev 2
B102	
Scale	1 : 100



D.01 - TYPE B
SCALE @ A3 - 1:25 | SCALE @ A1 - HALVE A3 SCALE



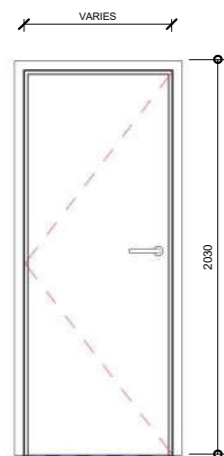
D.02 & D.08 - TYPE F
SCALE @ A3 - 1:25 | SCALE @ A1 - HALVE A3 SCALE



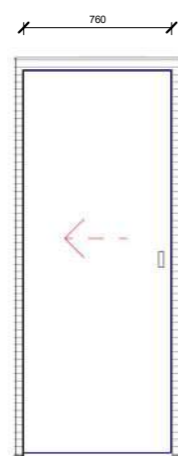
D.03 - TYPE H
SCALE @ A3 - 1:25 | SCALE @ A1 - HALVE A3 SCALE

WINDOW & DOOR NOTES

- Contractor shall verify all window and door dimensions on site prior to fabrication
- Refer floor plans for handing of doors
- Refer to hardware schedule for



D.04, D.05, D.06, D.07, D.09 & D.11 - TYPE I
SCALE @ A3 - 1:25 | SCALE @ A1 - HALVE A3 SCALE



D.10 - TYPE M
SCALE @ A3 - 1:25 | SCALE @ A1 - HALVE A3 SCALE

Door Schedule by ID

Location	Mark	Use	Construction Type	Size	Width	Height	Thickness	Fire Rating	Finish	Comments
	D.05		Timber Frame Rimu Panel	Type I1	710	1980	38			
	D.01			Type B	4784	2187	50			
	D.10			Type M	760	1980	38			
	D.11		Timber Frame Rimu Panel	Type I3	760	1980	38			
	D.09		Timber Frame Rimu Panel	Type I3	760	1980	38			
	D.02		Aluminum + Jamb Liner	Type F	860	2000				
	D.08		Aluminum + Jamb Liner	Type F	860	2000				
	D.04		Timber Frame Rimu Panel	Type I1	710	1980	38			
	D.03			910 x 2030	910	2030				
	D.06		Timber Frame Rimu Panel	Type I1	710	1980	38			
	D.07		Timber Frame Rimu Panel	Type I2-2	610	1600	38			
	D.13		Timber Frame + Glazed Ledger Door	910 x 2030	910	1991	48			
	D.15			Overhead Panel_Garage_Door_Contemporary_3	4877	2438				

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70 Mountain Road

Door Schedule

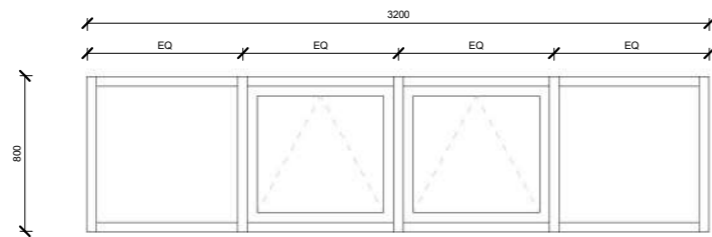
Issue	214
Drawn by	B
Date Printed	16/02/2023
Revision No.	R3

B103

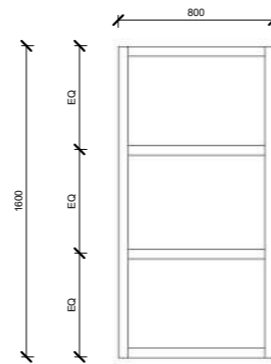
Scale As indicated

WINDOW & DOOR NOTES

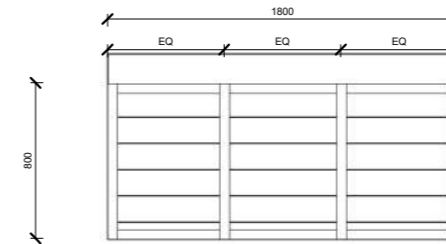
- Contractor shall verify all window and door dimensions on site prior to fabrication
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- Refer to hardware schedule for



W.03 - TYPE D
SCALE @ A3 - 1:25 | SCALE @ A1 - HALVE A3 SCALE



W.04 & W.09 - TYPE E
SCALE @ A3 - 1:25 | SCALE @ A1 - HALVE A3 SCALE



W.05 - TYPE G
SCALE @ A3 - 1:25 | SCALE @ A1 - HALVE A3 SCALE

Use figured dimensions do not scale off drawings

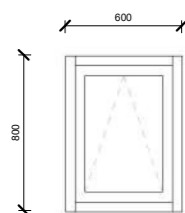
Confirm all dimensions on site

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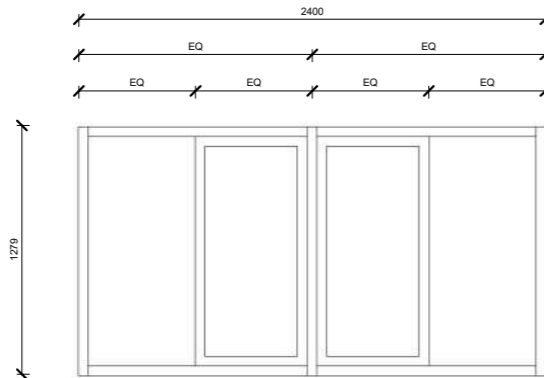
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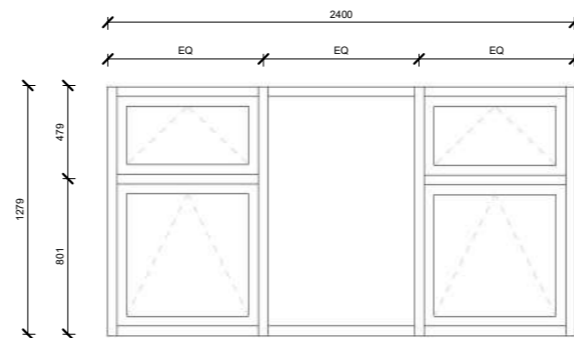
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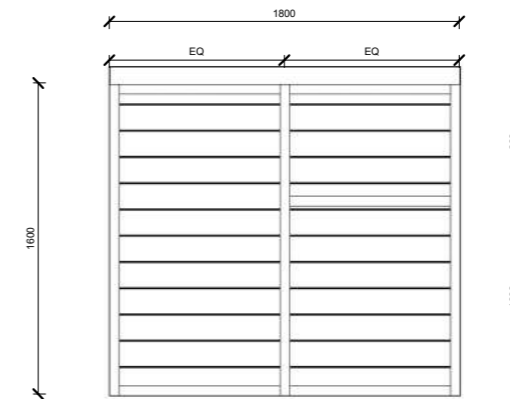
W.06 - TYPE H
SCALE @ A3 - 1:25 | SCALE @ A1 - HALVE A3 SCALE



W.07 - TYPE J
SCALE @ A3 - 1:25 | SCALE @ A1 - HALVE A3 SCALE



W.08 - TYPE K
SCALE @ A3 - 1:25 | SCALE @ A1 - HALVE A3 SCALE



W.10 - TYPE L
SCALE @ A3 - 1:25 | SCALE @ A1 - HALVE A3 SCALE

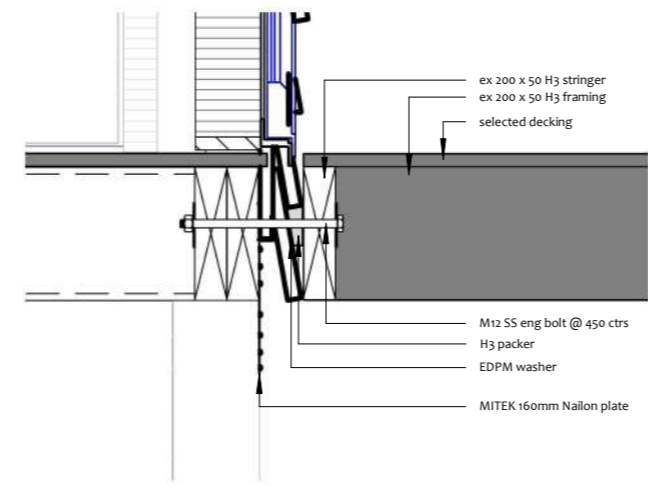
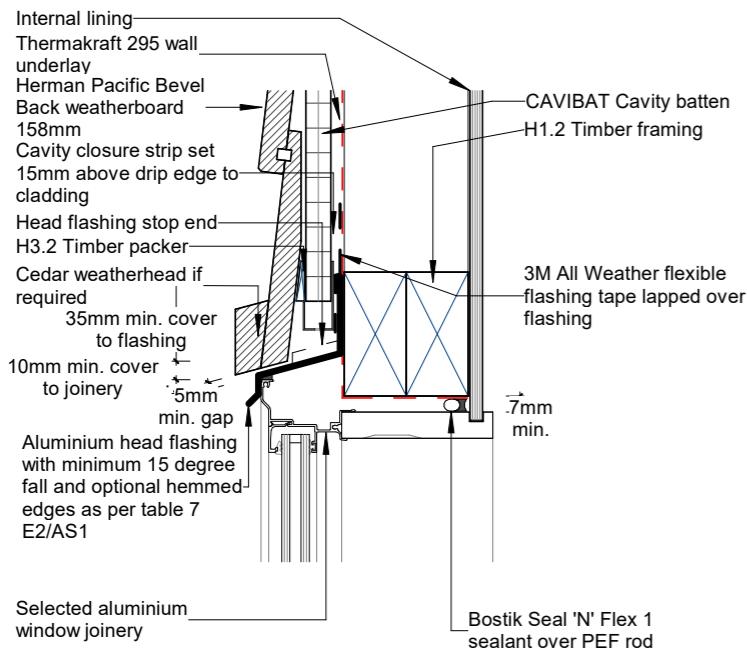
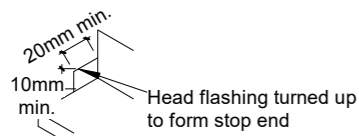
70 Mountain Road

Window Schedule

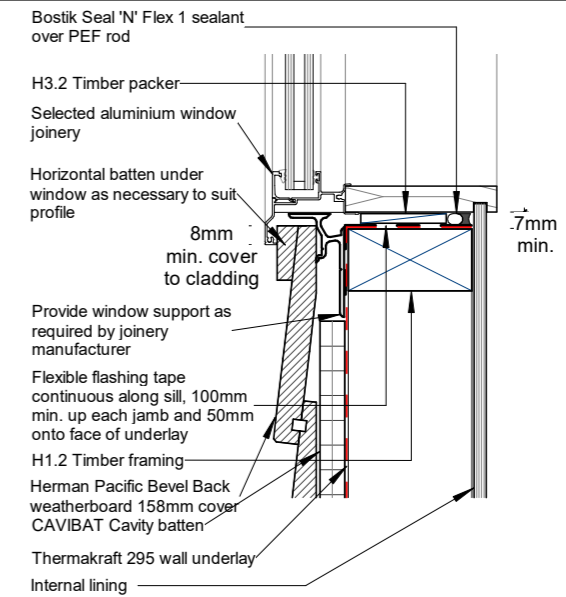
Issue	214
Drawn by	Author
Date Printed	16/02/2023
Revision No.	Checker

B104

Scale As indicated



Rear Deck Connection
SCALE @ A3 - 1 : 10 | SCALE @ A1 - HALVE A3 SCALE



2 Bevel Back - Aluminium Window Sill
SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE

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70 Mountain Road

Construction Details

Issue 214

Drawn by Author

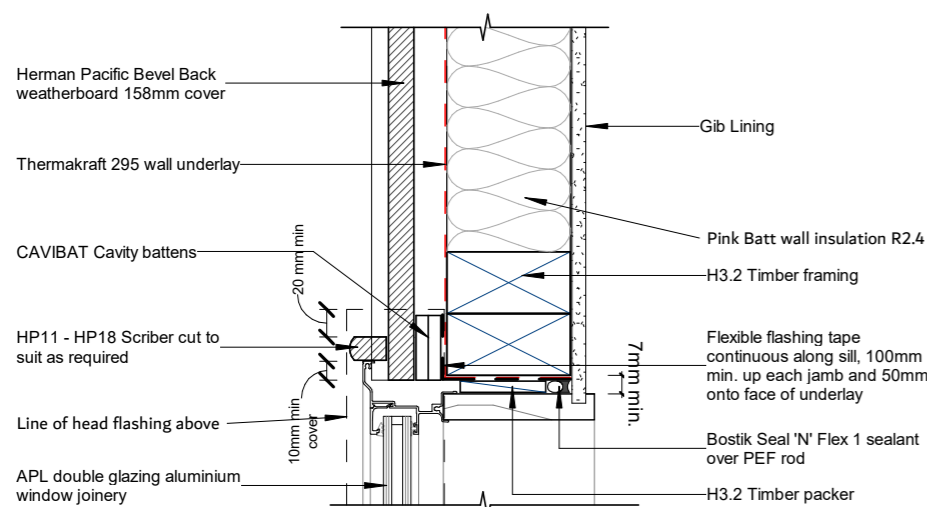
Date Printed 16/02/2023

Revision No. Checker

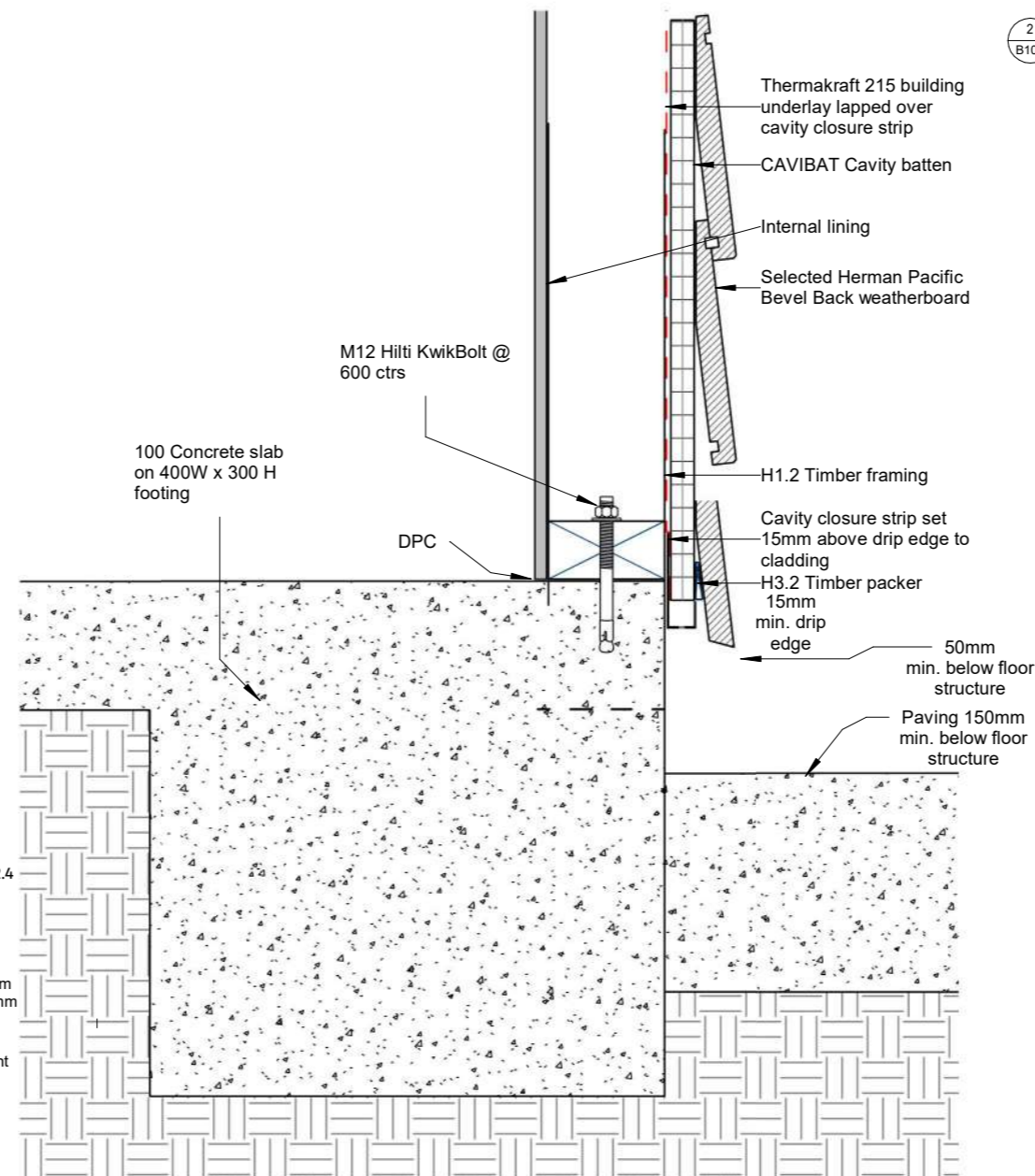
C100

Scale As indicated

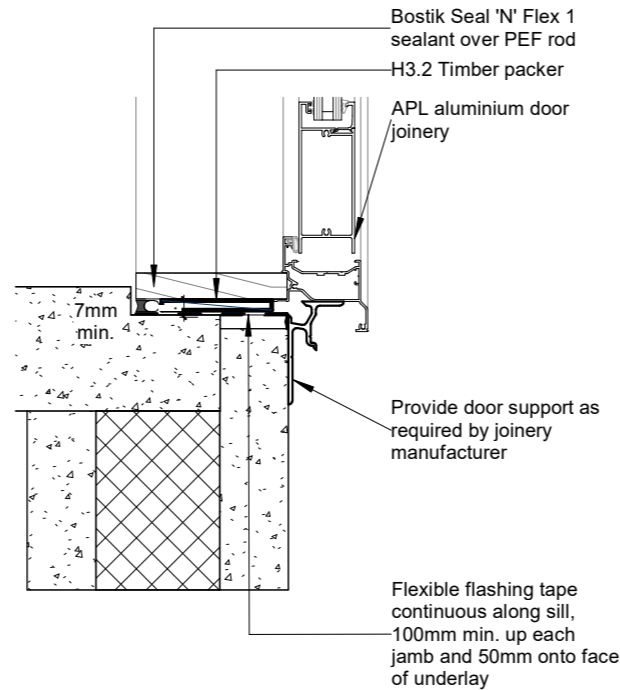
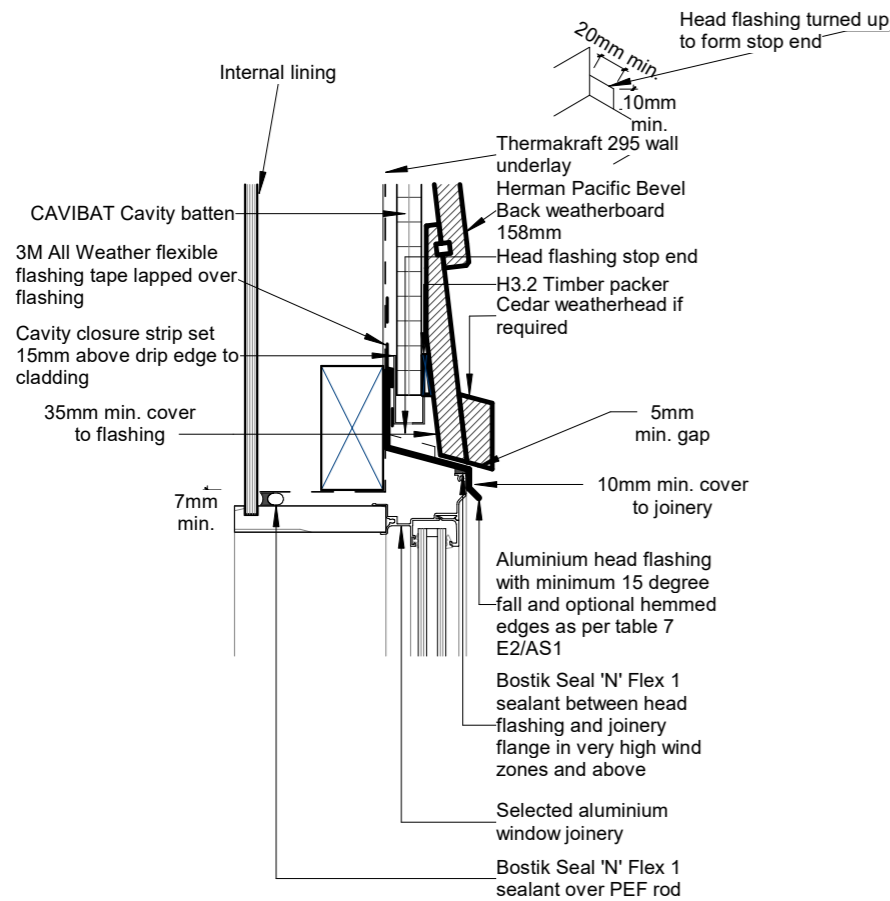
3 Bevel Back - Aluminium Window Head
SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



4 Bevel Back - Aluminium Window Jamb
SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE

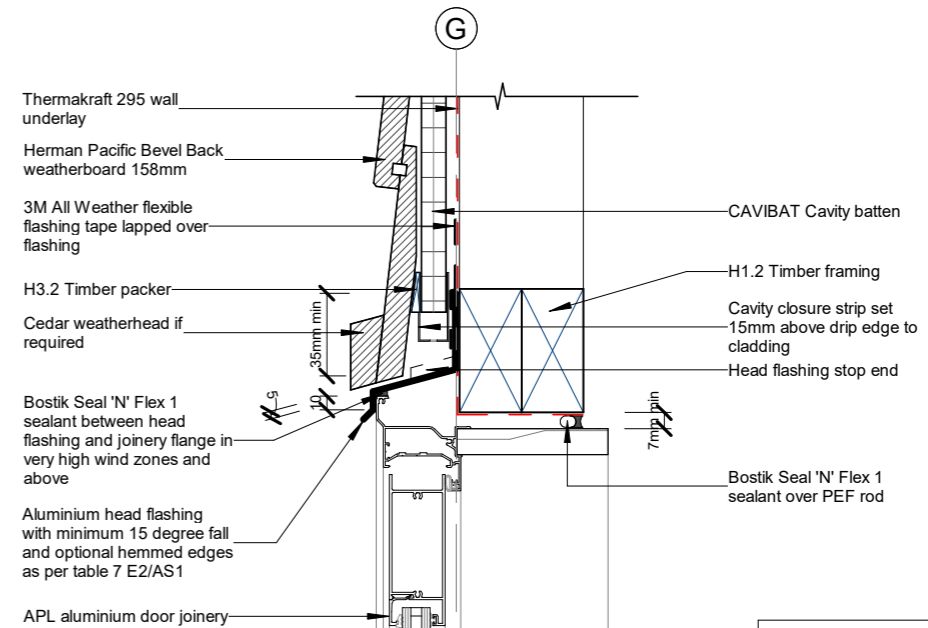


1 Bevel Back - Wall Base
SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



Entry Door Detail

SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



Bevel Back - Aluminium Door Head

SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE

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Underground services shown on the plan are not accurately located, confirm location of all underground services prior to any excavation work commencing



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70 Mountain Road

Construction Details

Issue 214

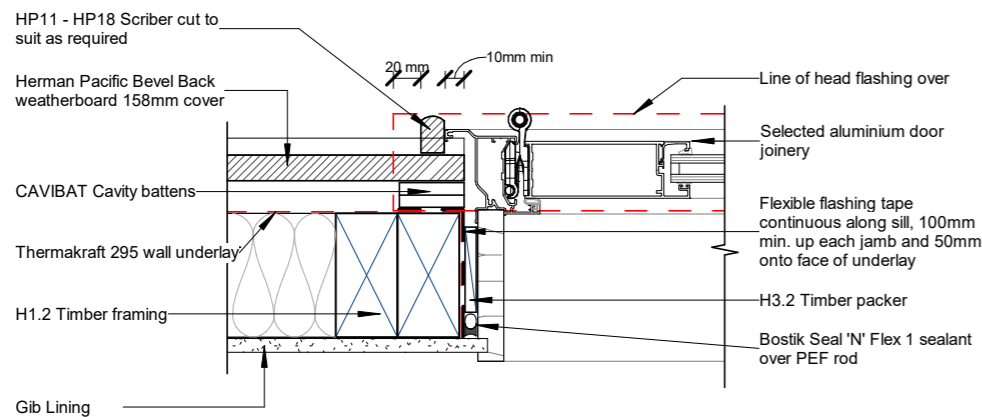
Drawn by bruce

Date Printed 16/02/2023

Revision No. Rev 01

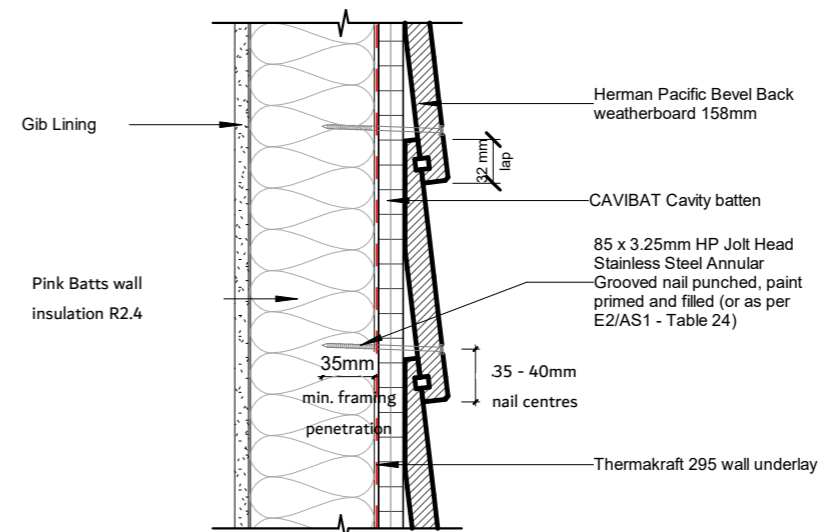
C101

Scale 1 : 5



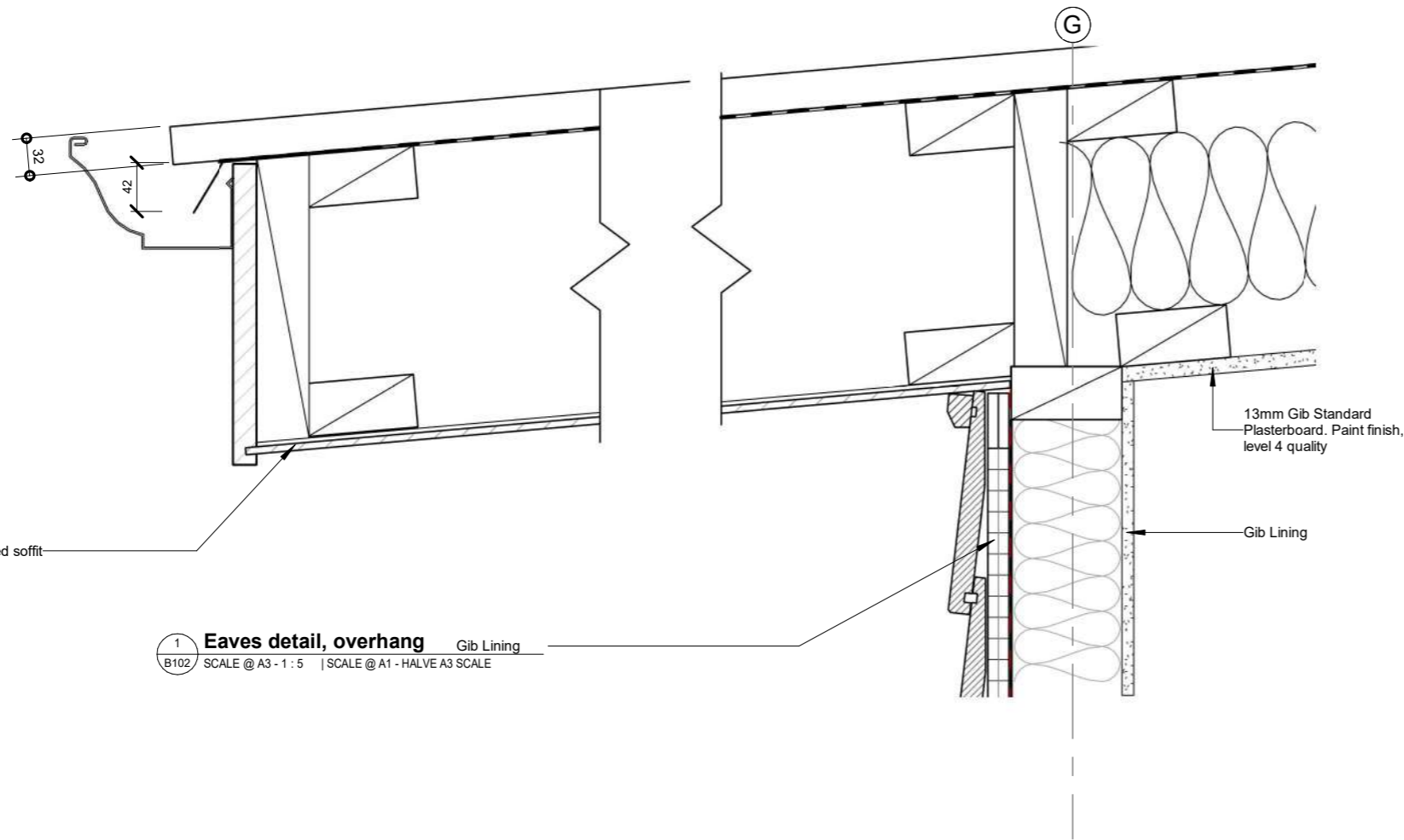
Bevel Back - Aluminium Door Jamb

SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



Bevel Back - General Detail Cavity Fixed, Paint Finish

SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



1 **Eaves detail, overhang** Gib Lining
 SCALE @ A3 - 1:5 | SCALE @ A1 - HALVE A3 SCALE

GENERAL NOTES

- Cladding system are to be top-vented i.e. no continuous horizontal top batten
- All flashing shall be supported by mechanical fixings
- All structural fixings to be type 304 stainless steel
- All other fixings in closed environments and in roof spaces to be hot dipped galvanized steel
- Tolerance to rough openings for doors & windows to be +10mm

BEVELBACK WEATHERBOARD

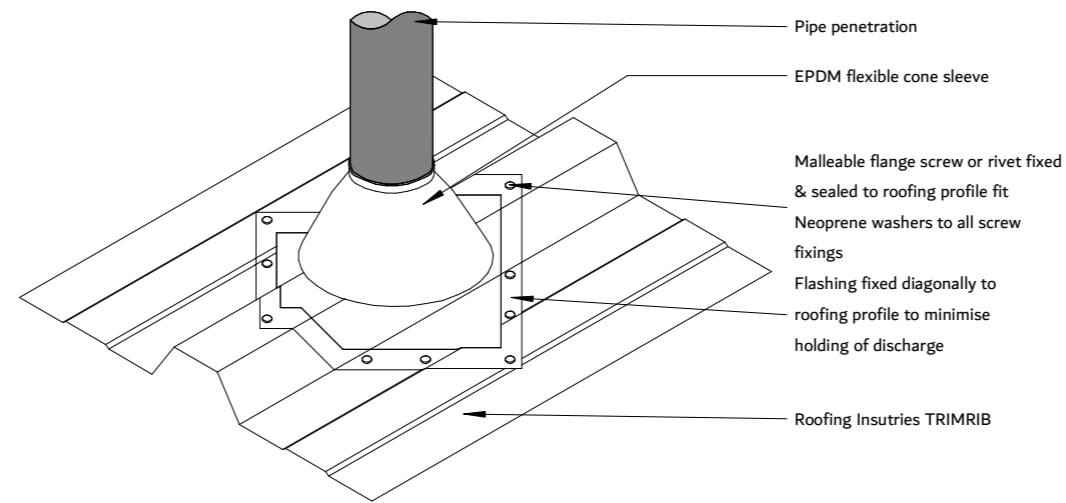
- Cladding thickness & size
- 18.5mm
 - 190mm width (158mm cover)
- Batten type & spacing
- 18x45mm CAVIBAT cavity batten fixed to studs
- Batten fixings
- 40x2.5mm flat head hot-dip galvanised nails or stainless steel finishing brads used to temporarily fix the battens in place until the cladding is installed
- Paint Finished Bevelback Weatherboard fixings
- Silicon bronze, Grade 304 or Grade 316 stainless steel anular grooved Hermpac Crown Head, Rosed Head or Flat Head nails. The nail shank must be minimum 3.15mm diameter and the length must allow minimum 30mm penetration of the wall frame
- Selected Flashing Tape
- SUPER-THICK Building Tape or 3M All Weather Flahing Tape 8067
- Selected Sealant
- Bostik SealNFlex - 1

PROFILED METAL ROOFING

- Profiled & fixing Underlay
- 0.55mm BMT TrimRib 'S' profiled metal roofing. Stop-end all sheets
 - Type 17 (class 4 minimum) screw fixings complete with neoprene & load spreading / cyclone washers
 - Thermakraft Covertex 507 roofing underlay over Ausmesh netting (pvc coated)
- Flashing
- 0.9mm aluminium (uncoated) eaves and apron flashings to E2/AS1
 - 0.55mm BMT Colorcote Magnaflow barge flashing
- Ceiling Insulation
- Pink Batts R2.9 ceiling blanket to roof areas with hySPAN framing

NOTES:

1. For pipes up to 85mm diameter
2. Max. roof pitch for this flashing 45°.
3. Maximum roof length above penetration not too exceed 12.0 metres
4. Also refer to NZ Metal Roof & Wall Cladding Code of Practice



3 **TRIMRIB EPDM Flashing up to 85mm Pipe**
 SCALE @ A3 - 1:5 | SCALE @ A1 - HALVE A3 SCALE

Use figured dimensions do not scale off drawings

Confirm all dimensions on site

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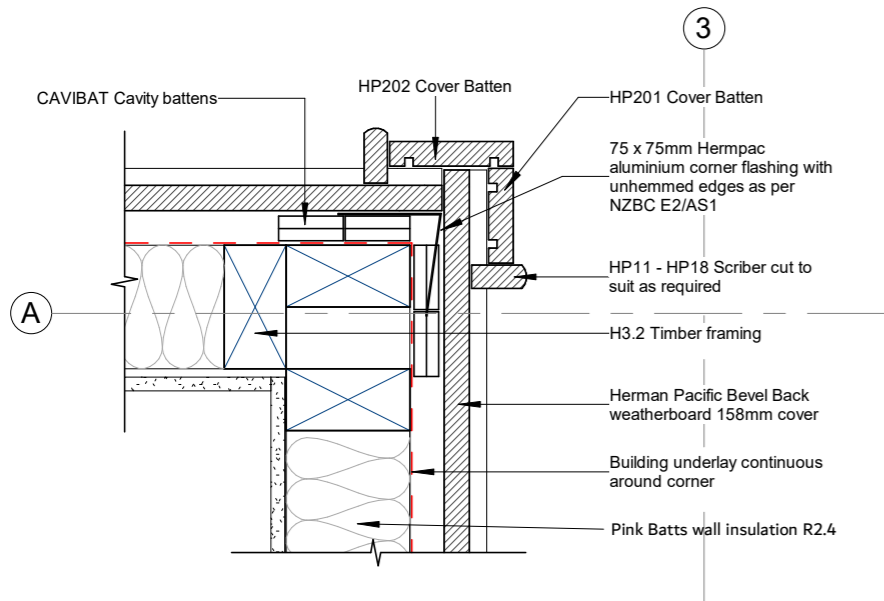
70 Mountain Road

Construction Details

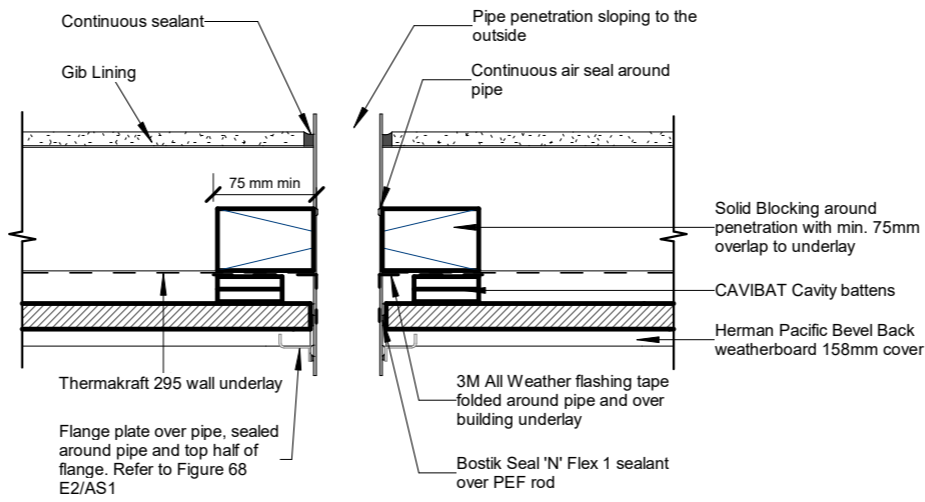
Issue	214
Drawn by	Author
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Revision No.	Checker

C102

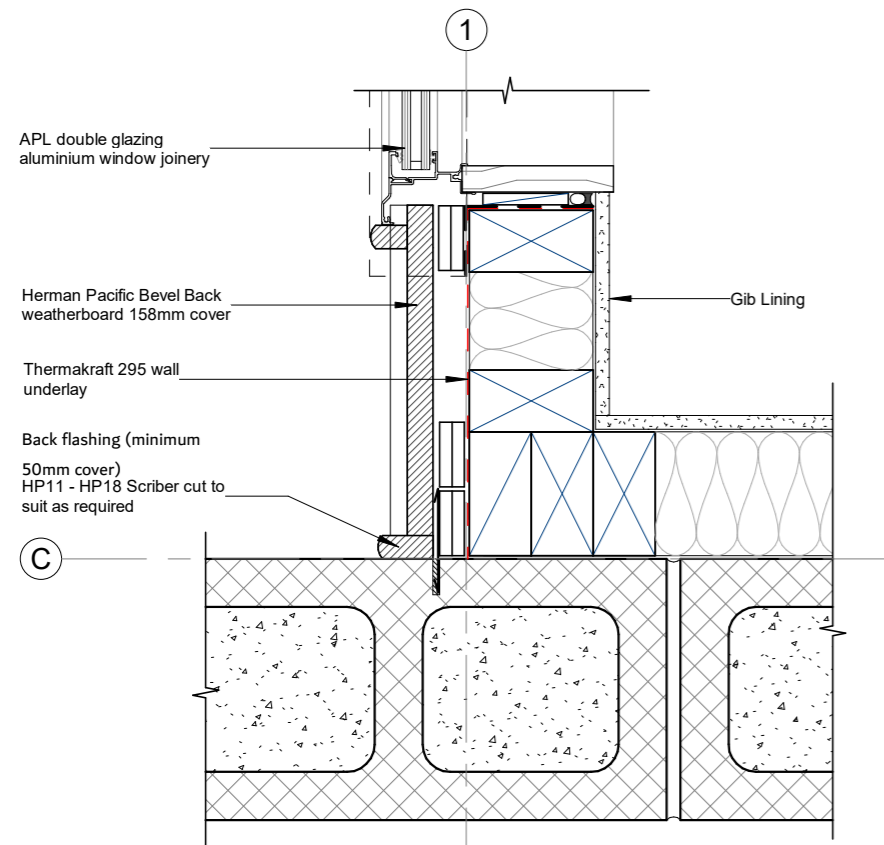
Scale As indicated



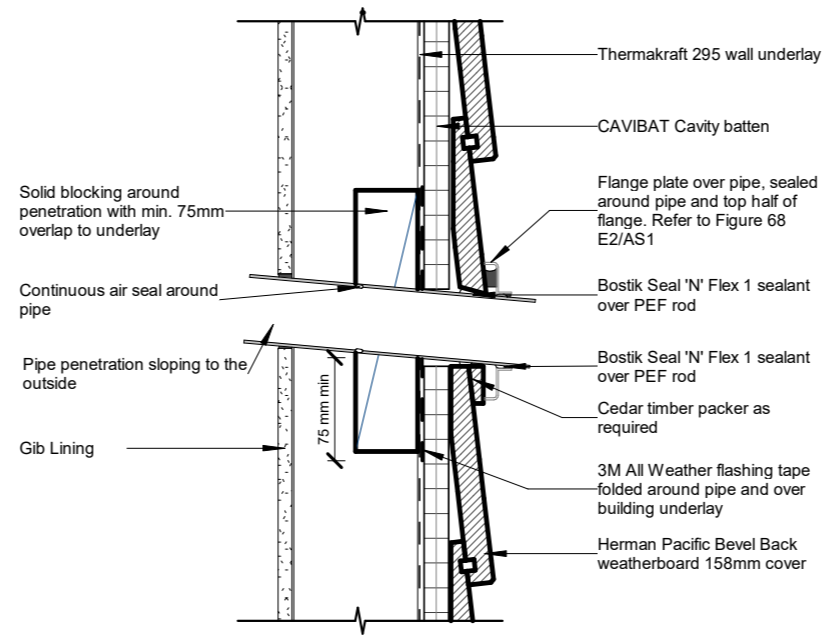
4 Bevel Back - External Corner
 A1-6 SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



2 Pipe Penetration Plan Detail
 SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



5 Bevel Back to Block wall junction
 A1-6 SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



1 Pipe Penetration Detail
 SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE

Use figured dimensions do not scale off drawings

Confirm all dimensions on site

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70 Mountain Road

Construction Details

Issue 214

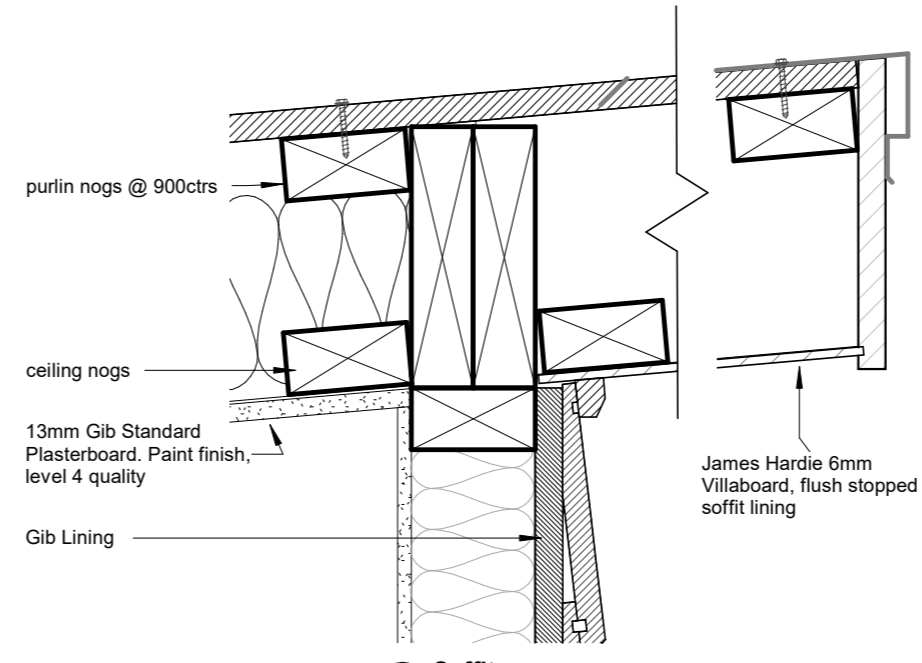
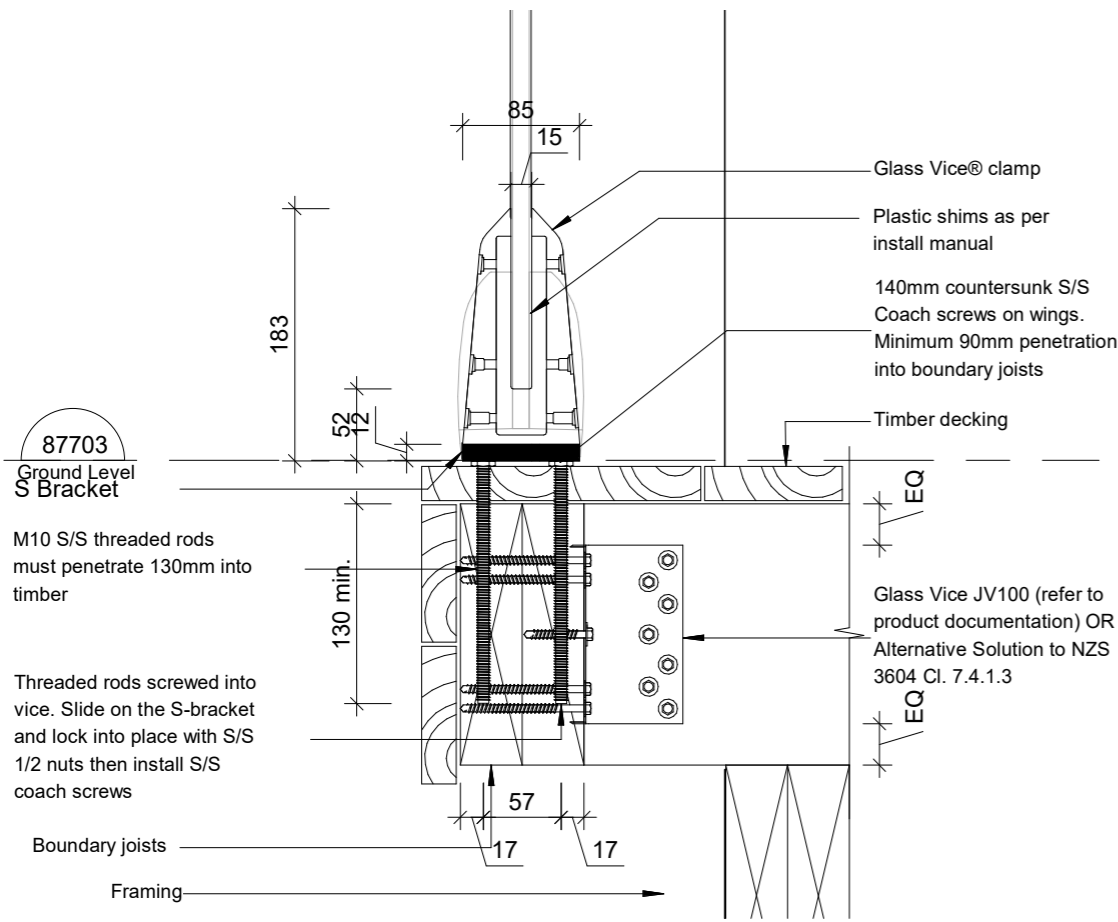
Drawn by Author

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Revision No. Checker

C103

Scale 1 : 5



GENERAL NOTES

- Cladding system are to be top-vented i.e. no continuous horizontal top batten
- All flashing shall be supported by mechanical fixings
- All structural fixings to be type 304 stainless steel
- All other fixings in closed environments and in roof spaces to be hot dipped galvanized steel
- Tolerance to rough openings for doors & windows to be +10mm

PROFILED METAL ROOFING

- Profiled & fixing Underlay
- 0.55mm BMT TrimRib 'S' profiled metal roofing. Stop-end all sheets
 - Type 17 (class 4 minimum) screw fixings complete with neoprene & load spreading / cyclone washers
 - Thermakraft Covertek 507 roofing underlay over Ausmesh netting (pvc coated) Flashing
 - 0.9mm aluminium (uncoated) eaves and apron flashings to E2/AS1
 - 0.55mm BMT Colorcote Magnaflow barge flashing
- Ceiling Insulation
- Pink Batts R2.9 ceiling blanket to roof areas with hySPAN framing

Use figured dimensions do not scale off drawings

Confirm all dimensions on site

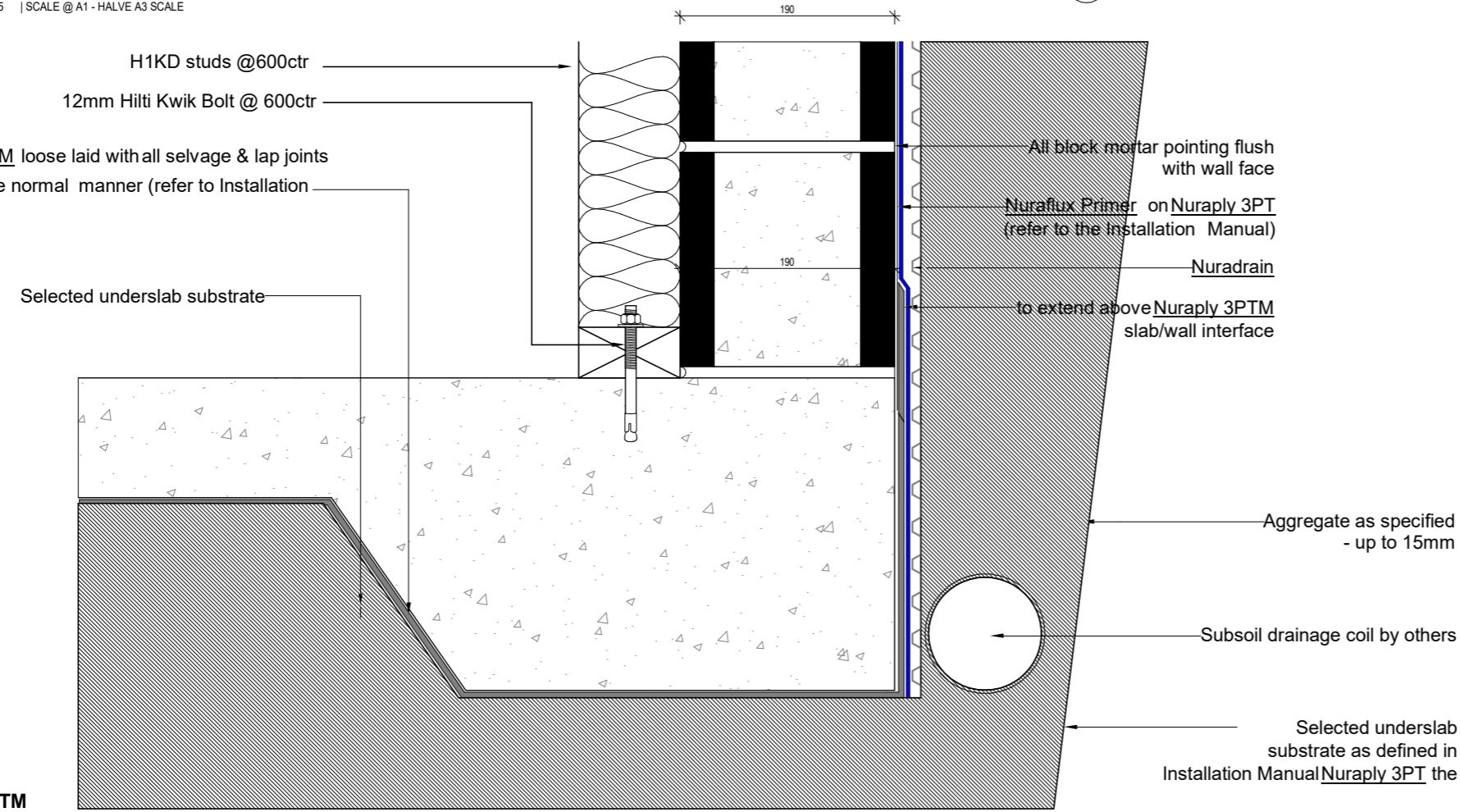
All proprietary building products materials fixtures and fittings are to be used strictly in accordance with manufacturer's specifications

Underground services shown on the plan are not accurately located, confirm location of all underground services prior to any excavation work commencing

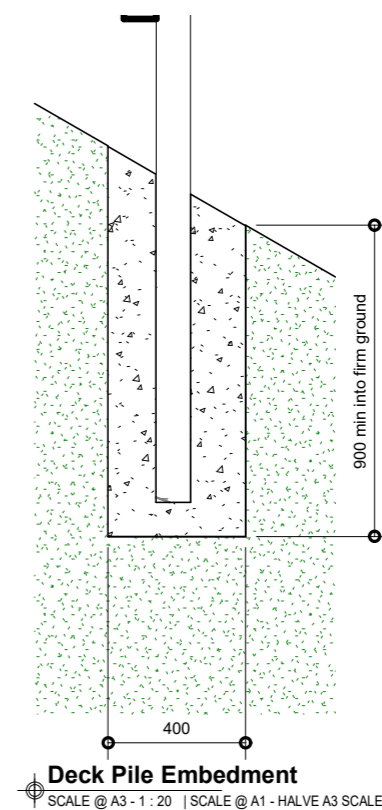
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e-mail: anna@qcl.nz

3 Balustrade
SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE

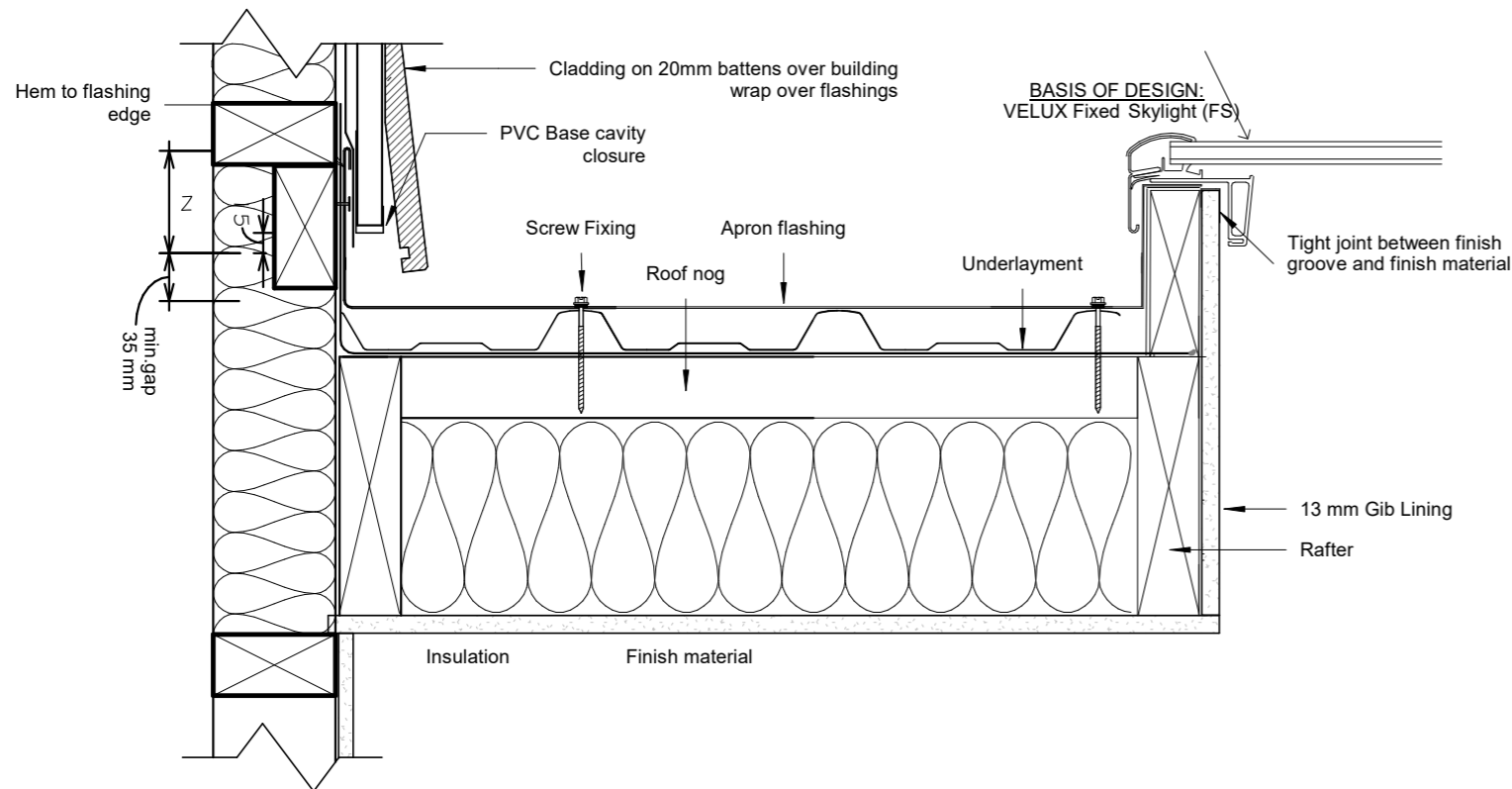


5 Nuraply 3PTM
SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE

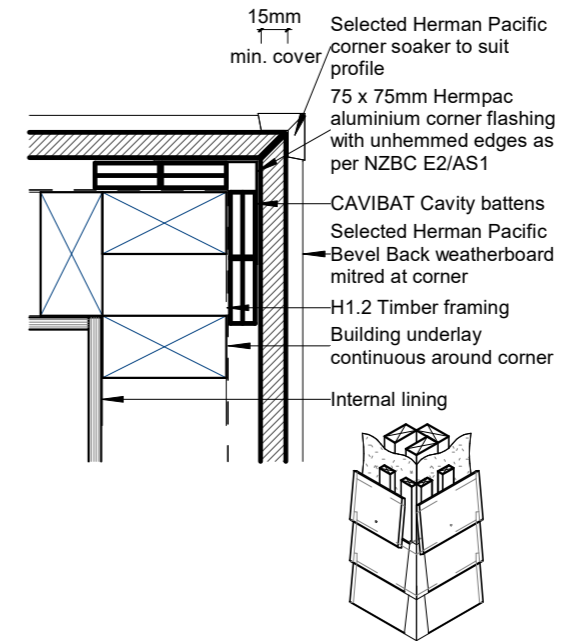


Deck Pile Embedment
SCALE @ A3 - 1 : 20 | SCALE @ A1 - HALVE A3 SCALE

70 Mountain Road	
Construction Details	
Issue	214
Drawn by	Author
Date Printed	16/02/2023
Revision No.	Checker
C104	
Scale	As indicated



4 **TRIMRIB Apron Flashing Detail**
 B102 SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



1 **External Corner Scribed**
 A1-6 SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE

Use figured dimensions do not scale off drawings

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70 Mountain Road

Construction Details

Issue 214

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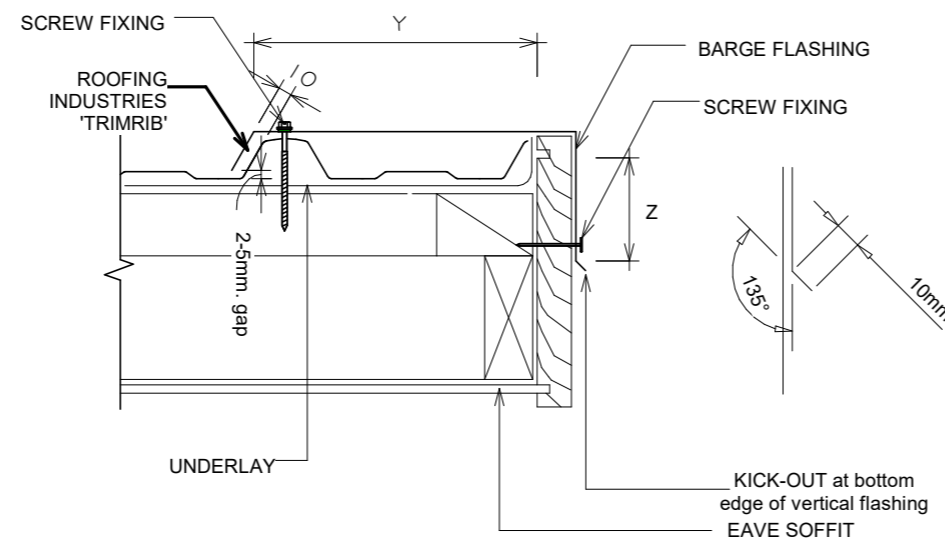
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Revision No. Checker

C105

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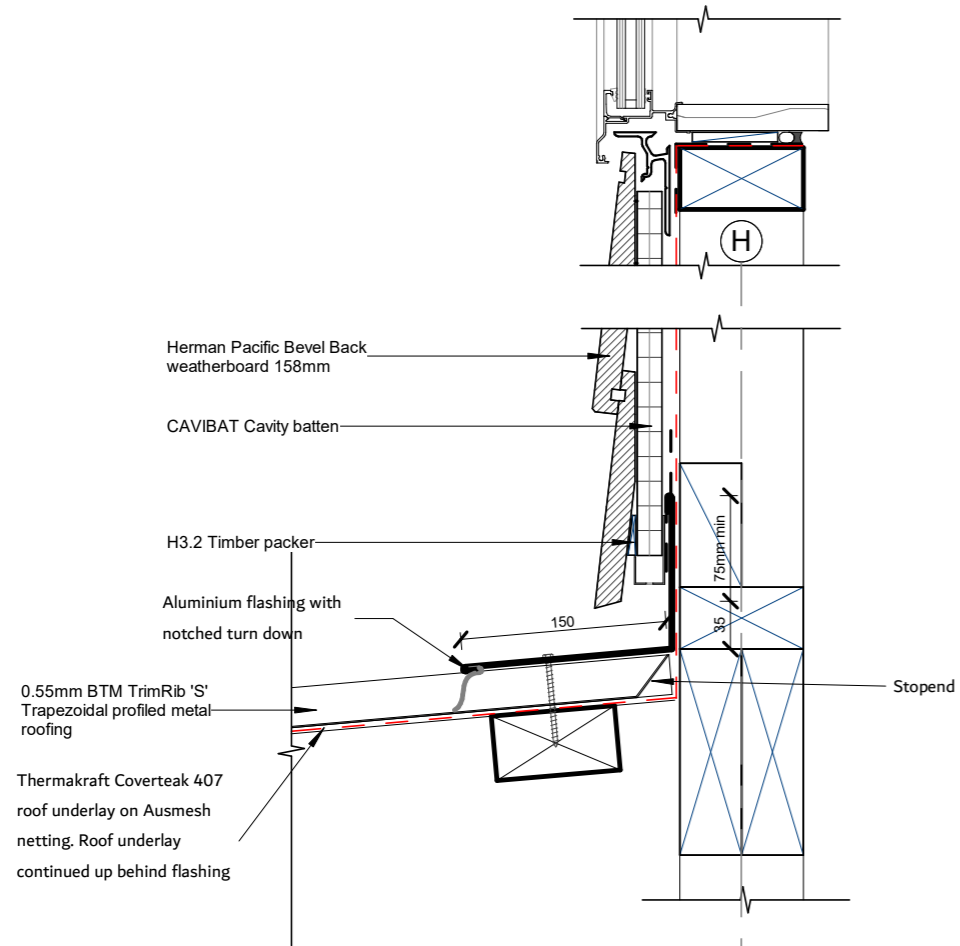
MINIMUM		SITE WIND ZONE	
Y	(5) Z	(As per NZS3604)	
2 crests	(4) 50mm	(1)	SITUATION 1
2 "	(4) 75mm	(2)	SITUATION 2
2 "	(4) 90mm	(3)	SITUATION 3



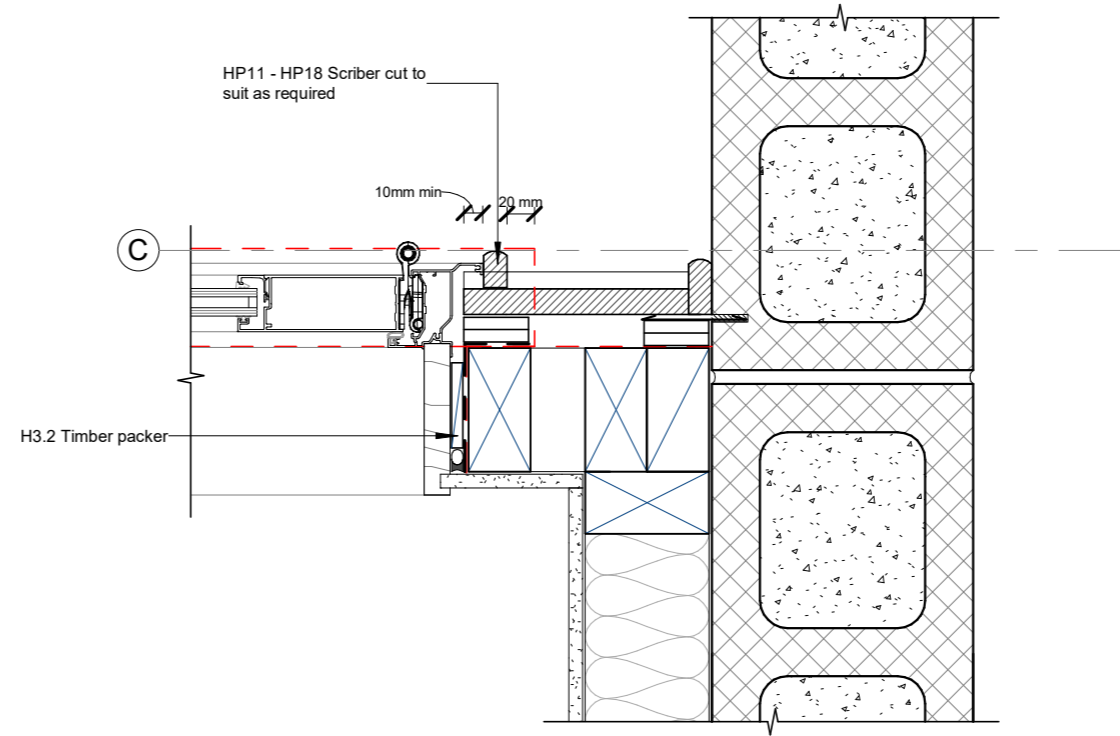
NOTES:

- SITUATION 1: IN LOW, MEDIUM OR HIGH WIND ZONES, WHERE ROOF PITCH IS 10° OR GREATER.
- SITUATION 2: FOR ALL ROOF PITCHES IN VERY HIGH WIND ZONES, FOR ALL LESSER WIND ZONES WHERE ROOF PITCH IS LESS THAN 10°.
- SITUATION 3: FOR ALL ROOF PITCHES IN EXTRA HIGH WIND ZONES, EXCLUDING DRIP EDGE.
- INCREASE DISTANCE 'Z' BY 25mm WHEN AGAINST A PROFILED SURFACE OR TO 100mm WHICHEVER IS THE LESSER.

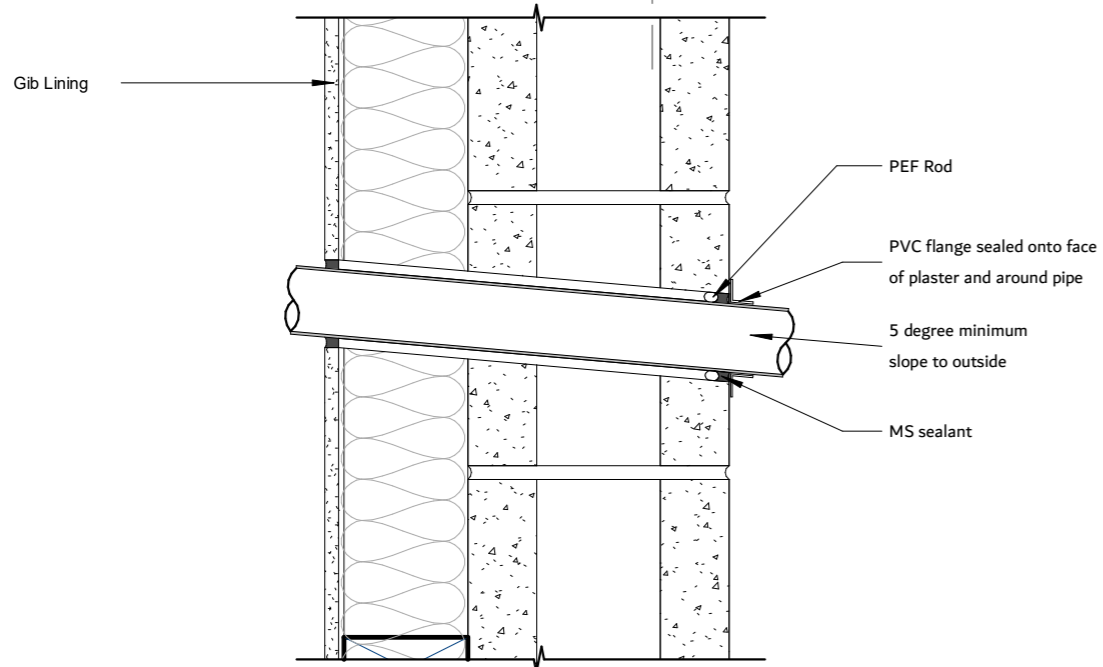
3 **TRIMRIB Barge typical installation**
 B102 SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



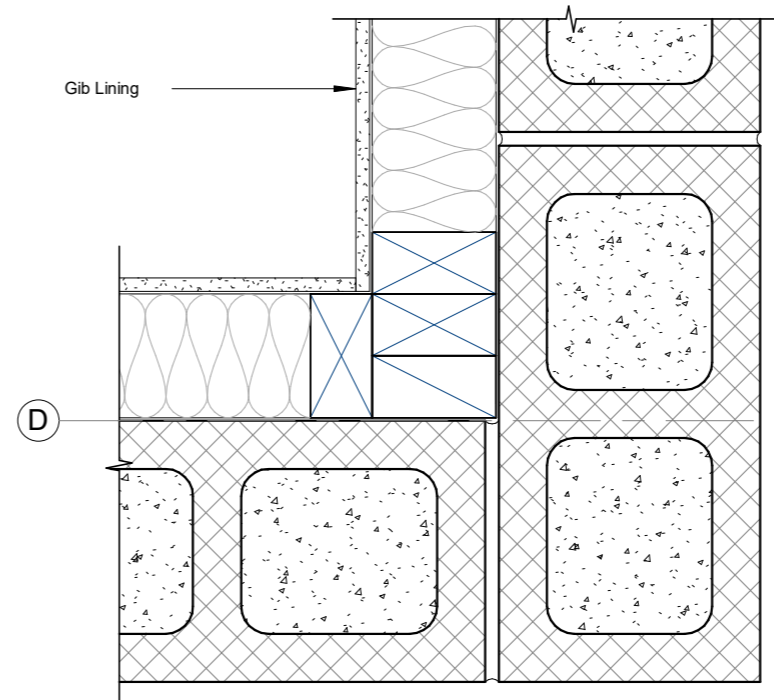
2 TRIMRIB Apron flashing & Bevel Back connection
 B102 SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



3 Internal Corner with Weatherboards
 A1-6 SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



4 Concrete Block - Pipe Penetration
 SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE



1 Concrete Block - External Corner
 A1-6 SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE

Use figured dimensions do not scale off drawings

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70 Mountain Road

Construction Details

Issue 214

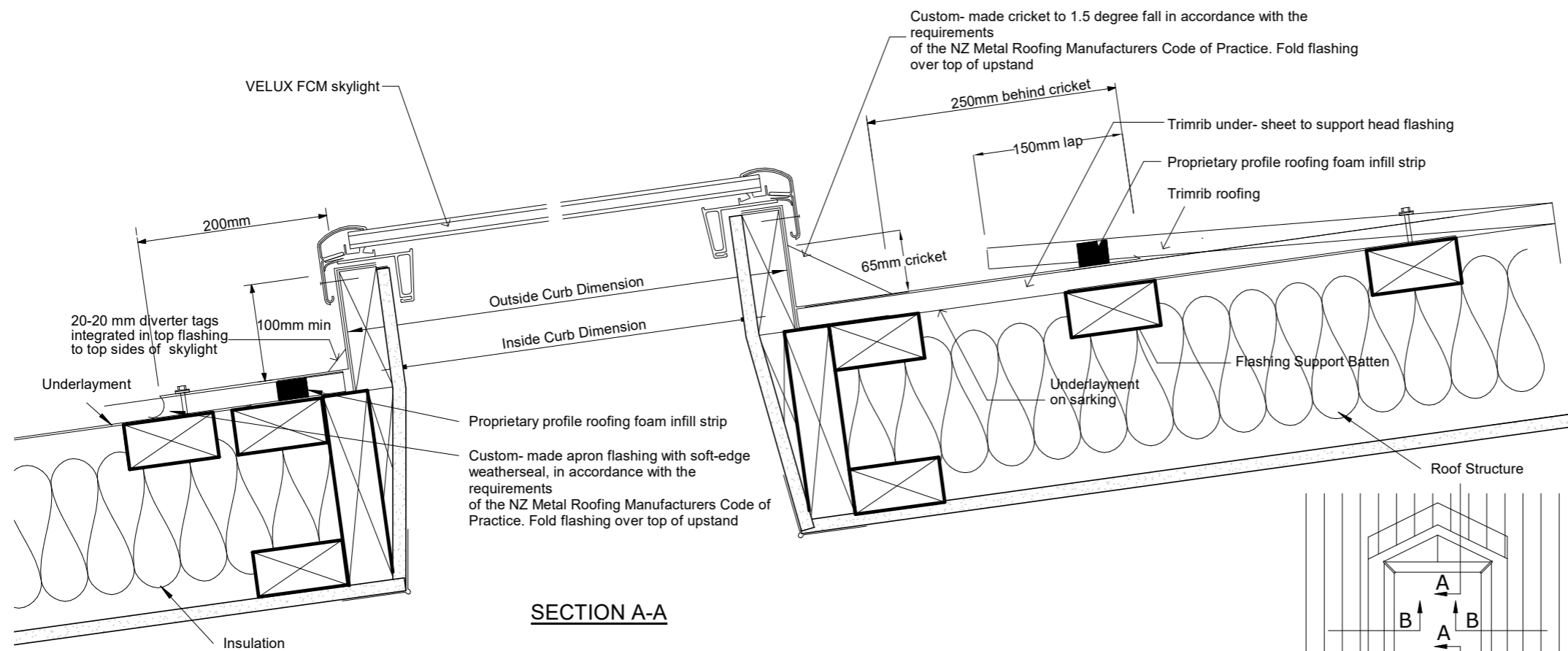
Drawn by Author

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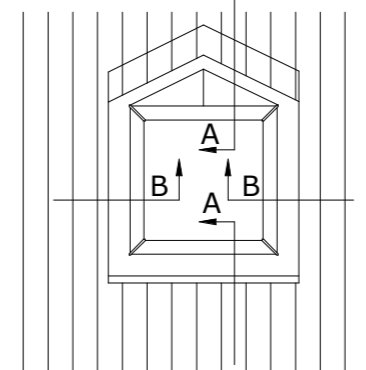
Revision No. Checker

C106

Scale 1 : 5



SECTION A-A



Custom-made metal flashing in accordance with New Zealand Metal Roofing Manufacturers Code of Practice. Ensure all flashings meet the requirements for your projects' location. Please note: Below 15 degrees:- Any condensation that forms on the glass due to high humidity may drip

Skylight - Low Pitch Fixed Flashing
 SCALE @ A3 - 1 : 5 | SCALE @ A1 - HALVE A3 SCALE

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Scale	1 : 5



entry
SCALE @ A3 - 1:1 | SCALE @ A1 - HALVE A3 SCALE



Study
SCALE @ A3 - 1:1 | SCALE @ A1 - HALVE A3 SCALE



upper bathroom
SCALE @ A3 - 1:2 | SCALE @ A1 - HALVE A3 SCALE



kit/din
SCALE @ A3 - 1:1 | SCALE @ A1 - HALVE A3 SCALE

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70 Mountain Road

Renders

Issue	214
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Revision No.	rev 2

X

Scale As indicated

Form 2A:

Memorandum from licensed building practitioner (certificate of design work)

SECTION 30C OR 45, BUILDING ACT 2004

The building

Street address of building:

The owner

Full name:

Mailing address:

Telephone number:

Email address:

Identification of design work that is restricted building work

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

Design work that is restricted building work ✓	Building work <i>(If appropriate, provide details of the restricted building work)</i>	Carried out/supervised <i>(Specify whether you carried out this design work or supervised someone else carrying out this design work)</i>	Reference to plans and specifications <i>(If appropriate, specify references)</i>
Primary structure			
<input type="checkbox"/> Foundations and subfloor framing			
<input type="checkbox"/> Walls			
<input type="checkbox"/> Roof			
<input type="checkbox"/> Columns and beams			
<input type="checkbox"/> Bracing			
<input type="checkbox"/> Other			

External moisture management systems

<input type="checkbox"/> Damp proofing			
<input type="checkbox"/> Roof cladding or roof cladding system			
<input type="checkbox"/> Ventilation system (for example, subfloor or cavity)			
<input type="checkbox"/> Wall cladding or wall cladding system			
<input type="checkbox"/> Waterproofing			
<input type="checkbox"/> Other			

Fire safety systems

<input type="checkbox"/> Emergency warning systems, evacuation and fire service operation systems, suppression or control systems, or other			
---	--	--	--

Note:

- The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.
- Continue on another page if necessary.

Are waivers or modifications of the building code required?: Yes No

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

Clause <i>(List relevant numbers of building code)</i>	Waiver/modification required <i>(Specify nature of waiver or modification of building code)</i>

Note:

Continue on another page if necessary.

Issued by

(Name of licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work)

Licensed building practitioner number:

(if applicable)

Registered architect number:

(if applicable)

Chartered professional engineer number:

(if applicable)

Mailing address:

Street address/registered office:

Telephone number:

Mobile number:

Facsimile:

Email address:

Website:

(if applicable)

Declaration

I,

(name of licensed building practitioner), certify that the design work that is restricted building work recorded on this form:

(a) complies with the building code; or

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

Signature:



Date:

DAY

MONTH

YEAR

SPECIFICATION

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

Mountain Road

Project Specification

70 Mountain Road, Henderson Valley, Auckland, New Zealand

Project Ref: 2316

Printed: 02 May 2023



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5113G	GIB® PLASTERBOARD LININGS	70
5230	INTERIOR DOORS	75
6721	PAINTING INTERIOR	77



masterspec

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Scan to verify or go to masterspec.co.nz/verify

1220 PROJECT

1 GENERAL

This general section describes the project including:

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

1.1 READ ALL SECTIONS TOGETHER

Read all general sections together with all other sections.

1.2 RESTRICTED BUILDING WORK

This project includes Restricted Building Work.

Design Construction Safety

1.3 DESIGN CONSTRUCTION SAFETY

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

Principal's Health & Safety Matters

1.4 PRINCIPAL'S SITE HEALTH AND SAFETY PLAN

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

Site

1.5 SITE

The site consists of: Sloping site sloping to the North
As shown on drawing: A1-2

1.6 LEGAL DESCRIPTION

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

1.7 EXISTING BUILDINGS

Existing buildings consist of: Bare LAnd with Existing Garage

Refer drawing(s): A1-2

1.8 EXISTING SERVICES

The following are the network utility services:

Electrical:	TBA
Telecommunication:	TBA
Water:	TBA
Gas:	TBA
Stormwater:	TBA
Foul water:	TBA

Site environment - Durability

1.9 EXPOSURE ZONE

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

The site zone is: C

Site environment - Wind

1.10 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

1.11 EARTHQUAKE ZONE - NON SPECIFIC DESIGN

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

The earthquake zone 1 is:

Archaeological discovery

1.12 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.

Known archaeological information relating to this site includes the following: -
None

1222L PROJECT PERSONNEL - LBP'S

1 TO

BCA: Auckland Council
Address:

Copy to Contract administrator

Name: tba
Company/address:
Email:

Project details

Project: 70 Mountain Road
Location: Henderson Valley
Building Consent: tba

2 GENERAL

Provide to the Building Consent Authority the names of the Licensed Building Practitioners who are carrying out Restricted Building Work on this project. In compliance with s87 of the Building Act, the names of LBP's who will be carrying out Restricted Building Work must be provided to the BCA before that work commences. Provide a copy to the Contract Administrator.

2.1 CARPENTRY

Name: Sam Sommerville
LBP number: BP 102078
Area of practice: Carpentry
Details of RBW: All RBW associated with this building
Address: BOX 95196 Swanson Auckland 0653
Telephone: 093033323
Mobile:
Email: sam@qcl.nz

2.2 FOUNDATIONS

Name: Sam Sommerville
LBP number: BP102018
Area of practice: Carpentry
Details of RBW: All RBW associated with this building
Address: BOX 95196 Swanson Auckland 0653
Telephone: 093033323
Mobile:
Email: sam@qcl.nz

2.3 ROOFING

Name: Sam Sommerville
LBP number: BP 102078
Area of practice: Carpentry
Details of RBW: ALL RBW associated with this building
Address: BOX 95196 SWANSON AUCKLAND 0653
Telephone: 093033323
Mobile:
Email: sam@qcl.nz

1231 CONTRACT

1 GENERAL

This GENERAL section refers to contract related matters.

1.1 NOMINATED SUBCONTRACTORS

The contractor must appoint the following to carry out specific parts of the work.

1.2 MONETARY ALLOWANCES

Monetary allowances are included for the following parts of the contract works.

Provisional sums are included for the following:

Prime cost sums are included for the following:

Amount	tba
tba	tba
Amount	tba
tba	tba

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:

1238S1 Schedule of As Built Documentation

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 LBP 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: R1

Revisions: R3

2.2 DOCUMENT RECEIPT - HARD COPIES

Hard copies of plans, specifications and other documents issued for construction shall not be provided

2.3 DOCUMENT RECEIPT - ELECTRONIC DOCUMENTS

Electronic documents issued for construction shall be PDF emailed

1238 AS BUILT DOCUMENTATION

1 GENERAL

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

1.1 SCHEDULE SECTION

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

1.2 AS BUILT DOCUMENT REQUIREMENTS

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

As built drawings recording:

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

Records of:

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

1.3 PROVISIONAL AS BUILT DOCUMENTS

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

1.4 AS BUILT DOCUMENT REVIEW

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

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

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

1.5 COMPLETE AS BUILT DOCUMENTS

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

1.6 AS BUILT DOCUMENTS - ELECTRONIC COPY

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

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

1238S1 SCHEDULE OF AS BUILT DOCUMENTATION

1 GENERAL

This schedule section identifies work sections in the specification that have requirements for the submission of as built documentation.

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- 1238 AS BUILT DOCUMENTATION
- Identified Work Sections

As built documents

1.2 AS BUILT DOCUMENTS

There are no work section requirements.

1.3 AS BUILT DOCUMENTS - ADDITIONAL ITEMS

Refer to separate documentation for as built documentation requirements not contained within this specification.

1240 ESTABLISHMENT

1 GENERAL

This general section relates to site establishment including:

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

Notices and approvals

1.1 STATUTORY OBLIGATIONS

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

1.2 BUILDING CONSENT AUTHORITY AND NETWORK UTILITY APPROVALS

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

1.3 NOTIFY NETWORK UTILITY OPERATORS

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

Inspections

Site preparation

1.4 SITE ACCESS

Access to the site is limited to: All project personnel

1.5 WORKING AREA

Limited to the following designated working areas on the site:
Limited to working areas defined in Resource Consent Documents

1.6 SITE AND SOIL SURVEYS

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

Existing buildings

Temporary construction

1.7 TEMPORARY BUILDINGS

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

1.8 SITE - SAFETY SIGNAGE

Provide hazard board and other safety signage as required.

1250 TEMPORARY WORKS & SERVICES

1 GENERAL

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

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

Temporary works

1.1 COMPLY WITH THE NEW ZEALAND BUILDING CODE

Refer to [New Zealand Building Code](#) clauses and approved document paragraphs for the criteria and/or methods that must be used in this section to establish compliance with the code.

1.2 COSTS RELATING TO TEMPORARY WORKS

Pay all rates/fees in respect of temporary works.

1.3 MAINTENANCE OF TEMPORARY WORKS

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

1.4 SAFEGUARD THE SITE, THE WORKS AND MATERIALS

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

1.5 SITE FENCING

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

Construct the fence with:

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

1.6 SITE FENCING NON-PUBLIC AREAS

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

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

1.7 PROVIDE SEDIMENT AND SILT RUN OFF PROTECTION

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

Prevent silt run off by:

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

Provide sediment control by:

- silt fences constructed using filter fabric stretched between posts at a maximum of 1 metre spacing.

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

1.8 PROVIDE CONCRETE WASHWATER RUN OFF PROTECTION

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

Control run off from:

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

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

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

Spilt or surplus material:

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

Pump washwater away from drains, waterways and adjoining property.

1.9 EXCAVATION SAFETY

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

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

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

Temporary services

1.10 WATER

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

1.11 ELECTRICITY

To AS/NZS 3012.

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

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

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

1.12 TELEPHONE

Provide on-site temporary telephone facilities.

1.13 COMPUTER FACILITIES

Provide on-site temporary computer facilities complete with an email and internet connection capable of sending, receiving and printing site communications.

1.14 PROTECT EXISTING BUILDINGS

Protect existing buildings and other designated features which are to remain in position during the execution of the works.

1.15 PROTECT ACCESS ROUTES

Protect access routes through the building and areas adjacent to the work area that are to remain in place. These include lifts and stairs. Comply with all fire egress requirements at all times.

1.16 MAKE GOOD - EXISTING BUILDINGS

Make good all damage to existing buildings caused in carrying out the contract works.

Care and protection - Site

1.17 LOCATE AND PROTECT SURVEY MARKS

Review information provided relating to survey marks. Physically locate and protect survey marks. Where required use a licensed cadastral surveyor to reinstate survey marks disturbed during construction.

1.18 LOCATE EXISTING SERVICES

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

1.19 PROTECT EXISTING SERVICES

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

1.20 PROTECT EXISTING LANDSCAPE ELEMENTS

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

1.21 MAKE GOOD - SITE

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

Care and protection - Project**1.22 TEMPORARY PROTECTION**

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

1.23 SPECIAL PROTECTION GENERAL

Refer to individual work sections for any special protection requirements.

1.24 SPECIAL PROTECTION PROJECT

See Issued Resource Consent Drawings and Documents

Care and protection - miscellaneous**1.25 CONSTRUCTION KEYING AND SECURITY**

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

1.26 TEMPORARY STORAGE

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

Rubbish removal**1.27 PERIODIC RUBBISH REMOVAL**

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

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

Quality control and assurance

1.1 QUALITY ASSURANCE

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

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

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

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

1.2 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.

1.3 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

1.4 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.

1.5 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.

1.6 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.

1.7 ROADWAY AND FOOTPATH

Keep the adjacent 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.

1.8 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.

1.9 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.

1.10 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.

1.11 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

1.12 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.

1.13 DATUM

Establish a permanent site datum to confirm the proposed levels and their relationship to all other existing and new levels.

1.14 SET-OUT

Set out the work to conform with the drawings.

1.15 SET-OUT BY LICENSED CADASTRAL SURVEYOR

Before commencing construction provide the contract administrator with a certificate prepared by a licensed cadastral surveyor that the set-out is complete and that the building is accurately placed on the site.

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

1.16 CONFIRM HEIGHT IN RELATION TO BOUNDARY

Provide a certificate prepared by a licensed cadastral surveyor that the building has been constructed within the allowed height in relation to boundary. Provide the certificate to the local authority. Provide a copy of the certificate to the contract administrator.

1.17 USE OF SET-OUT INSTRUMENTS

Permit without charge, the use of instruments already on site for checking, setting out and levels.

1.18 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.

1.19 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 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**1.20 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.

1.21 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.

1.22 MINIMISE DELAYS DUE TO WEATHER

Use appropriate techniques and methods to prevent damage and minimise delays due to weather.

Defective or damaged work**1.23 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**1.24 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.

1.25 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.

1.26 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.

1.27 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.

1.28 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.

1.29 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

1.30 NEW PRODUCTS

Products to be new unless stated otherwise, of the specified standard, and complying with all cited documents.

1.31 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.

1.32 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.

1.33 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.

1.34 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.

1.35 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.

1.36 CONDITION OF PRODUCTS

To be in perfect condition when incorporated into the work.

1.37 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.

Spares & maintenance products

1.38 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

1.39 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.

Remove protection

1.40 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

1.41 SPECIAL REQUIREMENTS

Refer to individual work sections for any special completion requirements.

1.42 LEAVE WORK

Leave work to the standard required for the following procedures.

1.43 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.

1.44 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.

1.45 COMPLETE ALL SERVICES

Ensure all services are complete and operational, with all temporary labelling removed, required labelling fixed and service instructions provided.

1.46 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 scrappers 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

1.47 SPECIAL REQUIREMENTS

Refer to individual work sections for any special commissioning requirements.

1.48 MOVING PARTS

Adjust, ease and lubricate all doors, windows, drawers, hardware, appliances, controls and all moving parts to give easy and efficient operation.

1.49 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.

1.50 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.

1.51 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

1.52 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

1.53 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

1.54 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.

2210 PREPARATION & GROUNDWORK

1 GENERAL

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

- footings and floor slabs
- backfilling behind basement retaining walls

Documents

1.1 DOCUMENTS

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

- | | |
|--------------------------|--|
| NZS 3604 | Timber-framed buildings |
| WorkSafe NZ | Good Practice Guidelines - Excavation Safety |

1.2 SITE SAFETY

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

1.3 ARCHAEOLOGICAL DISCOVERY

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

2 PRODUCTS

2.1 EXCAVATED CLEAN FILL

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

2.2 VOLCANIC TUFF FILL

Scoriaceous tuff of variable grading excluding excessive silt or clay material, capable of being placed and compacted as specified.

2.3 ROCK FILL

Hard material comprising rock, broken stone, hard brick, concrete, run of pit scoria, or other comparable inert material capable of being placed and compacted as specified.

2.4 SAND FILL

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

2.5 HARD FILL

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

2.6 GRANULAR FILL

Approved screened crushed gravel or scoria, graded in size from 20mm to 7mm, clean. When tested with a standard sieve of 4.75 opening no material is to pass.

2.7 DRESSING COURSE

Scoria to GAP 20 grading, or "dirty footpath scoria", or equivalent "all in" graded crushed metal aggregate.

2.8 FREE-DRAINING AGGREGATE

Scoria or crushed gravel graded 50 to 14 clean.

3 EXECUTION

3.1 WASHOUT BAY FOR TRUCK

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

3.2 EXCAVATION GENERALLY

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

3.3 BURNING OF MATERIALS

Burning of materials is not permitted on site.

3.4 PROTECT EXISTING WORK

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

3.5 PROTECT EXISTING TREES, PLANTING, OR LANDSCAPE FEATURES

Protect from damage trees, shrubs, natural site features and existing landscaped areas nominated on the drawings as being retained. Ensure existing levels are undisturbed beneath the dripline of retained trees. see A1-3

3.6 EROSION CONTROL

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

3.7 SURFACE PREPARATION

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

3.8 STOCKPILE TOPSOIL

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

3.9 GENERAL EXCAVATION

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

3.10 ROCK EXCAVATION

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

3.11 FOUNDATION EXCAVATION

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

3.12 INADEQUATE BEARING

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

Below slabs on grade: Hardfill compacted in 150mm layers

Below footings: 10 MPa concrete

Service trenches: Hardfill compacted in 150mm layers

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

3.13 STANDARD OF COMPACTION

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

3.14 GENERAL BACKFILLING

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

3.15 SURPLUS MATERIAL

Remove surplus and excavated material from the site.

2310 FOUNDATIONS

1 GENERAL

This section relates to all foundation and piling work, with the exception of in situ concrete work and concrete masonry.

Documents

1.1 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 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 3605	Timber piles and poles for use in buildings
NZS 3603	Timber structures standard

Performance

1.2 INSPECTIONS

Give notice to Engineer and contract administrator, at least 24 hours prior to foundation inspection being required. At inspection foundation to be clear of obstructions like, backfill, site concrete and reinforcing.

2 PRODUCTS

2.1 SQUARE TIMBER PILES

Corsican pine or radiata pine, treated H5 CCA (preservative code 01 or 02) to [NZS 3602](#), table 1A, and complying with [NZS 3605](#) for cross-section, length, straightness, strength and branding. All to [NZS 3604](#) for footing and type.

2.2 TIMBER SUB-FLOOR FRAMING

Species, grade, moisture content in service and level of treatment as set out in [NZS 3602](#). Grading to [NZS 3603](#) and treated to [NZS 3602](#), table 1C.

2.3 NAILS

Steel, stainless steel and galvanized steel of pattern to [NZS 3604](#), table 6.6 **Nailing schedule for hand-driven and power-driven nails** and section 4 Durability.

2.4 BOLTS AND SCREWS

Steel, stainless steel and galvanized steel to [NZS 3604](#).

2.5 NAIL PLATES

Stainless steel and galvanized steel toothed or nailed steel plates to the plate manufacturer's design for the particular locations shown on the drawings.

2.6 CORROSION RISKS

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).

2.7 CONCRETE

For piles and footings, 17.5 MPa prescribed mix concrete to [NZS 3104](#), section 3, and cover to reinforcing to [NZS 3604](#), 4.5.1, generally 50mm, against ground 75mm. Provisions for prescribed mix concrete, and [NZS 3604](#), section 6.4.5, Pile footings.

3 EXECUTION

3.1 FOUNDATIONS GENERALLY

Comply with [NZS 3109](#), 3602 and [NZS 3604](#) except as varied by 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 EXCAVATIONS

Refer to 2210 PREPARATION AND GROUNDWORK.

3.3 INSTALL SQUARE TIMBER PILES

Prepare for, place and secure as detailed on the drawings.

3.4 SUB-FLOOR FRAMING

Frame up off foundation walls and piles, all fabricated, fastened and braced to [NZS 3604](#), section 6, **Foundation and subfloor framing**.

4 SELECTIONS

4.1 PILES

Brand/type: Square timber piles

4.2 TIMBER SUB-FLOOR FRAMING

Member	Size	Centres	Species / grade	Treatment
Timber piles:	125 x 125mm square Senton piles	as drawn	Pinus Radiata	H5 CCA (preservative code 01 or 02)
Timber piles	125 x 125mm square Anchor piles	as drawn	Pinus Radiata	H5 CCA (preservative code 01 or 02)

4.3 NAILS

Material < 600mm from ground: Stainless steel

Material > 600mm from ground: Stainless steel

Location: Exterior fixings

4.4 BOLTS AND SCREWS

Material < 600mm from ground: Stainless steel

Material > 600mm from ground: Stainless steel

Location: Exterior fixings

4.5 NAIL PLATES

Brand/type: All exterior plates

Material < 600mm from ground: Stainless steel

Material > 600mm from ground: Stainless steel

Location: Exterior fixings

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 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.	

1.2 QUALIFICATIONS

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

1.3 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](#).

Components

2.3 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.

2.4 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.

2.5 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.

2.6 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.

2.7 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).

2.8 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3 EXECUTION

3.1 EXECUTION GENERALLY

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

3.2 SEPARATION

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

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

3.3 ATTENDANCE

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

3.4 MOISTURE CONTENT

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

Framing at erection:	24% maximum
Framing at enclosure:	20% maximum
Framing at lining:	16% maximum

3.5 SET-OUT

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

3.6 FRAMING 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 JAMB BATTENS

For walls with direct fix cladding, fit 20mm (nominal) jamb battens over the wall underlay, to the jambs of window and door rough openings, to [NZBC E2/AS1](#), fig 72A. Cut around sill flashings. Fix with 60 x 2.8 flat head galvanized nails at 300mm centres.

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 of NZS 3640
Senton Piles	Radiata Pine		H5 of NZS 3640

4.2 EXTERIOR WALL FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Exterior walls:	Radiata pine	SG8	H1.2
Parapets:	Radiata pine	SG8	H1.2
Cantilevered joists exposed decks and balconies:	Radiata pine	SG8	H3.2
Wall battens (not cavity):	Radiata pine	Merch	H1.2
Jamb battens:	Radiata Pine	Merch	H3.1

4.3 ROOF FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Rafters:	Radiata pine	SG8	H1.2
Purlins:	Radiata pine	SG8	H1.2

4.4 INTERIOR FRAMING - RADIATA PINE

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

4.5 NAILS

Location	Type	Material	Finish
All exterior locations	Stainless steel		

4.6 BOLTS AND SCREWS

Location	Type	Material	Finish
All exterior locations	Stainless steel		

4.7 NAIL PLATES

Location	Type	Material	Finish
All stainless applications	Stainless steel		

4.8 CONNECTORS

Location	Type	Material	Finish
All stainless steel	Stainless steel		

4161T THERMAKRAFT UNDERLAYS, FOILS, DPC, DPM, & TAPES

1 GENERAL

This section relates to the application of **Thermakraft Ltd**, DPC, DPM, Wall & Roof Underlays, Foils, Flashing Tapes, 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/AS2	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
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 611](#) - James Hardie Rigid Air Barriers

[BRANZ Appraisal 651](#) - Thermakraft Covertek™ 407 Roof and Wall Underlay

[BRANZ Appraisal 695](#) - Watergate Plus™ Wall Underlay

[BRANZ Appraisal 743](#) - Thermakraft Covertek 405™ Roof and Wall Underlay

[BRANZ Appraisal 878](#) - Thermakraft Aluband™ Window Flashing Tape

[BRANZ Appraisal 912](#) - Thermakraft 220™ Synthetic Wall Underlay

[BRANZ Appraisal 917](#) - Thermakraft Covertek 403™ Roof and Wall Underlay

[BRANZ Appraisal 942](#) - OneSeal™ Multi-Fit Pipe and Cable Penetration Seals

[BRANZ Appraisal 943](#) - Thermakraft Covertek 401™ Roof Underlay

[BRANZ Appraisal 1000](#) - Thermakraft Thermabar 397™ Light Diffusing Reflective Underlay

[BRANZ Appraisal 1029](#) - Thermakraft Ausnet™ Hexagonal Wire Mesh

[BRANZ Appraisal 1104](#) - Thermathene Orange™ Concrete Underlay

[BRANZ Appraisal 1122](#) - Thermaflash™ Flashing Tape

[BRANZ Appraisal 1230](#) - Thermakraft™ 213 Bituminous Roof and Wall Underlay

[Code Mark Certificate 30069](#) - Thermakraft Covertek 403™ Absorbent Breathable Roof Underlay

[Code Mark Certificate 30030](#) - Thermakraft Covertek 405™ Absorbent Breathable Roof Underlay

[Code Mark Certificate 30028](#) - Thermakraft Covertek 407™ Absorbent Breathable Roof Underlay

[Code Mark Certificate 1002](#) - Thermakraft Watergate Plus™ Wall 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 comply with relevant technical literature, NZBC, and recognised industry Codes of Practice. Copy of Thermakraft™ Product Warranty available on request.

Requirements

1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified materials, or associated products, components or accessories.

Compliance information

1.7 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Applicators approval certificate from the manufacturer / importer / distributor
- Manufacturer / supplier warranty
- Installer / applicator warranty
- Producer Statement - Construction from the applicator / installer
- Producer Statement - Construction Review from an acceptable suitably qualified person
- Other information required by the BCA in the Building Consent Approval documents.

Performance - general

1.8 SURFACE FIRE PROPERTIES FOR LININGS

Group Number to [NZBC C/AS2](#), Table 4.3. Refer to SELECTIONS.

Quality control and assurance

1.9 INSPECTIONS

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2 PRODUCTS

Materials

Wall underlays

Wall underlays - synthetic, fire-retardant, air barriers

2.1 COVERTEK 407™ HEAVY DUTY SYNTHETIC WALL UNDERLAY

Covertex 407™, a fire retardant non-woven wall underlay, consisting of two spun-bonded polyolefin fabric layers bonded to a micro porous inner layer, designed for use as a water absorbent, breathable, water resistant wall underlay. A fire-retardant membrane with a flammability index of ≤ 5, when tested to AS 1530.2, to [NZBC C/AS2](#), meets the requirements for suspended fabrics, [BRANZ Appraisal 651](#) and [Code Mark Certificate 30028](#). Can be used in areas exposed to view in occupied spaces.

Roof underlays

Roof underlays - synthetic, fire-retardant, self-supporting

2.2 COVERTEK 407™ HEAVY DUTY SYNTHETIC ROOF UNDERLAY

Covertek 407™, a fire retardant non-woven self-supporting roof underlay, consisting of two spun-bonded polyolefin fabric layers bonded to a micro porous inner layer, designed for use as a water absorbent, breathable, water resistant roof underlay for sloped roofs. A fire retardant membrane with a flammability index of ≤ 5, when tested to AS 1530.2, to NZBC C/AS2, meets the requirements for suspended fabrics, [BRANZ Appraisal 651](#) and [Code Mark Certificate 30028](#). Can be used in areas exposed to view in occupied spaces. Available in 1250mm and 2550mm roll widths.

Window and joinery flashing tape

2.3 THERMAFLASH™ WINDOW FLASHING TAPE

Thermaflash™ is a self-adhesive synthetic flexible window flashing tape, with superior adhesion. can be used with rigid air barrier or rigid wall underlay products. Suitable for use as a flexible flashing around window and door joinery openings, available in widths of 75mm, 150mm and 200mm. On windows, the use of a Thermakraft Corner Mould™, is optional however butterfly strips must be applied. Use in conjunction with air seals and joinery flashing systems around window and door joinery on timber, steel framed and medium rise buildings. Compatible with a wide range of sealants but check compatibility. Maximum exposure 180 days. Refer to [BRANZ Appraisal 1122](#).

Approved for use with the James Hardie™ RAB™ Board system, refer [BRANZ Appraisal 611](#).

2.4 ALUBAND™ BITUMINOUS FLASHING TAPE

Thermakraft Aluband™ window flashing tape consists of synthetic faced reinforced bituminous window sealing tape, in widths of 75mm, 150mm and 200mm. Used to repair damaged bituminous underlays. Bitumen may react to wet sealants, always check compatibility. Thermakraft Corner Moulds must be used. Maximum exposure 42 days. Install from 5°C. Refer to [BRANZ Appraisal 878](#).

Joining tape

2.5 PREMIUM JOINING TAPE™

Thermakraft Premium Joining Tape™, an acrylic, reinforced tape with superior adhesion and tear resistance used to join laps of wall and roof underlays, plywood rigid underlay, OSB board, fibre cement and insulation panels, DPM and vapour control products such as foil underlays. Maximum exposure 180 days, install from -10oC. Compatibility of the substrate with Premium Joining Tape must be checked by the designer or the installer prior to use.

BRANZ Appraised and approved for use with the James Hardie™ RAB™ Board system, refer to [BRANZ Appraisal 611](#). Not to be used as a flashing tape.

2.6 WHITE GENERAL PURPOSE TAPE™

Thermakraft White General Purpose Tape™ is a medium duty acrylic tape is commonly used on synthetic underlays, damp proof and for sealing edges of vapour control layers. Not to be used as a flashing tape. Suitable for joining and sealing underlays, foils and membranes.

Penetration seal

2.7 ONESEAL™ MULTI-FIT SEALS FOR CABLE AND PIPE PENETRATIONS

Thermakraft OneSeal™, multi-fit pipe seals comprise 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. Approved for use with the James Hardie™ RAB™ Board system, refer to [BRANZ Appraisal 611](#).

Accessories

2.8 CORNER MOULD™

Thermakraft Corner Mould™, used in conjunction with Thermakraft Aluband™ and the Thermakraft Hand Tool to ensure good adhesion and a tight fit into corners. Refer to Thermakraft Data Sheet for installation details and [BRANZ Appraisal 878](#).

2.9 THERMASTRAP™ MEDIUM DUTY STUD STRAP

Thermastrap™, 19mm wide blue polythene straps.

2.10 STUDSTRAP™ HEAVY DUTY STUD STRAP

Thermakraft StudStrap™, 25mm wide black polythene strap. Heavy duty, offering greater resistance to splitting.

Vapour barrier

2.11 VAPOUR SHIELD™ VAPOUR BARRIER LAYER

Thermakraft Vapour Shield™, a woven synthetic sarking and moisture vapour barrier, coated both sides with a vapour impermeable film. One side is coated black and the reverse side white. Refer to SELECTIONS for joining tape.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

3.2 ROUTINE MATTERS

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

3.3 PRE-INSTALLATION REQUIREMENTS

Check work previously carried out and confirm it is of the required standard for this part of the work.

3.4 GENERAL REQUIREMENTS

Design application and installation of Thermakraft Building products to [NZBC E2/AS1](#), BRANZ Appraisals, Thermakraft Technical Literature and Industry Codes of Practice.

Application generally

3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Application - wall underlay

3.6 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. Flash all openings and tape all penetrations in accordance with Thermakraft Installation Guides. Keep clean, undamaged and without visible weather deterioration until closed in.

3.7 INSTALL STUD STRAPS

Over underlay, install stud straps horizontally at 300mm centres, draw taut and fix to studs with stainless steel staples.

Application - roof underlay

3.8 ROOF UNDERLAY

Lay vertically over purlins on wire netting with a 150mm side lap. Fix securely to purlins with galvanized fixings. Lay underlay to avoid excessive dishing between purlins. When used vertically, limit individual runs to 10 metres for bituminous underlays. Do not lay vertically on roof pitches under 10° without support.

Horizontally lay across the rafter/trusses starting at the gutter line with succeeding sheets in true alignment and lapping 150mm. Scribe around and fit neatly to all penetrations and avoid prolonged exposure by installing the roof immediately.

Application - Vapour barrier

3.9 VAPOUR SHIELD™ VAPOUR BARRIER LAYER

Lay Thermakraft Vapour Shield™ either side up in a continuous manner with 150mm minimum laps fully taped and sealed. Pull taut before fixing. Fix with 8-12mm stainless steel staples or 20mm flat head galvanized clouts at 300mm centres to timber framing. Fix to steel framing to [NZMRM CoP](#) requirements. Where battens are nailed through the membrane, cover pre-nail battens with sealant. Seal projections and penetrations with sealant or Thermakraft joining tape.

Completion

3.10 COMPLETION MATTERS

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

4 SELECTIONS

For further details on selections go to www.thermakraft.co.nz. Substitutions are not permitted to the following, unless stated otherwise.

Performance

Wall underlays - synthetic, fire-retardant, air barriers

4.1 THERMAKRAFT COVERTEK 407™ WALL UNDERLAY

Location:	As drawn - all External Walls
Type:	Covertex 407™
Roll width:	2550mm
Joining tape:	Thermakraft Premium Joining
Flashing tape:	Thermakraft Aluband
Accessories:	Thermakraft Oneseal penetration tape

Roof underlays - synthetic, fire-retardant, self-supporting

4.2 THERMAKRAFT COVERTEK 407™ ROOF UNDERLAY

Location:	Roofs
Type:	Covertex 407™
Joining tape:	Thermakraft Premium Joining
Flashing tape:	Thermakraft Aluband

Accessories: n/a

Window and joinery flashing tape

4.3 THERMAKRAFT THERMAFLASH™ FLASHING TAPE

Location:	window flashing and seals
Sill/head tape:	150mm Thermakraft Thermaflash™ (for 90mm framing) 200mm Thermakraft Thermaflash™ (for 140mm or 150mm framing)
Sill second layer:	75mm Thermakraft Thermaflash™ (on top of sill over first layer)
Sill corners:	Thermakraft Thermaflash™
Head corners:	75mm Thermakraft Thermaflash™ butterfly corners
Accessories:	n/a

4.4 THERMAKRAFT ALUBAND™ FLASHING TAPE

Location:	windows and doors
Sill/head tape:	150mm Thermakraft Aluband™ (for 90mm framing) 200mm Thermakraft Aluband™ (for 140mm or 150mm framing)
Sill corners:	Thermakraft Corner Mould™
Head corners:	75mm Thermakraft Aluband™ butterfly corners

Penetration seals

4.5 THERMAKRAFT ONESEAL™ PENETRATION SEAL

Location: As Required
Type: Thermakraft OneSeal™

4239JH JAMES HARDIE® SOFFITS

1 GENERAL

This section relates to the supply and fixing of **James Hardie®** products to the underside of exterior soffits, verges and eaves. It includes:

- James Hardie® Eclipsa™ Eaves Lining
- James Hardie® HardieFlex™ Eaves Lining
- James Hardie® HardieGroove™ Soffit Lining
- James Hardie® HardieSoffit™ Lining
- James Hardie® Villaboard™ Soffit Lining

Documents

1.1 DOCUMENTS

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

NZBC E2/AS1	External moisture
AS/NZS 1170.2	Structural design actions - Wind actions
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NASH Standard	Residential and low-rise steel framing Part 1: Design Criteria

1.2 MANUFACTURER/SUPPLIER DOCUMENTS

James Hardie® documents relating to this part of the work:
 James Hardie® Eaves and Soffits Installation Manual
 James Hardie® Fire and Acoustic Design Manual.

Manufacturer/supplier contact details

Company:	James Hardie New Zealand Limited
Web:	www.jameshardie.co.nz
Email:	info@jameshardie.co.nz
Telephone:	0800 808 868

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years: For James Hardie®
 (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

1.4 QUALIFICATIONS

Workers / Installers / applicators 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 specified systems, components and associated products listed in this section.

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 - UP TO AND INCLUDING VERY HIGH WIND ZONE

The design wind speeds/zones are to [NZS 3604](#), up to and including Very High Wind Zone. James Hardie® Eaves and Soffits Installation Manual requirements are suitable for these conditions.

2 PRODUCTS

Materials

2.1 HARDIEFLEX™ EAVES LINING

James Hardie® HardieFlex™ Eaves Lining 4.5mm and 6mm thick cellulose fibre reinforced cement sheet. Manufactured to [AS/NZS 2908.2](#) from Portland cement, ground sand, cellulose fibre and water.

Components

2.2 FASTENER TYPE

Fasteners to minimum durability requirements of the NZBC. Refer to [NZBC E2/AS1](#), Table 20, Material selection for fixing material, and [NZBC E2/AS1](#), Table 21, Compatibility of materials in contact, for selection of suitable fixing materials and their compatibility with other materials.

Exposure	Fixing	Fixing Material	Zone
Sheltered	Nail	Hot-dip galvanized steel	B
Sheltered	Nail	Stainless steel	B, C, D, E
Sheltered	Screw	Stainless steel	B, C, D, E

Check against SED (specific engineering design) requirements for microclimate conditions. Refer to SELECTIONS for fastener type.

Components - HardieFlex™ Eaves Lining

2.3 SOFFIT JOINTERS AND MOULDS

Extruded uPVC jointer, capping and scotia mould.

2.4 HARDIEFLEX™ NAILS

HardieFlex Nail, 40 x 2.8mm stainless steel or galvanized nail, Refer to SELECTIONS.

2.5 INSEAL TAPE

Inseal® 3259, 1.5mm thick x 50mm wide black compressible medium density closed cell foam tape.

2.6 POLYPROPYLENE TAPE

Polypropylene tape, 30mm minimum width.

Components - General

2.7 FLEXIBLE JOINT SEALANT

Refer to SELECTIONS.

3 EXECUTION

Conditions

3.1 STORAGE

Take delivery of products dry and undamaged. Store on site, lay flat on a smooth level surface clear of the ground. Protect materials, finished surfaces, edges and corners from damage, water and moisture.

3.2 HANDLING

Move/handle goods in accordance with James Hardie® requirements. Avoid distortion and contact with potentially damaging surfaces. Do not drag sheets across each other, or across other materials. Protect edges, corner and surface finish from damage. Reject and replace goods that are damaged or will not provide the required finish. Install materials in a dry state.

3.3 SUBSTRATE - TIMBER FRAMING

Do not commence work until the substrate is of the standard required for the specified finish; plumb, level and in true alignment. Moisture content of timber framing must not exceed the requirements specified by [NZS 3602](#) to minimise shrinkage and movement after sheets are fixed.

3.4 COMMENCE WORK

Do not commence work until the roof has been installed.

Application - general

3.5 SHEET LAYOUT

All sheet edges must be fully supported by framing or rebates in fascia and barge boards.

3.6 CUTTING SOFFIT CLADDING

Cut sheets dry using score and snap method, hand guillotine method or fibreshear heavy duty method. If these methods are not feasible, use an alternative manufacturer approved method.

3.7 CIRCULAR HOLE FORMING

Mark the centre of the hole on the sheet, pre-drill a pilot hole. Use the pilot hole as a guide for a hole saw fitted to a heavy duty electric drill.

3.8 IRREGULAR HOLE FORMING

Drill a series of small holes around the perimeter of the proposed hole, tap out the waste piece from the sheet face.

3.9 INSTALL HARDIEFLEX™ EAVES LINING

Install in accordance with James Hardie® installation manual requirements. Refer to SELECTIONS for fixing and jointing methods.

3.10 BUTT JOINT

Paint sheet edges prior to installation.

3.11 CONTROL JOINT

Install control joint to James Hardie® installation manual requirements.

3.12 FASTENER - SIZE AND LAYOUT

Fix sheets to framing using fasteners as nominated in SELECTIONS. Fix to James Hardie® installation manual requirements.

3.13 SEALANTS

Application and use of sealants to manufacturer's instructions. Check with sealant manufacturer prior to coating over sealants.

3.14 PAINTING

Refer to painting section/s for protective coating system.

Completion

3.15 COMPLETE

Ensure the work is complete with all components, accessories, trim, sealant and finishing properly installed so the soffit cladding system is completely weathertight.

3.16 REPLACE

Replace all damaged or marked elements.

3.17 CLEAN

Clean surfaces.

3.18 LEAVE

Leave work to the standard required for following procedures.

3.19 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.

Materials

4.1 HARDIEFLEX™ EAVES LINING

Location:	All soffits
Brand/type:	James Hardie® HardieFlex™ Eaves Lining
Thickness:	4.5mm
Width:	varies
Fixing Method:	Stainless steel HardieFlex Nails
Fixing type:	Stainless steel James Hardieflex Nail, 40 x 2.8mm
Joint detail:	Hardiejointer 5mm for 4.5mm thick sheet

Painting

4.2 PAINTING

Refer to painting section/s for details.

4311RI ROOFING INDUSTRIES PROFILED METAL ROOFING

1 GENERAL

This section relates to the supply and fixing of **Roofing Industries** profiled roofing complete with accessories.

1.1 RELATED WORK

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

1.2 ABBREVIATIONS

The following abbreviations are used throughout this part of the specification:

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
MS	Modified silicone
LBP	Licensed Building Practitioner

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 G12/AS1	Water Supplies
AS/NZS 1170.2:2011	Structural design actions - Wind actions
AS/NZS 1665	Welding of aluminium structures
AS/NZS 1734	Aluminium and aluminium alloys - flat sheet, coiled sheet and plate
AS/NZS 1554.6	Welding stainless steels for structural purposes
ISO/TS 15510	Stainless steels - Chemical composition
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 3566	Self-drilling screws for the building and construction industries
NZS 3604	Timber-framed buildings
ISO 9223	Corrosion of metals and alloys - Corrosivity of atmosphere - Classification determination and estimation
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

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

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
Roofing Industries product literature including:

- Profile Technical Summary
- Selection Guide

Copies of the above literature are available from Roofing Industries product list.

Web: www.roof.co.nz
Email: techinfo@roof.co.nz
Telephone: 0800 844 822

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years	For failure of coating adhesion
15 years	For weatherproofing by material penetration

- Provide this warranty on the Coil Manufacturers/Roofing Industries products standard Warranty Form

- Commence the warranty from the date of practical completion of the contract works

Refer to the general section 1237 WARRANTIES for additional requirements.

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:
5 years for workmanship

- Provide this warranty on the metal roofing installers standard warranty form.
- Commence the warranty from the date of practical completion of the contract works.

NOTE: Include a copy of the Roofing Industries maintenance requirements with the warranty. Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.7 QUALIFICATIONS

Roof Installers shall be experienced, competent roofers familiar with **Roofing Industries** products. And for Restricted Building Work shall also be, an LBP or supervised by an LBP.

Carry out work with experienced, competent installers familiar with the products being used and preferably with appropriate qualifications such as the National Certificate in Metal Roofing and Cladding.

1.8 NO SUBSTITUTIONS

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

Performance - Wind

1.9 DESIGN PARAMETERS - NON SPECIFIC DESIGN

Building wind zone 44m/s/ 1.2 kPa ULS(refer to [NZS 3604](#), table 5.4)
Refer to **Roofing Industries** for "Wind Load Span Design Graphs" for load parameters.

1.10 FIXINGS, WIND

Design and use the fixings/fixing pattern appropriate for the wind design parameters and [NZMRM CoP](#). Refer to **Roofing Industries** Profile Technical Summary for the selected profile. Allow for specific loadings at corners and the periphery of the roof, where localised pressure factors apply. Fixing pattern to also take into account fixing method and purlin spacings.

Performance - General

1.11 PERFORMANCE

Install roofing materials in accordance with the [NZMRM CoP](#), and **Roofing Industries** Profile Technical Summary for the selected profile, to form a weather-tight performance for the completed roofing system, including all penetrations through the roof and junctions with walls and parapets.

1.12 DRINKING WATER

Roofing for collecting potable water to [NZBC G12/AS1](#).

1.13 CO-ORDINATE

Co-ordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof. Ensure that all necessary members are positioned so that flashings can be fastened at both edges through the roof profile or cladding to the primary structure.

2 PRODUCTS

2.1 STEEL - HOT-DIPPED ALUMINIUM/ZINC ALLOY COATED, PRE-FINISHED

Formability steel sheet, G550 for roll forming or G300 for flashings, coated to AS 1397.

2.2 FASTENERS GENERALLY

Fixings and fasteners are to be compatible with all materials, the environment and meeting the requirements of the NZ Building Code. Installation is to be in accordance with E2/AS1 and/or the [NZMRM CoP](#) and Roofing Industries Profile Technical Summary.

For fixing patterns refer to Roofing Industries Profile Technical Summary for the selected profile.

2.3 FIXING SCREWS

To AS 3566. Screws appropriate to the roofing material and the supporting structure, as required by Roofing Industries and with a Class 4 or 5 durability and not less than the material being fixed. Screws into timber to penetrate by minimum 30mm. Screw fasteners to be head stamped identifying the manufacturer and class. Refer to SELECTIONS.

2.4 RIVETS

Sealed aluminium, minimum diameter 4.0mm. Refer to Roofing Industries for requirements.

Components

2.5 FLASHINGS GENERALLY

To E2/AS1, 4.0, **Flashings**.

Formable grade 0.55 BMT for galvanized, aluminium/zinc, aluminium/zinc/magnesium - coated and pre-painted steel, and 0.70 BMT or 0.90 BMT for folded aluminium (or 0.7mm for small folded aluminium flashings) to the same standards as the profiled sheets, notched where across profile or provided with a soft edge.

2.6 FLASHINGS TO VERGE, RIDGE AND HIP

To E2/AS1, 4.0, **Flashings**.

Supplied by the roofing manufacturer to match or to suit the roofing.

2.7 BOOT FLASHINGS

Generally to E2/AS1, 8.4.17 **Roof penetrations** (note; E2/AS1, Figure.54 **Soaker flashing for pipe penetration**, has an error, use as guide only).

EPDM proprietary pipe flashing laid on 45° bias to roofing, with over-flashing (soaker flashing) if required.

A boot flashing should be positioned so that it dams a roofing pan no more than 50%, if this cannot be avoided use an over-flashing back to the ridge and fix the boot flashing to that.

2.8 ALUMINIUM FLASHINGS - WELDED

Aluminium alloy series 5000 temper H34 minimum thickness 1.6mm BMT to [AS/NZS 1734](#).

Aluminium welding to [AS/NZS 1665](#).

2.9 STAINLESS STEEL FLASHINGS - WELDED

Welded stainless steel flashings shall be minimum thickness BMT 1.2mm and grade 304 or 316 stainless steel in accordance with Table 1 of ISO/TS 15510. Welding to [AS/NZS 1554.6](#).

Refer to SELECTIONS for details.

Accessories

2.10 WIRE NETTING AND SAFETY MESH

Refer to 4161 UNDERLAYS, FOIL AND DPC.

2.11 UNDERLAY AND REFLECTIVE FOIL

Refer to 4161 UNDERLAYS, FOIL AND DPC for roof underlays.

2.12 SEALANT

Neutral curing MS sealant or polymer sealant as required by Roofing Industries and used as directed.

3 EXECUTION

Conditions

3.1 INSPECTION

Inspect the roof framing and supporting structure to ensure that it is complete and fully braced ready for roofing and free from any misalignments or protrusions that could damage the roofing.

3.2 FRAMING TIMBER MOISTURE

When continuous metal cladding etc. Runs along a long continuous timber member and is directly fixed to it, the timbers equilibrium moisture content (EMC) to be 18% or less. For flashings in this situation (sometimes called transverse flashings) the framing EMC to be maximum 16%, and preferably as low as 12%. Transverse flashings can be temporarily tacked in place and final fixing done when moisture content is acceptable.

3.3 STORAGE

Upon delivery visually inspect sheets for damage and accept packs of undamaged roofing. Reject all damaged material. Store on a level firm base clear of the ground, with packs well ventilated and completely protected from weather and damage. Do not allow moisture to build up between sheets. If sheet packs become wet, fillet or cross stack to allow air circulation and drying between sheets.

3.4 HANDLING

Do not drag sheets across each other or other materials. Avoid distortion and contact with damaging substances, including cement. Long lengths of roofing should be lifted onto the roof using an approved load spreading beam. Protect edges and surface finishes from damage, keep under cover and remove as the product is being installed. Use soft, flat sole shoes when fixing and for all other work on the roof. Walk along the purlin line whenever possible.

3.5 SEPARATION

Isolate dissimilar materials (metals and non-metals) in close proximity as necessary by painting the surfaces or fitting separator strips of compatible materials. Place isolators between metals and treated timber and cement based materials. Do not use lead sheet or copper in contact with or allow water run-off onto galvanized or aluminium/zinc coated steel.

Application

3.6 WELDING ALUMINIUM FLASHINGS

Welding to be carried out by a welder qualified under [AS/NZS 1665](#). Preparation and welding to comply with [AS/NZS 1665](#). Finish welds smooth and without abrupt surface changes ready for coatings. Refer to SELECTIONS for BMT and coatings.

3.7 WELDING STAINLESS STEEL FLASHINGS

Weld stainless steel flashings to [AS/NZS 1554.6](#). Preparation and welding to comply with [AS/NZS 1554.6](#). Finish welds smooth and without abrupt surface changes ready for coatings. Refer to SELECTIONS for BMT and coatings.

3.8 FIX INSULATION

Refer to Thermal Insulation sections.

3.9 SET-OUT

Carefully set out with consideration of the position of side laps to take account of the prevailing wind and line of sight. Ensure all sheets are square and oversailing the gutter true to line. Check during fixing to eliminate creep or spread and string lines along purlin centres to keep fastenings in line.

3.10 END LAPS

End laps are not permitted, except where specifically detailed.

3.11 THERMAL MOVEMENT

Fix for Thermal Movement to Roofing Industries Profile Technical Summary for Selected Profile.

3.12 FIXING GENERALLY

Install and fix in accordance with the [NZMRM CoP](#) recommendations, and to Roofing Industries required fixing patterns and details for each area of the building roofing. Use only screws as required by Roofing Industries. Paint colour matched fixings and accessories before installation.

3.13 MARKING AND CUTTING

Use ink pen, chalk line or coloured pencil for marking roof sheets prior to cutting. Do not use lead pencil for marking Zinalume®, ZAM®, Colorsteel® and Colorcote®. Cut by shear only, using nibblers or hand snips. Remove all cutting and drilling debris from the roof.

3.14 FIX SHEETS

Fix sheets in place using the fastening system required by Roofing Industries for specified profiles, making due allowance for dynamic local wind pressures on the building and thermal movement in the sheet.

3.15 STOP ENDS AND DOWNTURNS

Form stop-ends at the upper end of sheets. Form downturns at the gutter line where the roof pitch is less than 8 degrees. Form using the required tools.

3.16 INSTALL FLASHINGS

Flash roof to parapets, walls and penetrations to detail. Flashings to be installed on timber framing with a moisture content of less than 20%. Where no detail is provided flash to [NZMRM CoP](#) recommendations and Roofing Industries and [NZBC E2/AS1](#) requirements. Cut accurately and fix using sealant and rivets to detail and to Roofing Industries requirements to form a weatherproof cover. For visible flashings, plan joints/junction to take account of the aesthetic requirements.

3.17 USE OF SEALANTS

Select and use sealants only as recommended by Roofing Industries. Apply sealant in two narrow beads transversely across flashing intersections, close to the two edges. Avoid exposing sealant on outside surfaces.

3.18 FLASHING PENETRATIONS

Flash all penetrations through the roof. Fit pipe flashings with a proprietary collar flashing, with other penetrations flashed as detailed and to provide a weathertight installation. Ensure that flashings are set to avoid any ponding of water.

Completion & Commissioning**3.19 COMPLETION MATTERS**

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

NOTE: Leave this work complete with all necessary flashings, undercloaks, valleys, ridges and hips all properly installed as the work proceeds so the finished roof is completely weathertight.

4 SELECTIONS

For further details on selections go to www.roof.co.nz.

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

4.1 COATING SYSTEM - EXPOSURE ZONE B-C (CAT 1-3)

Project Exposure Zone B-C to [NZS 3604](#), C 1-3 to ISO 9223.

Profile/location:	Trimrib
Base material:	Zincalume on Steel
Coating system:	Endura
Coating colour:	tba

Accessories**4.2 UNDERLAY**

Refer to RELATED section for wall underlay. Use Thermakraft Covertex 407

4.3 FLASHINGS - GENERALLY

Profile:	As Drawn
BMT/material:	To match roofing

Coating system:	To match roofing
Coating colour:	To match roofing

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
WGANZ	Window & Glass Association NZ
PQAS	Powder Coating Quality Assurance System

Documents

1.3 DOCUMENTS

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

NZBC E2/AS1	External moisture
NZBC F4/AS1	Safety from falling
NZBC H1/VM1	Energy efficiency
NZBC H1/AS1	Energy efficiency
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 1580.108.1	Methods of test for paints and related materials - Determination of dry film thickness on metallic substrates - Non destructive methods
AS/NZS 1734	Aluminium and aluminium alloys - flat sheets, coiled sheet and plate
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
NZS 3604	Timber-framed buildings
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications
NZS 4211	Specification for performance of windows
NZS 4223.3	Glazing in buildings - Human impact safety requirements
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
AAMA 2603	Voluntary specification, performance requirements, and test procedures for pigmented organic coatings on aluminium extrusions and panels (with coil coating appendix)
AAMA 2604	Voluntary specification, performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels.
AAMA 2605	Voluntary specification, performance requirements and test procedures for superior performing organic coatings on aluminium extrusions and panels.
BS 3900	Methods of tests for paints, Part C5: Determination of film thickness
BRANZ BU 636	Protecting Glass From Damage

Window & Glass Association NZ (WGANZ) documents:

Window Installation Guide	Guide to Window Installation as described in E2/AS1 Amendment 7
PQAS	Powder Coating Quality Assurance System

SFA 3503-03 Anodic Oxide coatings on wrought aluminium for external architectural application (2005)

US Federal Specification:

TT-S-001543A Sealing compound, silicone rubber base (for caulking, sealing and glazing in buildings and other structures)

TT-S-00230C Sealing compound, elastomeric type, single component (for caulking, sealing and glazing in buildings and other structures)

Warranties

1.4 WARRANTY - MANUFACTURER / SUPPLIER

Provide a material manufacturer/supplier warranty:

5 years: For fabrication

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

1.5 WARRANTY - INSTALLER / APPLICATOR

Provide an installer/applicator warranty:

2 years: For installation

- Provide this warranty in the installer/applicator standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS

Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

1.7 COMPLIANCE

Windows and doors to be manufactured and installed to [NZBC E2/AS1](#).

1.8 CERTIFICATION

Provide evidence of a certificate by a laboratory accredited by International Accreditation of New Zealand that the windows and doors offered comply with the requirements of [NZS 4211](#).

Performance

1.9 PERFORMANCE - WINDOWS AND DOORS

To [NZS 4211](#), including:

- deflection, opening sashes, air infiltration, water penetration, ultimate strength, torsional strength of sashes, marking.

Refer to SELECTIONS.

1.10 PERFORMANCE - STRUCTURAL/WEATHER-TIGHTNESS

The structural and weather-tight performance of the completed joinery, the glazing and infill panels is the responsibility of the window manufacturer.

Performance - Wind (design by contractor)

1.11 WIND - NON SPECIFIC DESIGN

Design the installation to the wind zone parameters of [NZS 3604](#), table 5.4.

Refer to SELECTIONS for wind zone.

Finishes

1.12 CERTIFY COATINGS - POWDER COATING

Certify on request, compliance with this specification and support with control and sampling records.

Test for film thickness to BS 3900, part C5, method No. 4, using method (b) or to AS/NZ 1580.108.1 for certifying thickness and method (a) where any dispute arises as to the thickness provided.

The coating should be applied by an applicator who can certify that the coating has been applied in accordance with the specification.

2 PRODUCTS

Materials

2.1 WINDOWS

Refer to SELECTIONS for type and finish.

2.2 DOORS

Refer to SELECTIONS for type and finish.

2.3 ALUMINIUM EXTRUSIONS

Alloy designation to comply with [AS/NZS 1866](#). Branded and extruded for anodising or powder coating.

2.4 ALUMINIUM SHEET AND STRIP

Complying with [AS/NZS 1734](#) of suitable thickness. Rolled for anodising or powder coating.
Alloy designation: 5251 - H16 or 5005 - H16

2.5 STAINLESS STEEL SHEET AND STRIP

Type: 316 austenitic steel
Finish grade: 2B (satin lustre)

2.6 GLASS

Refer to the glazing section for glass types and installation.

2.7 REVEALS - ALUMINIUM

Aluminium reveals fitted to frame via thermal break.

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.

Materials - overhead glazing

2.9 OVERHEAD GLAZING SYSTEM

Overhead purpose made aluminium glazing bars, other system components, flashings and hardware.

Refer to SELECTIONS.

Components - for direct fix systems

2.10 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.

2.11 SUPPORT ANGLE

WGANZ 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

2.12 GLAZING GASKETS

Thermoplastic rubber. Do not stretch glazing gaskets during installation. Measure and cut gaskets 5-10% over length before installation.

2.13 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.

2.14 SAFETY STAYS

Stainless steel non-releasable restrictors to limit window opening to [NZBC F4/AS1](#), Table 2, Acceptable opening sizes for barriers.

Sealants

2.15 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.

2.16 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.

2.17 FOAM TAPE

Foam tape to [NZBC E2/AS1](#), 9.1.10.7 **Closed cell foam tape**.

Finishes

2.18 POWDER COATED ALUMINIUM - HIGH DURABILITY FLUOROPOLYMER

Very high-performance PVF2 fluoropolymer powder coating in accordance with WGANZ [PQAS](#) and AAMA 2605.

3 EXECUTION

Conditions - generally

3.1 DO NOT DELIVER

Do not deliver to site any elements which cannot be unloaded immediately into suitable conditions of storage.

3.2 UNLOAD WINDOW JOINERY

Unload, handle and store elements in accordance with the window manufacturer's requirements.

3.3 AVOID DISTORTION

Avoid distortion of elements during transit, storage and handling.

3.4 PREVENT DAMAGE

Prevent prefinished surfaces rubbing together, and contact with mud, plaster and cement. Keep paper and cardboard wrappings dry.

3.5 PROPRIETARY ELEMENTS

Fix in accordance with the window manufacturer's requirements.

3.6 PROTECTIVE COVERINGS

Retain protective coverings and coatings to BRANZ BU 636 and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades. Remove protection on completion.

3.7 ADDITIONAL PROTECTION

Supply and fix additional protection as necessary to prevent marking of surfaces which will be visible on completed work.

Conditions - fixings and fastenings

3.8 SUPPLY OF FIXINGS

Use only fixings and fastenings recommended by the manufacturer of the component being fixed and to comply with the ULS wind pressure stated in SELECTIONS. Ensure fixings and fastenings exposed to the weather are of aluminium, or Type 316 stainless steel or if not exposed to the weather may they be hot-dip galvanized steel with a coating weight of 610 g/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 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 scriber width at each end.

3.19 COMPLETE AIR SEAL

To [NZBC E2/AS1:9.1.6](#) Air seals. Form an air-tight seal by means of a proprietary expanding foam or sealants used with backing rods, applied between the window / door reveal and structural framing to a depth of 10 - 20mm, to provide a continuous air tight seal to the perimeter of the window or door.

3.20 FIX HARDWARE

Fix all sash and door hardware and furniture as scheduled.

Installation - overhead glazing system**3.21 INSTALL OVERHEAD GLAZING SYSTEM**

Check that the trimmed openings are formed and constructed to suit the required units. Do not proceed until roof and structural openings are properly formed. Install and fix the overhead glazing system strictly in accordance with the roof window manufacturer's requirements and drawings.

Install flashings and overflashings as detailed and as required to make the installation completely weatherproof.

3.22 INSTALL OVERHEAD GLAZING SYSTEM HARDWARE

Install selected accessories and hardware. Install and complete all operating systems.

Application - jointing and sealing**3.23 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.

3.24 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.

3.25 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.

3.26 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**3.27 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.

3.28 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**3.29 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.

3.30 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.

3.31 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.

3.32 REMOVE

At the appropriate stage of the project, remove safety indicators and protective coverings and wipe down all joinery thoroughly.

3.33 REPLACE

Replace damaged, cracked or marked elements.

4 SELECTIONS

Performance

4.1 THERMAL PERFORMANCE

R-value: R0.26 (as determined from [NZBC H1/VM1](#) or H1/AS1)

4.2 AIR INFILTRATION

For [NZS 4211](#), table 3 **Air infiltration**.

Non-air conditioned Entire house zones:

Air conditioned zones: None

Performance - Wind (design by contractor)

4.3 WIND - NON SPECIFIC DESIGN

Building wind zone High (refer to [NZS 3604](#), table 5.4)

Window and door system

4.4 ALUMINIUM WINDOWS

Manufacturer: tba

Type / location: tba

4.5 ALUMINIUM DOORS

Manufacturer: tba

Type / location: tba

Finishes - Powder Coating

4.6 POWDER COATED ALUMINIUM - HIGH-DURABILITY FLUOROPOLYMER

Type: PVF2 fluoropolymer powder coating

System integrity: Minimum 20 years film integrity, 20 years colour integrity

Thickness: Average of 90 microns with a minimum of 50 microns

Colour: tba

Finish: tba

4.7 FLASHINGS

Material/type: 0.70 Aluminium

Pattern: Formed to suit details provided

4.8 WEATHERING SEALANT

Brand/type: 1-part polyurethane moisture curing, elastic joint sealant

Colour: tba

4554VS VELUX OPENING & FIXED SKYLIGHTS

1 GENERAL

This section relates to the manufacture, supply, and installation of VELUX opening and fixed skylights and roof windows:

It includes;

- operating systems
- accessories
- proprietary flashings

Documents

1.1 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 H1/AS1-AS2	Energy efficiency
NZBC H1/VM1-VM2	Energy efficiency
AS/NZS 2208	Safety glazing materials in buildings
NZS 3604	Timber-framed buildings
NZS 4223.4	Code of practice for glazing in buildings - Wind, dead, snow and live actions
BS EN 673	Glass in building - Determination of thermal transmittance (U-value) - Calculation method
ISO 10077-1	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - General
ISO 10077-2	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Numerical method for frames

1.2 MANUFACTURER/SUPPLIER DOCUMENTS

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

Current Sales Brochure and product datasheets
 Installation instructions for GGU Roof Window and Flashing
 Installation instructions for VS/VSE/VSS Skylight
 Installation instructions for FS Skylight
 Installation instructions for VCM curb mounted Skylight
 Installation instructions for VCS curb mounted Skylight
 Installation instructions for FCM curb mounted Skylight
 Installation instructions for EDW flashing
 Installation instructions for EDL flashing
 Installation instructions for EKW flashing
 Custom flashing guide (over 15° pitch)
[BRANZ Appraisal 968 - Velux Skylights](#)
[BRANZ Appraisal 969 - Velux Roof Windows](#)
[BRANZ CodeMark Certificate CM 1008 - Velux Skylights and flashings Revision Date: 15 May 2023](#)
[BRANZ CodeMark Certificate CM 1009 - Velux Roof Windows and flashings Revision Date: 15 May 2023](#)

Manufacturer/supplier contact details

Company: **VELUX New Zealand Limited**
 Web: www.velux.co.nz
 Email: info@velux.co.nz
 Telephone: 0800 650 445

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years: For VELUX Skylights, Roof Windows, insulated glazing units and flashings

1 year: For VELUX accessories (motorised units, controls, rods, blinds, insect screens)

- 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

1.4 QUALIFICATIONS

Installers to be 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 specified VELUX systems, components and associated products listed in this section.

Performance

1.6 PERFORMANCE - THERMAL, SKYLIGHTS

Thermal performance of skylights to [NZBC H1/AS1-AS2](#) & [NZBC H1/VM1-VM2](#). The construction R-value of skylight to be determined by Appendix E, E2 Skylights:

- Determine the thermal transmittance of skylights in accordance with ISO 10077-1.
- Determine the thermal transmittance of framing in accordance with ISO 10077-2.
- Determine the thermal transmittance of glazing using BS EN 673, considering the effects of horizontal or angled glazing on the heat transfer.

Refer to SELECTIONS for Construction R-values.

1.7 PERFORMANCE, WIND, DEAD, SNOW, AND LIVE ACTIONS

The design wind pressures and snow loads to [NZS 3604](#). Live loads and glazing design, for glass or equivalent plastics, to [NZS 4223.4](#).

2 PRODUCTS

Skylights

2.1 LOW PITCH SKYLIGHTS

VELUX Low Pitch Skylights; to BRANZ CodeMark CM 1008, either top hinged with INTEGRA motorised control solar opening VCS, or manual opening VCM, or fixed FCM skylight.

For roof pitches between 0° to 15° (and can be installed in roofs up to 60° pitch).

Manufactured from white uPVC internal frame and sash with extruded gaskets. External cappings manufactured from aluminium profile with PVDF coating in grey finish. Refer to SELECTIONS for type, finish and accessories.

Components

2.2 FIXINGS

VELUX proprietary fixings and brackets compatible with the skylight/roof window.

2.3 GLAZING - ALL SKYLIGHTS

VELUX proprietary insulated double-glazing unit, factory fitted. Unit comprises an inner pane of laminated glass, and outer pane of toughened safety glass with NEAT™ photo-catalytic coating to exterior face. Inside face of outer pane coated with Low-E³ coating. Cavity filled with Argon gas.

2.4 GLAZING - ROOF WINDOWS

VELUX proprietary insulated double-glazing unit, factory fitted. Unit comprises an inner pane of laminated glass, and outer pane of toughened safety glass with NEAT™ photo-catalytic coating to exterior face. Inside face of outer pane coated with Low-E³ coating. Cavity filled with Argon gas.

2.5 HARDWARE

Fasteners, stays, locks, vents and other hardware as supplied with the unit.

2.6 FLASHINGS FOR MODELS FCM/VCM/VCS

For flat / low roof pitches between 0° to 15° (and up to 60°).

Custom flashings are required in accordance with [NZBC E2/AS1](#). Refer to section 4821 FLASHINGS for details.

2.7 FLASHINGS FOR MEMBRANE AND METAL TROUGH SECTION ROOFS

Custom flashings in accordance with [NZBC E2/AS1](#) are required when skylights or roof windows are installed in membrane or concealed fixed metal roofing, Refer to section 4821 FLASHINGS for details.

Finishes

2.8 FINISH

VELUX proprietary finishes.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE AND HANDLING

Avoid distortion of elements during transit, handling and storage. Deliver in original containers, dry, undamaged with seals and labels intact. Prevent pre-finished surfaces from rubbing together.

Prevent contact with mud, plaster and cement. Do not deliver to site any elements which cannot be immediately unloaded into suitable conditions of storage.

3.2 PRE-INSTALLATION REQUIREMENTS

Site measure during roof framing stage to ensure the VELUX proprietary Skylight / Roof Window and flashings can be installed correctly and in accordance with the installation instructions. Where a unit is installed adjacent to another unit confirm the set out distance between units in accordance with the installation instructions.

Refer to VELUX at www.velux.co.nz for installation details.

3.3 EXECUTION GENERALLY

Check that the preparation of the opening is to [NZBC E2/AS1](#), 8.4.17, Roof penetrations.

3.4 HARDWARE GENERALLY

Factory fit all required and scheduled hardware.

3.5 RETAIN PROTECTIVE COVERINGS

Retain protective coverings and coatings in place during fixing wherever possible. Provide additional protection to prevent marking of surfaces visible in the completed work. Remove protection on completion.

Installation

3.6 GENERALLY

Check that the trimmed openings are formed and constructed to suit the required units. Do not proceed until roof and structural openings are properly formed.

3.7 INSTALL UNITS

Install and fix the Skylight or Roof Window strictly in accordance with the manufacturer's installation instructions, CodeMark BRANZ CM 1008 and Technical Manual - Velux Skylights and CodeMark BRANZ CM 1009 and Technical Manual - Velux Roof Windows.

Repack any thermal insulation around rough openings where disturbed by the installation to maintain continuity of thermal barriers.

When using VELUX flashings (EDW, EDL, EKW) with VELUX Skylights and Roof Windows, install as detailed by VELUX to make the installation completely weatherproof. Refer to VELUX at www.velux.co.nz for installation instructions.

If using custom flashings, ensure curb/upstand height and flashing meet [NZBC E2/AS1](#) upstand height and flashing requirements. Contact VELUX for additional information.

3.8 ACCESSORIES AND OPERATING SYSTEMS

Install selected VELUX accessories and hardware and complete all operating systems.

Completion

3.9 CLEAN FRAMES AND GLAZING

On completion clean down both sides of unit frames, using the methods required by the manufacturer. Remove any manufacturer's stickers and clean glass. Ensure all installed units are adequately protected from damage and adverse weather during construction.

3.10 CONFIRM

Confirm the proper operation of hardware and operating systems on completion of the installation and again at completion of the contract works.

4 SELECTIONS

For further details on selections go to www.velux.co.nz

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

Performance

4.1 THERMAL PERFORMANCE - SKYLIGHTS

Skylight Number:	Construction R-value:
Entry	n/a (external)
FFL	RO 46

Low pitch skylights

4.2 VELUX FCM LOW PITCH SKYLIGHT - FIXED

Location:	Upper Roof
Brand:	VELUX
Model:	FCM Low Pitch Fixed
Type/size:	2234 692mm x 997mm
Glazing:	VELUX proprietary insulated double-glazing unit, pre-installed. Comprises an inner pane of laminated glass, and an outer pane of toughened safety glass which has a self-cleaning NEAT™ coating to the exterior face, and a Low-E ³ coating to the interior face. Cavity filled with Argon gas.
Colour:	tba
Roof type/pitch:	Metal Trough Section,
Flashing:	Custom flashing
Accessories:	n/a
R-value:	R0.46

Components

4.3 CUSTOM FLASHINGS

Type:	Custom flashings to meet the requirements of NZBC E2/AS1 . Refer to Section 4821 FLASHINGS for details. Contact VELUX for additional trim-out information.
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4610 GLAZING RESIDENTIAL

1 GENERAL

This section relates to the supply and fixing of glass products for external and internal joinery in residential type buildings and includes:

- windows and doors
- frameless shower and bath screens
- splashbacks, wall linings
- balustrade systems, pool fences
- mirrors and mirror frames

1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

PVB	Polyvinyl Butyral
CIP	Cast in place

Documents

1.2 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
NZS 3604	Timber-framed buildings
NZS 4211	Specification for performance of windows
NZS 4218	Thermal insulation - Housing and Small Buildings
NZS 4223.1	Glazing in buildings - Glass selection and glazing
NZS 4223.Supp1	Glazing in buildings - Supplement 1 to NZS 4223.1:2008 and NZS 4223.4:2008
NZS 4223.2	Glazing in buildings - Insulating glass units
NZS 4223.3	Glazing in buildings - Human impact safety requirements
NZS 4223.4	Glazing in buildings - Wind, dead, snow and live action
AS/NZS 2208	Safety glazing materials in buildings
AS/NZS 4666	Insulating glass units
BRANZ BU 636	Protecting Glass From Damage

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER

Warrant glass under normal environmental and use conditions against failure of materials.

10 years:	for insulating glass units
10 years:	for laminated glass
10 years:	for toughened glass

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

Performance

1.4 ENERGY EFFICIENCY

Provide glazing to meet the energy requirements of [NZS 4218](#) and [NZBC H1/AS1](#) for housing small buildings.

Refer to SELECTIONS and schedules for location and type of glazing.

2 PRODUCTS

Materials

2.1 CLEAR FLOAT GLASS

Clear ordinary annealed transparent float glass for general window glazing. Thickness to [NZS 4223.1](#) and [NZS 4223](#). Supp 1.

2.2 INSULATING GLASS UNITS (IGU'S)

To [AS/NZS 4666](#), [NZS 4223.2](#) and the IGU Manufacturers Association (IGUMA) requirements. Marking to [NZS 4223.2](#) as modified by [NZBC B2/AS1](#), 3.5.

Refer to SELECTIONS for specified surfaces of the IGU.

Surface numbering order for glass panes in an IGU are #1, #2, #3, and #4 as follows:

- Surface #1 - outer face of exterior pane
- Surface #2 - cavity face of the exterior pane
- Surface #3 - cavity face of the interior pane
- Surface #4 - outer face of the interior pane

Components, aluminium and uPVC glazing

2.3 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.

2.4 SETTING BLOCKS

Santoprene/Neoprene, 80-90 Shore A hardness, set at quarter points or to detail, to support the weight of glass panes.

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To [NZS 4223.1](#), [NZS 4223.3](#), [NZS 4223.4](#). All external glazing to be wind and watertight on completion.

3.2 DELIVERY

Keep glass dry and clean during delivery and bring on to site when ready to glaze directly into place. Comply also with the storage requirements set out in BRANZ BU 636.

3.3 GLASS CONDITION

All glass to have undamaged edges and surfaces.

3.4 GLASS THICKNESS

If not specifically stated in the glazing schedule determine the minimum thickness of glass for each sheet as required by [NZS 4223.1](#), [NZS 4223.3](#), [NZS 4223.4](#) and [NZS 4223](#). Supp 1. For windows tested to [NZS 4211](#), ensure glass meets the requirements of the window testing.

Determine the final glass thickness based on whether wind loading or human impact considerations govern.

3.5 REBATE DIMENSIONS

Provide rebates for glazing to the widths and depths necessary for each situation including minimum glass edge cover to [NZS 4223.1](#), Section 4 Glazing.

3.6 JOINTING, PUTTY AND SEALING MATERIAL COMPATIBILITY

Ensure jointing, putty and sealing materials are compatible with glass substrates. Confirm compatibility with laminated glass, IGUs and coatings.

Conditions - human impact safety requirements

3.7 SAFETY GLAZING, GENERAL REQUIREMENTS

Glazing of doors, side panels, low level and window seat glazing, bathrooms, stairwell landings and similar locations, to [NZS 4223.3](#) for thickness and maximum areas of safety glass.

3.8 SAFETY GLAZING MATERIAL

Use only safety glazing materials defined in [NZS 4223.3](#), that also comply with the relevant requirements of [AS/NZS 2208](#). Ensure material is permanently marked and if cut by the distributor or installer mark each piece to [NZS 4223.3](#), 2.8 Identification.

3.9 CONTAINMENT

Edge cover to comply with [NZS 4223.1](#), Section 4 Glazing, table 5. Otherwise to [NZS 4223.3](#), 2.3 Edge cover.

Assembly**3.10 WORKING OF GLASS**

All working of glass as required in [NZS 4223.1](#).

3.11 EDGE WORK AND BEVELLING

Edgework other than a clean cut. Refer to SELECTIONS/drawings for type.

3.12 SURFACE TREATMENT

Refer to SELECTIONS/drawings for finish.

3.13 SURFACE CUTTING

Refer to SELECTIONS/drawings for finish.

3.14 INSTALL SAFETY GLASS

To [NZS 4223.3](#).

Application aluminium**3.15 INSTALL GLASS TO ALUMINIUM FRAMES**

Install glass to [NZS4223.1](#).

- Bead glaze to Section 4 Glazing.
- Channel glaze to Section 4 Glazing, and Section 5 for Framed, Unframed, Partly Framed Glass Assemblies.

Finishing**3.16 SAFETY**

Indicate the presence of transparent glass for the remainder of the construction period, with whiting, tape or signs compatible with the glass type.

Completion**3.17 TRADE CLEAN**

Clean off or remove safety indicators at completion of the building.

3.18 REPLACE

Replace damaged, cracked or marked glass.

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**Performance - wind****4.1 WIND ZONE - NON-SPECIFIC DESIGN**

Building wind zone: High (as determined from [NZS 3604](#), [NZS 4223.4](#))

Glass by type

4.2 INSULATING GLASS UNITS (IGU'S)

Location:	All external windows
Brand/type:	tba
Outer glass type:	tba
Coated surface:	tba

4710P PINK® BATTS® & PINK® BATTS® SILENCER® INSULATION

1 GENERAL

This section relates to Tasman Insulation **Pink® Batts®** insulation materials installed into residential buildings.

It includes:

Thermal:

- **Pink® Batts® Ceiling Insulation (Pink® Batts® Classic and Pink® Batts® Ultra®)**
- **Pink® Batts® Skillion Roof Insulation**
- **Pink® Batts® Wall Insulation (Pink® Batts® Classic and Pink® Batts® Ultra®)**
- **Pink® Batts® Masonry Wall Insulation**
- **Pink® Batts® 140mm Wall Insulation**
- **Pink® Batts® Steel Wall Insulation**
- **Pink® Batts® Narrow Wall Insulation**
- **Pink® Batts® SnugFloor® Underfloor Insulation**

Acoustic:

- **Pink® Batts® Silencer®**
- **Pink® Batts® Silencer® Midfloor**

Documents

1.1 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 H1/AS1	Energy efficiency
NZS/AS 1530.1	Methods for fire tests on building materials, components and structures - Combustibility test for materials
AS/NZS 3000	Electrical installations
NZS 4218	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
AS/NZS 60598.2.2:2001	Luminaires- Particular Requirements - Recessed luminaires
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance

1.2 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this section are:

Tasman Insulation New Zealand: Product Data Sheets and Installation Instructions

[BRANZ Appraisal 238](#) - Pink® Batts® Insulation

[BRANZ Appraisal 632](#) - Pink® Batts® SnugFloor® Underfloor Insulation

[BRANZ Appraisal 767](#) - Pink® Batts® Skillion Roof Insulation

Manufacturer/supplier contact details

Company: **Tasman Insulation New Zealand**

Web: www.pinkbatts.co.nz

Telephone: 0800 746 522

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

Lifetime Warranty	For Pink® Batts® insulation products
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- Commence the warranty from the date of practical completion of the contract works.
- Provide this Warranty on the **Pink® Batts® Lifetime Warranty Certificate** form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.4 QUALIFICATIONS, PINK® BATTS®

Installers to be **PinkFit® - Preferred Pink® Batts® installers**. A list of approved installers can be obtained from the web, by telephone or from the local building supplies merchant.

Web: www.pinkbatts.co.nz

Telephone: Freephone 0800 746 534

1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Tasman Insulation **Pink® Batts®** insulation or associated products, components or accessories.

Performance - combustibility

1.6 FIRE PREVENTION

Pink® Batts® insulation materials are considered a non-combustible material to NZS/AS 1530.1 and need not be separated from heat sources such as fire places, heating appliances, flues and chimneys to **NZBC C/AS1** to C/AS6, except if used in conjunction with, or attached to other heat sensitive materials.

2 PRODUCTS

Materials - thermal

2.1 PINK® BATTS® WALL INSULATION

Pink® Batts® Wall Insulation (Pink® Batts® Classic and Pink® Batts® Ultra®) is a light weight flexible bio-soluble glass wool manufactured from up to 80% recycled glass, bonded with a thermosetting resin to form rectangular slabs. Refer to SELECTIONS for R values and thickness options.

2.2 PINK® BATTS® SNUGFLOOR® UNDERFLOOR INSULATION

Pink® Batts® SnugFloor® Underfloor Insulation is a bio-soluble glass wool underfloor product manufactured from up to 80% recycled glass, bonded with a thermosetting resin to form rectangular slabs. Refer to SELECTIONS for R values and thickness options.

NOTE: When insulation abutting or covering recessed downlights is intended to be in contact with IC, CA 80, CA 135 luminaries the insulation must withstand a 30s Needle Flame test to **AS/NZS 60695.11.5**. Pink® Batts® insulation meets this requirement.

2.3 PINK® BATTS® SKILLION ROOF INSULATION

Pink® Batts® Skillion Roof Insulation is bio-soluble glass wool manufactured from up to 80% recycled glass, bonded with a thermosetting resin to form rectangular slabs. Refer to SELECTIONS for R-values and thickness options.

NOTE: When insulation abutting or covering recessed downlights is intended to be in contact with IC, CA 80, CA 135 luminaries the insulation must withstand a 30s Needle Flame test to **AS/NZS 60695.11.5**. Pink® Batts® insulation meets this requirement.

Components

2.4 FASTENERS

Insul anchors complete with retaining washer.

2.5 PLASTIC STRAPPING TAPES

Proprietary plastic strapping tape, stapled over framing to retain insulation in unlined wall, ceiling and underfloor locations.

For drained cavities where stud spaces are greater than 450mm and only flexible underlay is used, strapping required to **NZBC E2/AS1 9.1.8.5 Wall framing behind cavities**.

2.6 ADHESIVE TAPE

Pressure sensitive adhesive tape.

3 EXECUTION

3.1 STORAGE

Accept materials undamaged and dry and store in a location that protects them from the weather and damage. Avoid distortion, stretching, compression, puncturing and damage to edges of materials. Do not use damaged or wet insulation materials.

3.2 HANDLING

Wear protective clothing as necessary and when handling, avoid delamination or distortion of the rectangular form. Maintain full thickness unless compression is an installation system requirement.

3.3 INSPECTION

Before starting installation of blankets and slabs, check that the location and framing are free from moisture, that the cavities are not interconnected and that mesh, wall underlays and vapour barriers are in place.

Application - general

3.4 INSTALL INSULATION - GENERAL

Lay, install, fit and fix to [NZBC H1/AS1](#): Energy efficiency, 2.0 Building thermal envelope, and to manufacturer's requirements. Install in housing to [NZS 4218](#) and [NZS 4246](#). Install in large buildings to [NZS 4243.1](#) and [NZS 4220](#). Allow insulation to re-loft/relax prior to installation. Do not cover vents. Confirm with fireplace manufacturer for clearances; **Pink® Batts®** insulation need not be separated except if used in conjunction with, or attached to other heat sensitive materials. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

3.5 RECESSED LIGHT FITTINGS - CLEARANCE

Non-residential applications;

The clearance between insulation and recessed downlights

- 100mm gap to [AS/NZS 3000](#), figure 4.9.
- Provide larger clearances where required by the light manufacturer.

Residential applications;

- Ensure new recessed downlights are one of the new classes classified in [AS/NZS 60598.2.2](#); CA 80, CA 135, IC and IC - F
- Classification type CA 80, CA 135, to [AS/NZS 60598.2.2](#); insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to [AS/NZS 60598.2.2](#); insulation can abut and cover over the top of the downlight
- Provide larger clearance where required by the light manufacturer.
- In a retrofit situation where recessed downlights are unclassified or unknown, ensure 100mm clearance from the insulation to [AS/NZS 3000](#), figure 4.9.

Application, thermal insulation

3.6 INSTALL PINK® BATTS® WALL INSULATION

Ensure the product is installed dry; if wet replace before installation. If cutting is required, cut oversize by 5-10mm to ensure a friction fit. Fill gaps around windows and doors with off-cuts. Insulate around vents (not over them) to allow unhindered ventilation.

Fit **Pink® Batts® Wall Insulation** behind electrical wiring and plumbing. Ensure there are no gaps, folds or undesirable compression at edges.

Refer to [NZS 4246](#) for installation guidelines and Pink® Batts® installation instructions for detailed information.

3.7 INSTALL PINK® BATTS® SNUGFLOOR™ UNDERFLOOR INSULATION

Install **Pink® Batts® SnugFloor®**

in dry protected environment. Label location of wires, pipes and cables for future reference. Pieces must be 30mm wider than the distance between joist faces. Friction fit each piece between the joists, leave no gaps. Fold on one side.

Do not cover over wiring with insulation. Cut neatly around penetrations. Secure each piece with Danband or equivalent strapping (no less than 2 per piece).

Pieces must be butted together leaving no gaps. Ensure strapping is wide enough for staples/clouts (strapping may be cut for each piece or continuous). Use two staples for each fixing point. Fold must not extend below bottom joist, trim if required. Refer to [NZS 4246](#) for installation instructions.

3.8 FIT PINK® BATTS® SKILLION ROOF INSULATION

Ensure that the product is installed dry; if wet replace before installation. If cutting is required, cut oversize by 5mm-10mm to ensure a friction fit.

Completion

3.9 CLEAN UP

Clean up as the work proceeds, so no spare offcuts or any other matter or item remain behind claddings or linings.

3.10 LEAVE

Leave work to the standard required by following procedures.

3.11 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

For further details on selections go to www.pinkbatts.co.nz. Substitutions are not permitted to the following, unless stated otherwise.

Thermal insulation

4.1 PINK® BATTS® CLASSIC WALL INSULATION

Location:	Walls
Brand:	Pink® Batts® Classic Wall
R-value:	R2.4
Thickness:	90mm

4.2 PINK® BATTS® SNUGFLOOR™ UNDERFLOOR INSULATION

Location:	Floors
Brand:	Pink® Batts® SnugFloor®
R-value:	R2.6
Thickness:	70mm

4.3 PINK® BATTS® SKILLION ROOF INSULATION

Location:	Ceiling
Brand:	Pink® Batts® Skillion Roof
R value:	R3.6
Thickness:	115mm

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 (September 2018)
- GIB® Noise Control Systems (September 2017)
- GIB® Fire Rated Systems (October 2018)
- GIB Aqualine® Wet Area Systems (March 2007)
- GIB Toughline® Aqua (July 2018)
- GIB® Ezybrace® Systems (2016)
- GIB Ezybrace® Bracing Software (2016)
- GIB Ezybrace® Systems (June 2011), with amendments (December 2014)
- GIB Ezybrace® for Steel Frame Housing (NASH) Software (2011)
- GIBFix® Framing System (2016)
- GIB® Rondo® Metal Ceiling Batten Systems
- GIB-Cove®
- GIB® RocTape®
- GIB® Goldline™ Platinum Tape-on Trims (January 2006)
- GIB® UltraFlex® high impact corner mould (September 2004)
- GIB® Tough Systems (Nov 2014)

[BRANZ Appraisal 928](#) (2016) - GIB Ezybrace® Systems 2016

[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 Fyreline®(10mm, 13mm, 16mm &19mm)
- GIB Braceline® (10mm & 13mm)
- GIB® Noiseline® (10mm & 13mm)
- GIB Toughline® (13mm)
- GIB Wideline® (10mm & 13mm)

Copies of the above literature 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 Fyreline® fire resistant plasterboard

GIB Braceline® & GIB® Noiseline® dual purpose wall bracing & noise control plasterboard

GIB Aqualine® wet area plasterboard

GIB Toughline®

GIB Toughline® Aqua

Components**2.2 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.

2.3 TAPE ON TRIMS AND EDGES

GIB® Goldline™ tape-on trims
 GIB® UltraFlex® high impact corner mould
 GIB® Levelline® Tape on Trim

2.4 METAL ANGLE TRIMS

GIB® galvanized steel slim angle trims.

2.5 CONTROL JOINTS

GIB® Rondo® P35 control joints.
 GIB® Goldline™ tape-on trims
 GIB® plastic smooth control joints.
 GIB® plastic W-profile control joints.

Accessories

2.6 ADHESIVE

Timber frame and/or steel frame:
 GIBFix® One ultra low VOC water based wallboard adhesive
 GIBFix® All-Bond solvent based wallboard adhesive

2.7 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

2.8 JOINTING TAPE

GIB® jointing tape.

2.9 GAP FILLER

GIB® Gap Filler ultra low VOC multi-purpose acrylic flexible filler

3 EXECUTION

Conditions

3.1 STORAGE

Store GIB® plasterboard sheets and accessories in dry conditions stored indoors out of direct sunlight in neat flat stacks on either an impervious plastic sheet or clear of the floor with no sagging and avoiding damage to ends, edges and surfaces. Reject damaged material. Refer to GIB® Site Guide (September 2018).

3.2 LEVELS OF PLASTERBOARD FINISH

Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in [AS/NZS 2589](#).

3.3 CONFIRM LEVELS OF PLASTERBOARD FINISH ACCEPTANCE

Before commencing work, agree in writing upon the surface finish assessment procedure towards ensuring that the quality of finish expectations are reasonable and are subsequently obtained and acceptable.

Do not apply decorative treatment until it is agreed in writing by the contractor, subcontractors and decorator that the specified plasterboard Level of Finish has been achieved.

"Levels of plasterboard finish" is a tool for specifying the required quality of finish when installing and flush stopping GIB® plasterboard **prior** to the application of a range of decorative finishes under various lighting conditions. Refer to **AS/NZS 2589**.

3.4 SUBSTRATE

Do not commence work until the substrate is plumb, level and to the standard required by the sheet manufacturer's requirements. Refer to GIB® Site Guide (September 2018).

3.5 TIMBER FRAME MOISTURE CONTENT

Maximum allowable moisture content to [AS/NZS 2589](#) for timber framing at lining: 18% or less for plasterboard linings. Refer to [NZBC E2/AS1](#) and GIB® Site Guide (Sept 2018).

3.6 PROTECTION

Protect surfaces; cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage. Refer to GIB® Site Guide (Sept 2018).

Application

3.7 LINING WALLS AND CEILINGS GENERALLY

Form to GIB® Site Guide (September 2018). Ensure bulk insulation thickness shall not exceed that of the wall framing.

3.8 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.

3.9 FORM BRACING SYSTEMS

Form bracing systems to:

- GIB Ezybrace® Systems (2016)
- GIB Ezybrace® Systems (2011)

3.10 FORM CONTROL JOINTS

Form control joints to GIB® Site Guide (September 2018) requirements.

3.11 INSTALL TAPE-ON TRIMS

Install to GIB® Goldline™ Tape-on trims literature and/or GIB® Ultraflex high impact corner mould literature.

Finishing

3.12 FINISHING GENERALLY

To GIB® Site Guide (September 2018) and [AS/NZS 2589](#).

Completion

3.13 REPLACE

Replace damaged sheets or elements.

3.14 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.

3.15 REMOVE

Remove debris, unused materials and elements from the site.

3.16 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
All wall linings	GIB® Standard plasterboard	10mm	

4.2 GIB® STANDARD SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
All ceilings	GIB® Standard plasterboard	13mm	

4.3 GIB® BRACING SYSTEMS

Refer to:

- GIB Ezybrace® Systems (2016)
- GIB Ezybrace® Systems (2011)

For bracing element location refer to drawn documentation.

5230 INTERIOR DOORS

1 GENERAL

This section relates to the supply and installation of interior doors.

1.1 RELATED SECTIONS

Refer to glazing section/s for glass type and thickness.

1.2 DOCUMENTS

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

NZS 3602	Timber and wood-based products for use in building
NZS 3610	Specification form profiles of mouldings and joinery

Requirements

2 PRODUCTS

2.1 TIMBER

To [NZS 3602](#).

2.2 PROFILES, FACINGS, SCRIBERS AND ARCHITRAVES

Traditional profiles to [NZS 3610](#). Proprietary profiles and special profiles as detailed. Pencil radius corners of profiled schedules for paint finish.

2.3 DOORS, PAINTED

Doors as scheduled (without clashing strips).

2.4 DOOR HINGES

Size and gauge to carry door. 3 hinges per door.

3 EXECUTION

3.1 SITE MEASURE

Confirm framed openings on site for dimension, plumb and straightness prior to fabrication or ordering of timber joinery. Confirm lintel head and sill deflection for sliding or bi-fold door systems is within the manufacturer's specified tolerances. Provide not less than 10mm unless otherwise required.

3.2 EXECUTION GENERALLY

Manufacture to the methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

3.3 FACTORY FIT HARDWARE

Factory fit the following where specified: -

- Hinges

3.4 FACTORY FINISHING

Before delivery to site: -

- Brace square and provide protection to assemblies during delivery to site. Where factory glazed, indicate the presence of transparent glasses with whiting, tape or signs compatible with the glass type.

Internal doors

3.5 INTERNAL JOINERY FRAMES

Fabricate as detailed. Wedge and rigidly fix in place without distortion, plumb, and true to line and face. Pre drill for fixings through frame. Countersink and plug frames scheduled for clear finish.

3.6 DOOR FRAMES, SOLID REBATED

Fabricate as detailed. Hang doors to operate freely on hinges, sliding, or bi-fold gear and to the door manufacturer's requirements. Pre drill for fixings through frame. Countersink and plug frames scheduled for clear finish. Fit hardware.

3.7 DOOR LINERS

Heads and jambs finished minimum 18mm, with 10mm planted door stops. Width to match width of lined walls. Hang doors on hinges, sliding, or sliding-folding gear to the door manufacturer's requirements and to operate freely. Countersink and plug frames scheduled for clear finish. Fit hardware.

3.8 DOOR LINERS, EXTENDED

Heads and jambs finished 30mm, rebated for wall linings and extended a minimum of 10mm. 10mm planted door stops. Hang doors on hinges, sliding and bi-fold gear to the door manufacturer's requirements and to operate freely. Countersink and plug frames scheduled for clear finish. Fit hardware.

Completion

3.9 CHECK

Check and adjust operation of all sashes, doors, hardware and furniture.

3.10 TEMPORARY PROTECTION

On completion remove any temporary protection and leave ready for following work.

4 SELECTIONS

4.1 HOLLOW CORE DOOR, PAINT FINISH

Brand/type: tba
 Door facing: tba
 Glazing: tba
 Finish: tba
 Hardware: tba

Accessories

4.2 DOOR HINGES

Interior doors

Type:	Loose pin
Size:	89mm
Material:	Zinc-plated steel
Pin:	Loose-pin zinc-plated steel

6721 PAINTING INTERIOR

1 GENERAL

This section relates to the preparation of interior unpainted and pre-painted surfaces, and the application of interior:

- decorative paint coatings
- protective paint coatings
- sealers
- stains
- clear finishes

Related work

1.1 RELATED SECTIONS

Refer to 6700 PAINTING GENERAL for general painting matters.
Refer to 6711 PAINTING EXTERIOR for exterior paint systems.

Documents

Warranties

1.2 WARRANTY

Warrant this work under normal environmental and use conditions against failure.
2 years: Warranty period

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

2 PRODUCTS

2.1 PRODUCTS

Refer to 6700 PAINTING GENERAL for product clauses.

3 EXECUTION

3.1 EXECUTION

Refer to 6700 PAINTING GENERAL for execution clauses.

4 SELECTIONS

4.1 INSPECTION OF WORK

Stage	Coating system
Site inspections	Paint system

Paint systems

4.2 PLASTERBOARD

Brand: tba
Coating type: tba
System: tba
Preparation: tba
1st coat: tba
2nd coat: tba
3rd coat: tba

4.3 TIMER TRIMS / DOORS / FRAMES

Brand: tba
Coating type: paint
System: tba

Preparation:	Sand preparation
1st coat:	yes
2nd coat:	yes
3rd coat:	yes

SUPPORTING MANUFACTURER DOCUMENTATION

For information only. Specification and contract documentation takes precedence.

This version includes documents related to:

Performance | Installation | Maintenance | Warranty | Environmental

Mountain Road

Project Specification

70 Mountain Road, Henderson Valley, Auckland, New Zealand

Project Ref: 2316

Printed: 02 May 2023



masterspec

Specification built using Masterspec software

Project ID: 279761 - 310525

Manufacturer Documents Index

4161T	Thermakraft Underlays, Foils, DPC, DPM, & Tapes	2
4311RI	Roofing Industries Profiled Metal Roofing	20
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4161T Thermakraft Underlays, Foils, DPC, DPM, & Tapes



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SUPPORTING DOCUMENTS

Aluband Bituminous Window Flashing Tape - Data Sheet

Ref 59017. Uploaded 21 Nov 2022

Purpose: Performance

BRANZ Appraisal 651 - CoverTek 407 Fire Retardant Roof & Wall Underlay

Ref 58967. Uploaded 21 Nov 2022

Purpose: Performance

CoverTek 407 - Data Sheet

Ref 58965. Uploaded 21 Nov 2022

Purpose: Performance

CoverTek 407 - Install Guide

Ref 58966. Uploaded 21 Nov 2022

Purpose: Installation

Thermakraft™
ALUBAND
Window
Flashing
Tape



Thermakraft
ONE WRAP
SYSTEM

10 Products - One system
One warranty

Thermakraft™ ALUBAND

Bituminous adhesive flexible window flashing tape

Kingspan Aluband is designed specifically as a premium window flashing tape and forms part of the Thermakraft One Wrap System. Made with a heavy bituminous adhesive, the product provides high strength bond and excellent abrasion resistance.

Aluband comes in four roll sizes:

Product Code	Roll Size	Rolls Per Carton
ALU075025	75mm x 25m	12
ALU150010	150mm x 10m	6
ALU150025	150mm x 25m	6
ALU200025	200mm x 25m	4



Aluband

Bituminous adhesive flexible window flashing tape



Scope of Use

Aluband Window Flashing Tapes can be used within the following scope:

- Installed into and around frame joinery opening over the wall underlay and exposed frame to cover both the face and edge of the opening framing as a secondary weather resistant barrier.
- Installed at joinery heads to seal flashing upstands to the wall underlay.
- To assist the overall weathertightness performance of window and door joinery installations.
- To be used in conjunction with air seals and joinery flashing systems. Installer must check for air seal product compatibility with Aluband Window Flashing Tape.
- Aluband Window Flashing Tape must be used with Thermakraft Corner Moulded Pieces (on windowsill corners).
- Situated in NZS3604 Wind Zones up to, and including 'Extra High'.

General

- Compatible with all Thermakraft building underlays.
- Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in well ventilated area. Recommended minimum 7 days.
- Thermakraft corner moulds MUST be used at flashing corners (see installation guide).

Limitations

- Must NOT be exposed to the weather/UV for more than 42 days.
- Should be installed when temperatures are above 5°C.
- NOT designed to overcome poor detailing and workmanship of the window or door joinery installation.
- Bitumen may react with window sealants. Always check compatibility before use.

Compliance:

- Aluband should be used within the product scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1;
- Can be used on buildings constructed with timber and steel framing complying with the NZBC;
- With a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- Can be used with wall cladding systems complying with NZBC Acceptable Solution E2/AS1.

Durability:

- Aluband Window Flashing Tape will meet the Performance Requirements of NZBC Clauses B2, Durability (B2.3.1 [a] 50 years*, B2.3.1 [b] 15 years* and B2.3.2), E2 External Moisture Performance and F2 Hazardous Building Materials.
- * **Note:** When the external cladding is maintained according to the cladding manufacturer's instructions and the cladding remains weather resistant, Aluband Window Flashing Tape is expected to have a serviceable life equal to that of the cladding.
- Aluband Window Flashing Tape has a serviceable life expectancy equal to that of the cladding, when installed in accordance with this technical specification and in accordance to the product installation guide, provided it is not exposed to the weather or ultra-violet (UV) light for more than 42 days, or is not damaged upon installation.
- Aluband Window Flashing Tape is designed to work on all building underlays that meet the requirements of NZBC E2/AS1 Table 23, and on all Thermakraft BRANZ Appraised wall underlays.

Product Warranty

Standard Kingspan Insulation Warranty applies. Refer to Kingspan Insulation Warranty statement for further details. This is available online at thermakraft.co.nz or call **0800 806 595**.



0800 806 595
www.thermakraft.co.nz

Thermakraft and Ausmesh products are brought to you by Kingspan Insulation NZ Limited.





BRANZ Appraised
Appraisal No. 651 [2019]

THERMAKRAFT COVERTEK 407 ROOF AND WALL UNDERLAY

Appraisal No. 651 (2019)
Amended 26 June 2020



BRANZ Appraisals

Technical Assessments of
products for building and
construction.

Thermakraft THERE IS NO SUBSTITUTE.

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BRANZ

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Product

- 1.1 Thermakraft Covertek 407 Roof and Wall Underlay is a fire retardant, synthetic building underlay for use under roof and wall claddings. The product consists of a micro-porous water-resistant film laminated between two layers of non-woven spun-bonded polyolefin.

Scope

Roof Underlay

- 2.1 Thermakraft Covertek 407 has been appraised for use as a self-supporting roof underlay on buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
 - with masonry tile roof cladding; and,
 - with metal tile and profiled metal roof cladding; and,
 - situated in NZS 3604 Wind Zones up to, and including, Extra High.

Flexible Wall Underlay

- 2.2 Thermakraft Covertek 407 has also been appraised for use as a flexible wall underlay for buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 for timber framed buildings; or,
 - the scope limitations of NASH Building Envelope Solutions, Paragraph 1.1 for steel framed buildings; and,
 - with direct fixed absorbent and non-absorbent wall claddings; or,
 - with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; or,
 - with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1 for timber framed buildings or NASH Building Envelope Solutions for steel framed buildings; and,
 - situated in NZS 3604 and NASH Standard Part 2 Wind Zones up to, and including, Very High; or,
 - situated in NZS 3604 and NASH Standard Part 2 Wind Zones up to, and including, Extra High when used over a rigid wall underlay in accordance with NZBC Acceptable Solution E2/AS1 or NASH Building Envelope Solutions Paragraph 9.1.7.2.

Specific Design

- 2.3 Thermakraft Covertek 407 has also been appraised for use on buildings subject to specific weathertightness design. Building designers are responsible for the building design and for the incorporation of Thermakraft Covertek 407 into their design in accordance with the declared properties and the instructions of Thermakraft Limited.



Building Regulations

New Zealand Building (NZBC)

3.1 In the opinion of BRANZ, Thermakraft Covertek 407 Roof and Wall Underlay, if used, designed, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet, or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 [a], not less than 50 years, B2.3.1 [b], 15 years and B2.3.2. Thermakraft Covertek 407 Roof and Wall Underlay meets these requirements. See Paragraphs 9.1 and 9.2.

Clause C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE: Performance C3.4 [c]. Thermakraft Covertek 407 Roof and Wall Underlay meets this requirement. See Paragraph 10.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the roof or wall cladding system, Thermakraft Covertek 407 Roof and Wall Underlay will contribute to meeting this requirement. See Paragraphs 12.1 and 12.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Thermakraft Covertek 407 Roof and Wall Underlay meets this requirement and will not present a health hazard to people.

Technical Specification

4.1 Thermakraft Covertek 407 Roof and Wall Underlay is a synthetic building underlay for use under roof and wall claddings. The product consists of a micro-porous water-resistant film laminated between two layers of non-woven spun-bonded polyolefin. Thermakraft Covertek 407 Roof and Wall Underlay is coloured white on the top and bottom faces.

4.2 The product is supplied in rolls 1.250 m wide x 20 m and 40 m long and 2.55 m wide x 29.4 m long. The product is printed with the Thermakraft Covertek 407 logo repeated along the length of the roll. The rolls are wrapped in clear polythene film.

Accessories

4.3 Accessories used with Thermakraft Covertek 407 Roof and Wall Underlay which are supplied by the installer are:

- **Fixings** - stainless steel staples, clouts, screws or proprietary underlay fixings, or other temporary fixings to attach the underlay to the framing.
- **Wall underlay restraint [timber frame]** - polypropylene strap, 75 mm galvanised mesh or galvanised wire, or vertical cavity battens where required to restrain the wall underlay in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5.
- **Wall underlay restraint [steel frame]** - polypropylene strap, 75 mm galvanised mesh or galvanised wire, or vertical cavity battens where required to restrain the wall underlay in accordance with NASH Building Envelope Solutions, Paragraph 9.1.9.5.
- **Thermal break sheathing [steel framing]** - in accordance with NASH Building Envelope Solutions, Paragraph 11.4.3.2.

Handling and Storage

5.1 Handling and storage of the product, whether on or off site, is under the control of the installer. The rolls must be protected from damage and weather. They must be stored on end, under cover, in clean, dry conditions and must not be crushed.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Thermakraft Covertek 407 Roof and Wall Underlay. 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

General

7.1 Thermakraft Covertek 407 Roof and Wall Underlay is intended for use as an alternative to conventional kraft paper underlays, which are fixed over timber or steel framed roofs and walls. The underlay is intended to limit the entry of wind into the roof and wall cavities. For roofs the underlay assists in the moisture management of the roof cladding system and for walls it acts as a secondary barrier to wind-driven rain. Refer to Table 1 for material properties.

Table 1: Material Properties

NZBC E2/AS1 Table 23 Roof Underlay Properties	Roof Property Performance Requirement	Wall Property Performance Requirement	Results
Absorbency	$\geq 150 \text{ g/m}^2$	$\geq 100 \text{ g/m}^2$	Pass $> 150 \text{ g/m}^2$
Vapour Resistance	$\leq 7 \text{ MN s/g}$	$\leq 7 \text{ MN s/g}$	Pass
Water Resistance	$\geq 100 \text{ mm}$	$\geq 20 \text{ mm}$	Pass $\geq 100 \text{ mm}$
pH of Extract	≥ 6.0 and ≤ 9.0	≥ 6.0 and ≤ 9.0	Pass
Shrinkage	$\leq 0.5\%$	$\leq 0.5\%$	Pass
Mechanical	Edge tear and tensile strength	Edge tear and tensile strength	Edge tear [Average]: Machine direction = 186 N Tensile strength [Average]: Machine direction = 3.7 kN/m Cross direction = 6.6 kN/m
Air Barrier	Not applicable	Air resistance $\geq 0.1 \text{ MN s/m}^3$	Pass. Thermakraft Covertek 407 can be used as an air barrier

7.2 The material also provides a degree of temporary weather protection during early construction. However, the product will not make the building weathertight and some wetting of the underlying structure is always possible before the cladding is installed. Hence, the entire building must be closed-in and made weatherproof before moisture sensitive materials such as internal linings and insulation materials are installed.

7.3 Thermakraft Covertek 407 Roof and Wall Underlay must not be exposed to the weather or ultraviolet (UV) light for a total of more than 7 days before being covered by the cladding when used as a roof underlay, or for more than 60 days when used as a wall underlay.

Timber and Steel Framing

7.4 Timber and steel framing must be provided in accordance with the requirements of the NZBC and the cladding manufacturer.

Use as a Roof Underlay

7.5 Thermakraft Covertek 407 Roof and Wall Underlay is suitable for use under roof claddings on buildings as a roof underlay in accordance with NZBC Acceptable Solution E2/AS1 Table 23 for timber framed buildings and NASH Building Envelope Solutions Table 23 for steel framed buildings.

- 7.6 Thermakraft Covertex 407 Roof and Wall Underlay is suitable for use in residential and commercial roofs with roof pitches of minimum 3°. The product must not span unsupported more than 1,200 mm in one direction. Spans greater than 1,200 mm require additional support such as galvanised wire mesh or safety mesh.
- 7.7 At roof pitches of 10° or more, Thermakraft Covertex 407 Roof and Wall Underlay may be run horizontally or vertically.
- 7.8 At roof pitches less than 10° [minimum 3°], Thermakraft Covertex 407 Roof and Wall Underlay may be run horizontally, or vertically if installed over a roof underlay support.
- 7.9 Refer to Table 2 for a summary of the roof underlay support requirements.

Table 2: Roof Underlay Support Requirements

Roof Pitch	Span	Roof Underlay Support Required?	
		Horizontally Installed	Vertically Installed
10° or more	Greater than 1200 mm	Yes	Yes
	1200 mm or less	No	No
Less than 10° [Minimum 3°]	Greater than 1200 mm	Yes	Yes
	1200 mm or less	No	Yes

Use as a Wall Underlay

- 7.10 Thermakraft Covertex 407 Roof and Wall Underlay is suitable for use under wall claddings as a wall underlay in accordance with NZBC Acceptable Solution E2/AS1, Table 23 on timber framed buildings and NASH Building Envelope Solutions Table 23 on steel framed buildings, including non-absorbent wall claddings such as vinyl and metal-based weatherboards in direct fixed situations.
- 7.11 Thermakraft Covertex 407 Roof and Wall Underlay is suitable for use as an air barrier where walls are not lined, such as attic spaces at gable ends, in accordance with NZBC Acceptable Solution E2/AS1 or NASH Building Envelope Solutions, Paragraph 9.1.4 [c].
- 7.12 In cavity installations where the cavity battens are installed at greater than 450 mm centres, Thermakraft Covertex 407 Roof and Wall Underlay must be restrained between the battens to prevent the underlay bulging into the cavity space when bulk insulation is installed in the wall frame cavity. Refer to NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5 for timber frame or NASH Building Envelope Solutions, Paragraph 9.1.9.5 for steel frame. Wall underlay restraint options include polypropylene strap, 75 mm galvanised mesh or galvanised wire, or vertical cavity battens or thermal break sheathing [steel frame only].

Structure

- 8.1 Thermakraft Covertex 407 Roof and Wall Underlay is suitable for use in all Wind Zones of NZS 3604 and NASH Standard Part 2 up to, and including, Very High when used as a stand-alone flexible wall underlay, and all Wind Zones of NZS 3604 up to, and including, Extra High when used as an overlay for rigid wall underlays or as a roof underlay.

Durability

- 9.1 Thermakraft Covertex 407 Roof and Wall Underlay meets code compliance with NZBC Clause B2.3.1 [a], not less than 50 years for underlays used where the roof or wall cladding durability requirement or expected serviceable life is not less than 50 years, e.g. behind masonry roof tile cladding or masonry veneer. It also meets code compliance with NZBC Clause B2.3.1 [b], 15 years for underlays used where the roof or wall cladding durability requirement is 15 years.



Serviceable Life

- 9.2 Thermakraft Covertek 407 Roof and Wall Underlay is expected to have a serviceable life equal to that of the cladding. This is provided the cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather resistant. In addition, the product must not be exposed to the weather or ultra-violet light for a total of more than 7 days when used as a roof underlay prior to installation of the roofing. When used as a wall underlay a total exposure of 60 days applies prior to installation of the wall cladding.

Control of Internal Fire and Smoke Spread

- 10.1 Thermakraft Covertek 407 Roof and Wall Underlay has an AS 1530 Part 2 flammability index of not greater than 5 and therefore meets the requirements of NZBC Acceptable Solutions C/AS1 and C/AS2, Paragraph 4.1.7.8 b), for the surface finish requirements of suspended flexible fabric used as an underlay to exterior cladding that is exposed to view in occupied spaces.

Prevention of Fire Occurring

- 11.1 Separation or protection must be provided to Thermakraft Covertek 407 Roof and Wall Underlay from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 and C/AS2 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

- 12.1 Thermakraft Covertek 407 Roof and Wall Underlay must only be used under claddings that meet the requirements of the NZBC, such as those covered by NZBC Acceptable Solution E2/AS1 or NASH Building Envelope Solutions, or claddings covered by a valid BRANZ Appraisal.
- 12.2 Thermakraft Covertek 407 Roof and Wall Underlay, when installed in accordance with the Technical Literature and this Appraisal, will assist in the total cladding system's compliance with NZBC Clause E2.

Installation Information

Installation Skill Level Requirements

- 13.1 All design and building work must be carried out in accordance with the Technical Literature and this Appraisal by competent and experienced tradespersons conversant with underlays. Where the work involves Restricted Building Work (RBW) this must be completed by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant Licence Class.

Underlay Installation

General

- 14.1 Thermakraft Covertek 407 Roof and Wall Underlay must be fixed at maximum 300 mm centres to all framing members with large-head clouts 20 mm long, 6-8 mm stainless steel staples, self-drilling screws or proprietary underlay fixings. The membrane must be pulled taut over the framing before fixing.
- 14.2 When fixing the product in windy conditions, care must be taken due to the large sail area created.
- 14.3 Any damaged areas of Thermakraft Covertek 407 Roof and Wall Underlay, such as tears, holes or gaps around service penetrations, must be repaired. Damaged areas can be repaired by covering with new material lapping the damaged area by at least 150 mm and taping, or by taping small tears.



Roof Underlay

- 14.4 Thermakraft Covertek 407 Roof and Wall Underlay may be run horizontally or vertically. Refer to Table 2 for a summary of roof underlay support requirements. The roof underlay must extend from the ridge and overhang the fascia board by 20–25 mm.
- 14.5 Vertical laps must be no less than 150 mm wide. Horizontal laps must also be no less than 150 mm, with the direction of the lap ensuring that water is shed to the outer face of the underlay. End laps must be made over framing and be no less than 150 mm wide. To assist with achieving the correct lap dimension, Thermakraft Covertek 407 Roof and Wall Underlay has a 150 mm lap line printed continuously along the top face.

Wall Underlay

- 14.6 Thermakraft Covertek 407 Roof and Wall Underlay must be run horizontally and must extend from the upper side of the top plate to the underside of the bearers or wall plates supporting ground floor joists, or below bottom plates on concrete slabs. Horizontal laps must be no less than 150 mm wide, with the direction of the lap ensuring that water is shed to the outer face of the membrane. End laps must be made over framing and be no less than 150 mm wide.
- 14.7 Thermakraft Covertek 407 Roof and Wall Underlay should be run over openings and these left covered until windows and doors are ready to be installed. Openings are formed in the underlay by cutting on a 45 degree diagonal from each corner of the penetration. The flaps of the cut underlay must be folded inside the opening and stapled to the penetration framing. Excess underlay may be cut off flush with the internal face of the wall frame.
- 14.8 Thermakraft Covertek 407 Roof and Wall Underlay can be added as a second layer over head flashings in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.10.3 for timber framing or NASH Building Envelope Solutions Paragraph 9.1.11.3 for steel framing.

Inspections

- 14.9 The Technical Literature must be referred to during the inspection of Thermakraft Covertek 407 Roof and Wall Underlay installations.

Basis of Appraisal

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

Tests

- 15.1 The following tests have been carried out on Thermakraft Covertek 407 Roof and Wall Underlay in accordance with NZBC Acceptable Solution E2/AS1, Table 23: tensile strength, edge-tear resistance and resistance to water vapour transmission in accordance with AS/NZS 4200.1, shrinkage in accordance with AS/NZS 4201.3, resistance to water penetration in accordance with AS/NZS 4201.4, surface water absorbency in accordance with AS/NZS 4201.6 and pH of extract in accordance with AS/NZS 1301.421s. A range of these tests were completed before and after Thermakraft Covertek 407 Roof and Wall Underlay was exposed to UV light.
- 15.2 The flammability index of Thermakraft Covertek 407 Roof and Wall Underlay has been evaluated in accordance with AS 1530.2.

Other Investigations

- 16.1 A durability opinion has been given by BRANZ technical experts.
- 16.2 An evaluation of the expected performance of Thermakraft Covertek 407 Roof and Wall Underlay in direct contact with metal roof cladding has been completed by BRANZ.
- 16.3 The practicability of installation of Thermakraft Covertek 407 Roof and Wall Underlay has been assessed by BRANZ and found to be satisfactory.
- 16.4 The Technical Literature, including installation instructions, has been examined by BRANZ and found to be satisfactory.



Quality

- 17.1 The manufacture of Thermakraft Covertek 407 Roof and Wall Underlay has been examined by BRANZ, including methods adopted for quality control. Details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 17.2 The quality of supply to the market is the responsibility of Thermakraft Limited.
- 17.3 Building designers are responsible for the design of the building, and for the incorporation of the roof underlay into their design in accordance with the instructions of Thermakraft Limited.
- 17.4 Quality of installation is the responsibility of the installer in accordance with the instructions of Thermakraft Limited.

Sources of Information

- AS 1530.2: 1993 Test for flammability of materials.
- AS/NZS 1301.421s: 1998 Determination of the pH value of aqueous extracts of paper, board and pulp - cold extraction method.
- AS/NZS 4200.1: 1994 Pliable building membranes and underlays - materials.
- AS/NZS 4201.3: 1994 Pliable building membranes and underlays - Methods of test - Shrinkage.
- AS/NZS 4201.4: 1994 Pliable building membranes and underlays - Methods of test - Resistance to water penetration.
- AS/NZS 4201.6: 1994 Pliable building membranes and underlays - Methods of test - Surface water absorbency.
- BS 6538.3: 1987 Method for determination of air permeance using the Garley apparatus.
- NASH Building Envelope Solutions: 2019 Light steel framed buildings.
- NASH Standard Part Two: 2019 Light Steel Framed Buildings.
- NZS 2295: 2006 Pliable, permeable building underlays.
- NZS 3604: 2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 09 July 2019

This Appraisal has been amended to update Table 1.

Amendment No. 2, dated 26 June 2020

This Appraisal has been amended to include the use of Thermakraft Covertek 407 Roof and Wall Underlay as a wall underlay.



BRANZ Appraised
Appraisal No. 651 [2019]

BRANZ Appraisal
Appraisal No. 651 [2019]
20 March 2019

THERMAKRAFT COVERTEK 407
ROOF AND WALL UNDERLAY



In the opinion of BRANZ, **Thermakraft Covertek 407 Roof and Wall Underlay** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Thermakraft 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. **Thermakraft 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 **Thermakraft 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 **Thermakraft Limited** or any third party.

For BRANZ

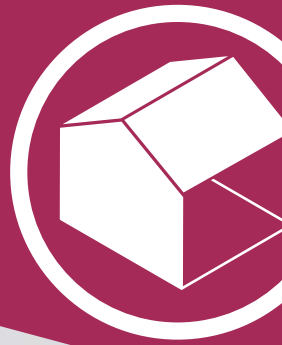
Chelydra Percy

Chief Executive

Date of Issue:

20 March 2019

**Thermakraft™
COVERTEK
407**



Thermakraft™ COVERTEK 407

Heavy duty self-supporting roof and wall underlay

Kingspan Thermakraft Covertek 407 is our strongest synthetic underlay, designed as a means of managing condensation, water vapour transfer and water ingress in the most trying conditions including applications where the roof pitch is 3° and above. Covertek 407 is fire retardant.

Covertek 407 comes in three roll sizes:

1250mm wide	20m long	25m ² Coverage ²
1250mm wide	40m long	50m ² Coverage ²
2550mm wide ¹	29.4m long	75m ² Coverage ²

Cut to Length available – Contact your Kingspan Insulation Representative.

1 Note: made to order.

2 Note: m² is the roll size for actual coverage, allow for laps and joins.



Covertex 407

Heavy duty self-supporting roof and wall underlay



Scope of Use

Roof Application

- Suitable with masonry tile, metal tile and profiled metal roof cladding.
- Suitable for timber or steel framed buildings.
- Can be used on roofs up to and including NZS 3604 Extra High wind zones.
- Self-supporting - Refer to installation guide regarding underlay support requirements.
- Not suitable for roof pitch less than 3 degrees.
- Will provide some temporary weather protection during construction (maximum 7 days), same day coverage recommended.

Wall Application

- Can be used with timber and steel framing, either direct or in conjunction with an 18mm minimum drained cavity.
- Suitable with absorbent (e.g. timber, brick or fibre cement) or non-absorbent wall claddings (e.g. metal or plastic).
- Suitable with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1 or NASH Building Envelope Solutions.
- Is suitable for use in Wind Zones of NZS 3604 up to and including 'Very High' when used as a standalone flexible underlay, and 'Extra High' when used as a flexible underlay over a rigid wall underlay.
- Is suitable as an air barrier in unlined wall spaces.
- Will provide some temporary weather protection during construction (maximum 60 days for wall application).

General

- Is fire retardant.
- Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in well ventilated area. Recommended minimum 7 days.
- Tear resistant and strong.

Limitations

- Must NOT be exposed to the weather or UV for more than 7 days as a roof underlay and 60 days as a wall underlay.
- Must NOT be used under translucent sheeting.

Compliance

Roof Application

- Can be used as a roof underlay within the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, with regards to building height and floor plan area.
- Or within the scope limitations of NASH Building Envelope Solutions, Paragraph 1.1 for steel framed buildings.
- Refer BRANZ Appraisal No 651 (2019) and CodeMark Certificate GM-CM30028 for full details.
- CodeMark Certification only covers roof application.

Wall Application

- Can be used as a wall underlay within the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, with regards to building height and floor plan area.
- Or within the scope limitations of NASH Building Envelope Solutions, Paragraph 1.1 for steel framed buildings.
- Refer BRANZ Appraisal No 651 (2019) for full details.

Flammability Index

Covertex 407 Underlay has an AS 1530 Part 2 Flammability Index of not greater than 5 and therefore meets the requirements of NZBC Acceptable Solutions C/AS2, Paragraph 4.17.8 b), for the surface finish requirements of suspended flexible fabric used as an underlay to exterior cladding that is exposed to view in occupied spaces.

Durability

Meets the Performance Requirements of NZBC Clauses B2, Durability (B2.3.1 (a) 50 years, B2.3.1 (b) 15 years and B2.3.2), C3 Fire Affecting Areas Beyond the Fire Source C3.4 (c) E2 External Moisture, and F2 Hazardous Building Materials F2.3.1, providing:

- It is not damaged.
- Is installed in accordance with instructions.
- Is not left exposed for more than 7 days (roof) same day coverage recommended.
- Is not left exposed for more than 60 days (wall).
- Is installed by or under guidance of Licensed Building Practitioners.
- Is compatible with cladding system used*.

* **Note:** specifiers and product user must confirm roof and wall cladding system compatibility with the underlay before installation.

Covertek 407

Heavy duty self-supporting roof and wall underlay



Control of Condensation

In climatic regions where condensation risks are high, such as cold or high humidity areas, care needs to be taken in specifying the correct design and installation to prevent moisture build-up in the roof cavities.

Factors which adversely affect the condensation risk in roofing systems include:

- Humid, and/or cold climatic regions.
- Warm/Skillion roof construction.
- Low roof cavity air volume and restricted air movement.
- Omitting Vapour Control Layers.
- Occupancy activities which have high moisture loading on conditioned spaces.
- Ceiling penetrations and entry of warm air into roof cavities.
- Low pitched roof.
- Bulk insulation.
- Building structures ability to naturally dry construction moisture.

Skillion and Warm Roof Construction are particularly sensitive to moisture accumulation and the design and installation of roof construction needs to take into account the higher condensation risks. Refer to the NZ Metal Roof and Wall Cladding Code of Practice (COP) for details.

For passive ventilation of the roof space, it is recommended that all roof underlays are terminated at the ridge, and if not, it should be slit or slotted to allow for passive ventilation. (For further information refer to the NZ Metal Roof and Wall Cladding COP).

Product Warranty

Standard Kingspan Insulation Warranty applies. Refer to Kingspan Insulation Warranty statement for further details. This is available online at thermakraft.co.nz or call **0800 806 595**.

Property Performance

The following data represents the minimum pass rates required by the NZBC. This product tests well beyond the minimum standards. If you require actual performance results, please contact your local Kingspan Insulation representative.

NZBC E2/AS1 Table 23 (NZS2295) Roof Underlay Properties	Absorbency	Vapour Resistance	pH of Extract	Shrinkage	Water Resistance	Air Resistance
Property Performance Requirement	≥ 150gsm	≤ 7 MN.s/g	≥ 5.5 and ≤ 8	≤ 0.5%	≥ 100mm	≥ 0.1 MN.s/m ³
Property Performance	Pass	Pass	Pass	Pass	Pass	Pass*

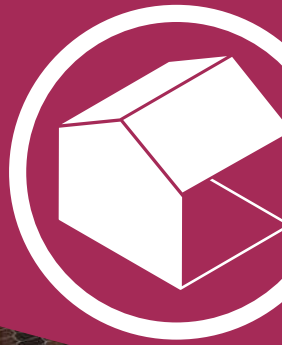
* **Note:** Can be used as an air barrier.



0800 806 595
www.thermakraft.co.nz

Thermakraft and Ausmesh products are brought to you by Kingspan Insulation NZ Limited.





Thermakraft™ COVERTEK 407

Heavy duty self-supporting roof and wall underlay

Kingspan Thermakraft Covertek 407 is our strongest synthetic underlay, designed as a means of managing condensation, water vapour transfer and water ingress in the most trying conditions including applications where the roof pitch is 3° and above. Covertek 407 is fire retardant.

Product usage

Covertek 407 is a synthetic self-supporting roof and wall underlay designed as a means of managing condensation and water ingress in roof applications. Constructed using a microporous water-resistant film sandwiched between two layers of spun-bonded polyolefin Covertek 407 is fire retardant, absorbent and breathable.



Covertex 407

Heavy duty self-supporting roof and wall underlay



Roof Application Method

Long-run metal roofing/vertical or horizontal installation method

- Fix Covertex 407 underlay with printed side facing the exterior.
- Fix using stainless steel 8-12mm staples or 20mm flat head clouts, or appropriate proprietary fastenings on timber framed structure. Fixing at 300mm centres. Fixing types and requirements for steel framed structure can be found in the NZ Metal Roof and Wall Cladding Code of Practice (COP).
- Refer to table below to determine underlay support requirements.

Roof Pitch	Span	Underlay Support Required	
		Horizontally Installed	Vertically Installed
≥ 10°	> 1200mm	Yes	Yes
	≤ 1200mm	No	No
< 10° (Min 3°)	> 1200mm	Yes	Yes
	≤ 1200mm	No	Yes

- Covertex 407 upper sheet lapped over lower sheets (shiplap) to ensure water is shed to the outer face. Note: Covertex 407 can move downwards. To prevent this, it must be "Captured" by the fastenings at each purlin. Horizontal fix must not be used on purlin distance greater than 1100mm to allow for 150mm laps.
- Must be laid firmly (tight/taut) without creases. All laps either vertical or horizontal must be a minimum of 150mm lap.
- When underlay support is required, Kingspan recommend using AUSMESH Safety Mesh, AUSNET hexagonal netting or Thermastrap 201. Note: Commercial Buildings may require the use of Roof Safety Mesh under Covertex 407. Covertex 407 can be installed above the battens or purlins for profiled metal roof claddings and otherwise in accordance with NZBC E2/AS1.
- If required to achieve a lap seal (refer to NZ Metal Roof and Wall Cladding COP), use Thermakraft Premium Joining Tape or any Thermakraft Window Flashing Tape.

- Covertex 407 will provide some temporary weather protection during construction (maximum 7 days), same day coverage recommended. DO NOT over expose the product for more than 7 days.
- Covertex 407 may be unwound to the full length from the gutter to the ridge. However, when ridge ventilation is required Covertex 407 may be terminated or slit at the ridge purlin to allow a free passage of air.
- Covertex 407 must NOT overhang the gutter line by more than 20 mm, or if eaves flashings are used, terminate on the upper side of the flashing. More details can be found in the NZ Metal Roof and Wall Cladding COP.
- Flue penetrations must have a minimum clearance of 50mm from Covertex 407 (refer to NZ Metal Roof and Wall Cladding Code of Practice 10.11.5 and the flue suppliers instructions).
- Covertex 407 must be free of tears and punctures, fit taut and be lap taped around all penetrations (except flue penetrations), to provide drainage for any condensation, or surface water from leaks.
- Lap taping can be done with Thermakraft Premium Joining Tape or any Thermakraft Window Flashing Tape.

Note: Do not use Aluband on penetrations where Polybutene water pipes have been installed. Refer Pipe Manufacturers for instructions on sealing penetrations.

Concrete/Metal tile roofing

- Covertex 407 must be laid over rafters prior to fixing the tile battens. The maximum span between rafters for Covertex 407 is 1200mm. Masonry tile roofs must have antiponding boards in accordance with NZBC E2/AS1 Paragraph 8.2.5.
- Installed Covertex 407 may be laid over the top of the antiponding boards and draped into the gutter by no more than 20mm.
- Covertex 407 must be installed by, or under the guidance of a licensed building practitioner.

Application Tips

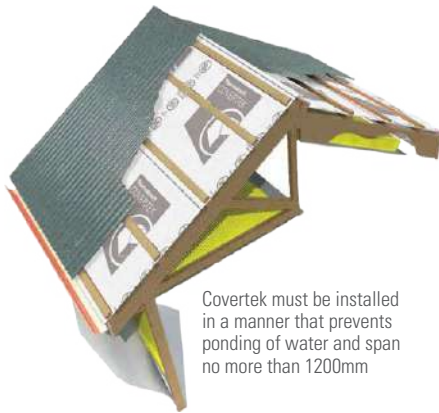
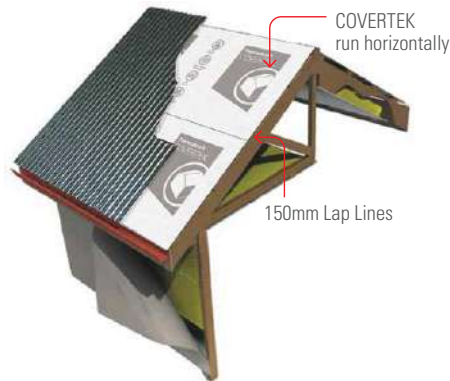
Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in a well ventilated area. Recommended minimum 7 days.

Covertek 407

Heavy duty self-supporting roof and wall underlay

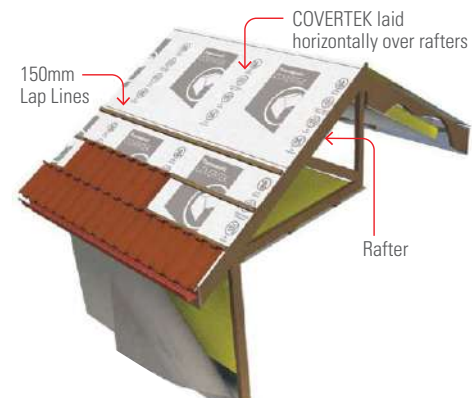
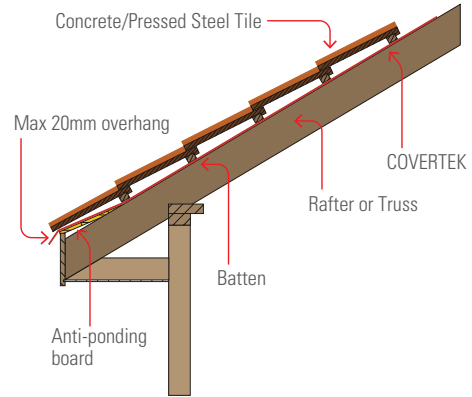


Corrugated roofing:



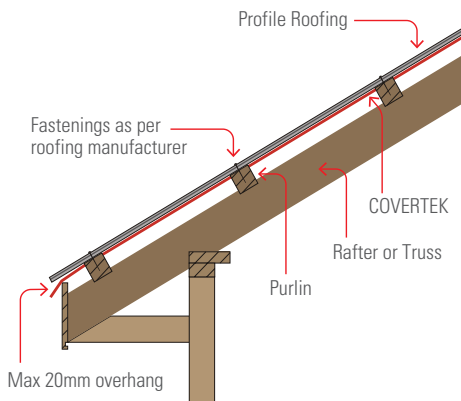
Concrete/metal tile roofing:

Tile roofing

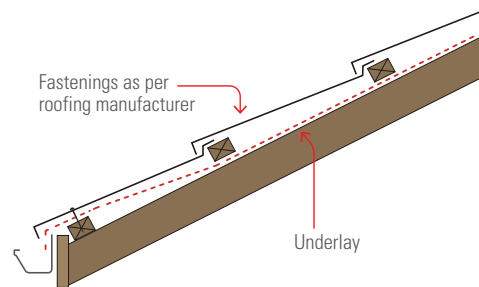


Long run metal roofing:

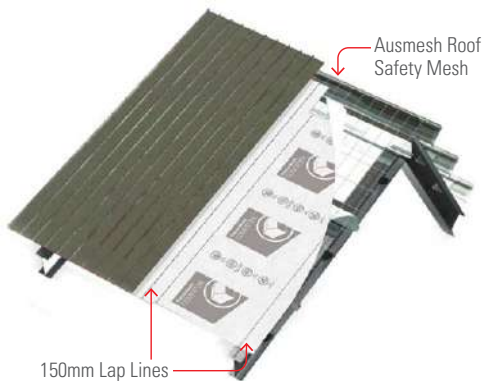
Wooden construction



Metal tile installation



Steel construction



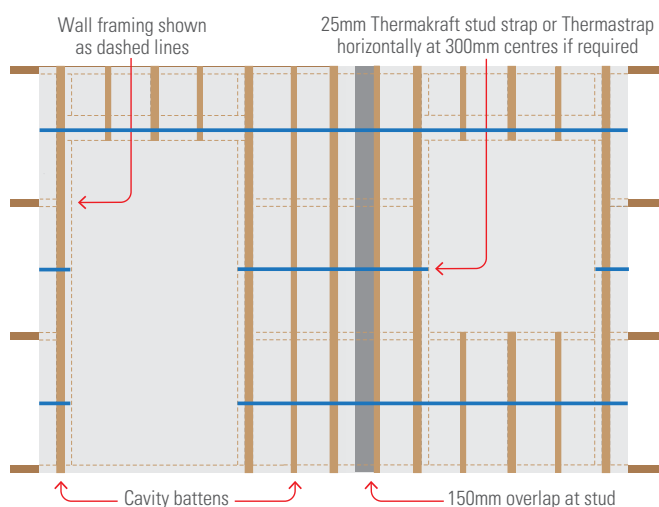
Covertex 407

Heavy duty self-supporting roof and wall underlay



Wall Application Method

- Fix Covertex 407 underlay with printed side facing the exterior.
- Fix to all exterior walls from below bearers to the top plate. Pull the Covertex 407 underlay tight and fix securely to the frame with fasteners such as galvanized Little Grippers, 6mm-8mm staples or 20mm large head galvanized clouts at 300mm centres horizontally and vertically. Additional fasteners should be used around each opening to be cut out. Fixing types and requirements for steel framed structure can be found in the NZ Metal Roof and Wall Cladding COP.
- When fixing Covertex 407 underlay to Steel framing the same procedure applies, use adhesive spray or tape or flat head screws to fasten to the framing or thermal break. The exterior cladding fastenings will act as the permanent fixings.
- Fastenings behind Brick Veneer Cladding must have an equivalent service life to that of Brick Veneer (50 years). Refer to NZBC Clause B2.3.2.
- Covertex 407 underlays are available in widths of 2550mm and 1250mm.
- Cover all windows and door openings with Covertex 407 underlay.
- It is recommended that the Covertex 407 underlay is not cut and prepared for window installation until the arrival of the windows. Minimum of 150mm is required at joins, all vertical laps must be made over studs.



Horizontal laps to be laid ship lap style allowing water to be shed to the outer face of the membrane.

- When windows and doors are ready for installation, the Covertex 407 underlay covering the openings should cut at 45° and folded into the opening and securely fastened. Thermakraft window flashing tapes are recommended as the window flashing system.

Note: In accordance with NZBC Acceptable Solution E2/AS1, wall underlay must be prevented from bulging into the drained cavity. Where stud spacing is greater than 450mm Thermakraft stud strap or Thermastrap run horizontal at 300mm centres is an acceptable means of prevention.

- Once installed, Covertex 407 must not be left exposed to the weather or UV for a maximum of 60 days. Covertex 407 underlays will provide some degree of temporary weather protection during construction allowing work to continue. Internal linings and insulation must not be installed until the exterior cladding is completed.
- Make good any forced tears with Thermakraft window flashing tapes. Any large areas which require repair may be covered with a second layer of underlay - a lap of 150mm is required.
- Lap taping can be done with Thermakraft Premium Joining Tape or any Thermakraft Window Flashing Tape.
- Covertex 407 underlay must be installed by, or under the guidance of a licensed building practitioner.

Application Tips

- Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in a well ventilated area. Recommended minimum 7 days.

Handling and Storage

- Covertex 407 must be handled with care to prevent damage such as tearing and roll deformation.
- The product must be stored under cover well away from direct moisture, rainfall contact and sunlight (UV). Care should be taken not stack other materials on top of the product.



0800 806 595
www.thermakraft.co.nz

Thermakraft and Ausmesh products are brought to you by Kingspan Insulation NZ Limited.



4311RI Roofing Industries Profiled Metal Roofing



Roofing Industries

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SUPPORTING DOCUMENTS

Roofing Industries Trimrib® T, Trimrib TS, Trimrib V 101067

Ref 10262. Uploaded 26 Jun 2020

Purpose: Performance, Installation, Maintenance, Environmental

Roofing Industries Trimrib® T, Trimrib TS, Trimrib V

Product Technical Statement: 101067

miproducts
THE NATIONAL PRODUCT DATABASE

Residential, commercial roofing and cladding

[View miproducts listing](#)



Level of assurance needed to demonstrate NZ Building Code Compliance

Supporting documentation should include technical information by manufacturer and either an independent assessment or reference to an industry-based scheme



Roofing Industries confirms that this minimum level of assurance has been met or exceeded by the following:
New Zealand Metal Roofing Manufacturers Association Inc (NZMRM)
[Code of Practice](#)

Product Description

Utilising the very latest in roll-forming technology, Trimrib® is manufactured as either Trimrib® (S) single swage, Trimrin (TS) twin swage and Trimrib® (V) which incorporates two "V" swages between the ribs.

Each profile is aesthetically pleasing, having been designed with modern building style in mind and creating contrasts of light and shade in straight lines.

Trimrib® enables rapid water shedding from the roof with a low minimum pitch requirement of 3 degrees, and when coupled with or without one of the pre-painted surface finishes, Trimrib® ensures the completed project provides purpose and visual appeal.

Trimrib V provides a point of difference over other trapezoidal profiles plus the wide range of Trimrib profile shapes offers flexibility in matching most existing 5 rib type products used in the market

Available in a wide range of metal substrates and surface finishes including galvanised, Zinalume, ZAM, Aluminium, Stainless Steel, Colorcote and Colorsteel (.40mm BMT and .55mm BMT) or aluminium .70mm BMT and .90mm BMT.

APPLICATIONS

- Residential roofing and cladding
- Rural and lifestyle roofing and cladding
- Industrial and commercial Roofing and cladding
- Drape/spring curving
- Crimp curving
- Fencing

A full range of matching accessories is available including ridging, flashings, underlays, fasteners and rainwater systems.

Design Guidelines

Refer to Roofing Industries Profile Technical Summary for tables of maximum spans (intermediate and end) for each wind zone.

Selection of the correct grade of material and appropriate surface coating is imperative to ensure that Trimrib performs satisfactorily in the environment it is to be installed in and to meet the requirements of the NZBC.

Refer to Colorsteel and Colorcote using all the latest coating technology to AS/NZS 2728 depending on the durability required for the environment the roof and wall cladding is in.

Contact Roofing Industries for environmental categories and surface coating literature. Zinalume, Aluminium-zinc-magnesium and galvanised steel and is available in a full range of Colorcote or Colorsteel pre-painted finishes.

Environmental

Colorsteel and Colorcote prepainted steel has been extensively tested and proven in some of New Zealand's most extreme UV, wind, rain, snow and ice environments.

All Colorsteel and Colorcote is factory painted at either NZ Steel, Glenbrook or Pacific Coilcoaters, Penrose. Both plants operate within strict environmental controls.

Environmental category literature available by request or the roof.co.nz website, or by contacting Roofing Industries, technical helpline 0800 844 822



masterspec partner

Company Contact Details



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TDS

[View Technical Data Sheet](#)

Roofing Industries Trimrib® T, Trimrib TS, Trimrib V

Product Technical Statement: 101067



 **MSDS** [View Material Safety Data Sheet](#)

Quality Assurance



New Zealand Made

Technical Statement

Scope

Metal cladding Materials used to construct the building envelope shall be:

- In accordance with the durability requirements of NZBC B2 Suitable for their end use, location and environment as shown in E2/AS1 Table 20, and
- Compatible with adjoining materials as shown in E2/AS1 Table 21 and Table 22.
- Roofing Industries Trimrib will meet the risk score in E2/AS1
- New Zealand Metal Roof and Wall Cladding Code of Practice

New Zealand Building Code (NZBC)

The product will, if employed in accordance with the supplier's installation and maintenance requirements, assist with meeting the following provisions of the building code:

- **Clause B2 Durability:** Performance B2.3.1(b)
- **Clause E2 External moisture:** Performance E2.3.1, E2.3.2

Notes

Evidence

The product meets the requirements set out in the following documents, or relevant parts of cited standards within the documents:

Roofing Industries products meets the requirements set out in the following documents or relevant parts of the Building codes and cited standards.

- NZBC Clauses B2, E2, E3, New Zealand Metal Roof and Wall Cladding Code of Practice www.metalroofing.org.nz
- NZ Steel and Pacific Coilcoaters supplies coil to Roofing Industries:
 - Test information available for our coil suppliers, and past history of in use of metal long run roof and wall cladding within New Zealand.

Supporting Evidence

The product has and can make available the following additional evidence to support the above statements:



New Zealand Metal Roofing Manufacturers Association Inc (NZMRM)
[Code of Practice](#)

Special Conditions

Installation requirements

Refer to the Roofing Industries Profile Technical Summary and this to be read in connection with E2/AS1 and the NZ Metal Roof and Wall Cladding Code of Practice.

Special requirements

Refer to:

- NZBC E2/AS1 paragraph 8.4 and 9.6
- Purlin sizes, spacing and fixing to NZS 3604
- NASH for Steel Framed Houses
- Roofing Industries Profile Technical Summary for fixings and fixing patterns pending wind loads.

Maintenance requirements

Regular maintenance will extend the life of Trimrib and associated accessories.

Maintenance guides are available from Roofing Industries or can be downloaded from either NZ Steel or Pacific Coilcoaters website.

Guide to regular maintenance - Areas not receiving regular rain washing should be washed with fresh water on a regular basis.

- Washing of naturally unwashed areas at least every 3 - 6 months.
- Removal of debris from gutters every 3 - 6 months.
- Any noticeable build up of salt deposits and/or other contaminants are removed when identified.
- When considering over painting please consult with your local distributor to ensure correct procedures are undertaken. Inspection of the roof, including fasteners, repair any damage every 6 months.



Date last validated: **23 August 2016**



Date last updated: **23 August 2016**

Roofing Industries Trimrib® T, Trimrib TS, Trimrib V

Product Technical Statement: 101067



Disclaimer: The Product Technical Statement (PTS) template is copyright to Construction Information Limited. However the content of this PTS is the responsibility of the product manufacturer/supplier. Refer to the miproducts Terms and Conditions

4554VS Velux Opening & Fixed Skylights



VELUX New Zealand Limited

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info@velux.co.nz

<http://www.velux.co.nz>

SUPPORTING DOCUMENTS

BRANZ Appraisal 968 - Velux Skylights

Ref 61298. Uploaded 9 Jan 2023

Purpose: Performance

VELUX FCM low pitch fixed skylights 102268

Ref 10306. Uploaded 26 Jun 2020

Purpose: Performance, Installation



BRANZ Appraised

Appraisal No. 968 [2017]

VELUX SKYLIGHTS



Appraisal No. 968 (2017)

Amended 06 August 2019

BRANZ Appraisals

Technical Assessments of products for building and construction.



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BRANZ

BRANZ

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Product

- 1.1 Velux Skylights are for use on roofs to provide natural light into interior spaces within buildings. Velux Skylights come in two ranges – low-pitch models include the FCM, VCM and VCS series, suitable for use on roof pitches between 0° and 60°, and FS, VS, VSE and VSS series which are for use with roof pitches between 15° and 60°. Some models are openable and can be used to provide ventilation.

Scope

- 2.1 Velux Skylights [FS, VS, VSE and VSS series] have been appraised for use on buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with respect to building height and maximum floor plan area; and,
 - with roof structures designed and constructed to meet the requirements of the NZBC; and,
 - with masonry tile, pressed metal tile, and profiled metal roof cladding systems complying with NZBC Acceptable Solution E2/AS1; and,
 - with a roof pitch between 15° and 60°; and,
 - situated in NZS 3604 Wind Zones, up to and including Extra High.
- 2.2 Velux Low-Pitch Skylights [FCM, VCM and VCS series] have been appraised for use on buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with respect to building height and maximum floor plan area; and,
 - with roof structures designed and constructed to meet the requirements of the NZBC; and,
 - with pitched roof cladding types and profiles and minimum pitches as specified in E2/AS1; or,
 - for use on flat or nominally flat roofs making use of membrane roof systems; and,
 - with a roof pitch between 0° and 60°; and,
 - situated in NZS 3604 Wind Zones, up to and including Extra High.
- 2.3 Velux Skylights must be installed in accordance with the Technical Literature supplied by Velux New Zealand Ltd.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Velux Skylights, if designed, used, installed, and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC.

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.3. Velux Skylights meet the requirements for loads arising from snow, wind and impact [i.e. B1.3.3 (g), (h) and (j)]. See Paragraphs 8.1 to 8.3.

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years. Velux Skylights meet this requirement. See Paragraphs 9.1 and 9.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. Velux Skylights meet these requirements. See Paragraph 11.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. and F2.3.3 (a). Velux Skylights meet these requirements and will not present a health hazard to people and are unlikely to cause injury to people. See Paragraphs 8.1 to 8.3.

Clause G4 VENTILATION: Performance G4.3.1 and G4.3.3. Openable Velux Skylights will contribute to meeting these requirements. See Paragraph 13.1.

Clause G7 NATURAL LIGHT: Performance G7.3.1 and G7.3.2. Velux Skylights will contribute to meeting these requirements. See Paragraph 14.1.

Clause G9 ELECTRICITY: Performance G9.3.1. Velux Skylights meet this requirement. See Paragraph 15.1.

Clause H1 ENERGY EFFICIENCY: Performance H1.3.1 and H1.3.2E. Velux Skylights will contribute to meeting these requirements. See Paragraph 16.1.

Technical Specification

4.1 Velux Skylights (FS, VS, VSE and VSS series) are a range of fixed and opening skylights which are manufactured from preservative treated softwood frames and sashes, finished on the interior faces with a white semi-gloss paint. External cappings are 'grey friars' coloured PVDF lacquered aluminium.

4.2 Velux Low-Pitch Skylights (FCM, VCM and VCS series) are a range of fixed and opening skylights which are manufactured with white maintenance-free PVC interior frames. External cappings are 'grey friars' coloured powder-coated aluminium. Velux Low-Pitch Skylights are primarily suited to commercial building applications and use with roof membranes and wide-profile metal roofing.

4.3 The Velux Skylight models covered by the Appraisal are:

Skylights

- Fixed Skylight (FS)

Models:

- FS C01: 550 x 700 mm
- FS C04: 550 x 980 mm
- FS C08: 550 x 1400 mm
- FS M04: 780 x 980 mm
- FS M06: 780 x 1180 mm
- FS M08: 780 x 1400 mm
- FS S01: 1140 x 700 mm
- FS S06: 1140 x 1180 mm



- **Opening Skylight [VS]**

Models:

- VS C04: 550 x 980 mm
- VS C08: 550 x 1400mm
- VS M04: 780 x 980 mm
- VS M06: 780 x 1180 mm
- VS M08: 780 x 1400 mm
- VS S01: 1140 x 700 mm
- VS S06: 1140 x 1180 mm

- **Integra® Skylight [VSE] / Integra® Solar Skylight [VSS]**

Models:

- VSE/VSS C04: 550 x 980 mm
- VSS C08: 550 x 1400 mm
- VSE/VSS M04: 780 x 980 mm
- VSE/VSS M06: 780 x 1180 mm
- VSE/VSS M08: 780 x 1400 mm
- VSE/VSS S01: 1140 x 700 mm
- VSE/VSS S06: 1140 x 1180 mm

Low-Pitch Skylights

- **Low-Pitch Fixed Skylight [FCM]**

Models:

- FCM 2222: 692 x 692 mm
- FCM 2234: 692 x 997 mm
- FCM 2246: 692 x 1302 mm
- FCM 2270: 692 x 1911 mm
- FCM 3030: 895 x 895 mm
- FCM 3046: 895 x 1302 mm
- FCM 3434: 997 x 997 mm
- FCM 4646: 1302 x 1302 mm

- **Low-Pitch Opening Skylight [VCM]**

Models:

- VCM 2222: 692 x 692 mm
- VCM 2234: 692 x 997 mm
- VCM 2246: 692 x 1302 mm
- VCM 3030: 895 x 895 mm
- VCM 3046: 895 x 1302 mm
- VCM 3434: 997 x 997 mm
- VCM 4646: 1302 x 1302 mm

- **Low-Pitch Integra® Solar Skylight [VCS]**

Models:

- VCS 2222: 692 x 692 mm
- VCS 2234: 692 x 997 mm
- VCS 2246: 692 x 1302 mm
- VCS 3030: 895 x 895 mm
- VCS 3046: 895 x 1302 mm
- VCS 4646: 1302 x 1302 mm
- VCS 3434: 997 x 997 mm

Glazing

- 4.4 VELUX Skylights are factory glazed using sealed double-glazed insulated glass units (IGU's). The IGU's are provided in two types – either marked 04 or 05 which are identified in the product codes on the packaging and on the IGU itself on the spacer bar between the glazing and on the glass panes.
- 4.5 Type 04 units comprise either a 3 or 3.9 mm thick toughened outer pane with a low emissivity [Low-E] coating, a 9 mm argon-filled cavity and a 5.36 mm thick inner pane of laminated toughened safety glass. The outer pane has a coating which is designed to reduce the buildup of dirt and ease cleaning.
- 4.6 Type 05 units comprise either a 3 or 3.9 mm thick toughened outer pane with a low emissivity [Low-E] coating, an 11 mm argon-filled cavity and a 3 mm or 4 mm thick inner pane of toughened safety glass.
- 4.7 The units carry markings to show compliance with American National Standards Institute Standard ANSI Z97.1.

Flashings

- 4.8 EDW, EDL and EKW Flashings are a range of Kynar 500 painted aluminium flashings designed for use with Velux Skylights [FS, VS, VSE and VSS series]. Alternatively, flashings and roof detailing for Velux Skylights can be fabricated by a roofing contractor in accordance with the Velux custom flashing details. In all instances where flashings and roof detailing is prepared other than in accordance with the technical literature is outside the scope of the Appraisal.

Handling and Storage

- 5.1 Handling and storage of all components of Velux Skylights is under the control of the skylight installer. Components must be kept dry and under cover at all times. Care must be taken to avoid surface damage to the skylight components and flashings during the installation process.

Technical Literature

- 6.1 Refer to Velux New Zealand Ltd for details of the current Technical Literature for Velux Skylights. 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. Technical literature is supplied with each skylight.

Design Information

General

- 7.1 Velux Skylights are for use on roofs to provide natural light into interior spaces within buildings. Velux Skylights come in two ranges – low-pitch models include the FCM, VCM and VCS series, suitable for use on roof slopes between 0° and 60°. FS, VS, VSE and VSS series are for use with roof slopes between 15° and 60°. Installation of Velux Skylights on roofs with other pitches is outside the scope of this Appraisal and their installation must be specifically designed in all instances.
- 7.2 Velux Skylights are suitable for most existing timber framed roofs. For such installations, it is important that the roof structure is checked by a suitably qualified person for structural adequacy and suitability of the existing roof cladding.
- 7.3 Velux Skylights meet the safety glass requirements of NZS 4223.4 for sloped glazing up to an installed height above floor level of not more than 5 metres. *[Note: The installed height means the height to the highest part of the glazing]* Where the installed height is more than 5 metres, only Velux Skylights marked with '04' type glazing may be used. See Paragraphs 4.4 to 4.5. Refer to Velux New Zealand for advice or confirmation of type if necessary.
- 7.4 When installed on new roofs, whenever possible, the installation should be carried out concurrently with the roof cladding installation.

Structure

Wind

8.1 Velux Skylights are suitable for use in NZS 3604 Wind Zones up to and including Extra High.

Snow

8.2 Velux Skylights are suitable for use in areas where buildings are designed for a 1 kPa snow loading.

Point Loads

8.3 Velux Skylights have been assessed for point loads from AS/NZS 1170 for situations where supports should be placed over the surface when access is necessary.

Durability

Serviceable life

9.1 Velux Skylights are expected to have a serviceable life of at least 15 years, provided they are maintained in accordance with this Appraisal and the Technical Literature.

9.2 On exposure to the weather, the coil coated aluminium may gradually lose the original surface finish. A faster reduction in both surface finish and overall serviceable life can be anticipated in severe industrial, geothermal and marine exposures.

Maintenance

9.3 The internal surface of the glazing on Velux Skylights can be simply cleaned from inside the building where reasonable access is provided. The exterior glass surface of Velux Skylights can only be cleaned from the exterior of the building.

9.4 The glazing and external surfaces of the Skylights can be cleaned using a mild, non-abrasive glass cleaner along with a soft brush or other non-abrasive applicator to maintain the surface appearance.

9.5 Interior surfaces of Skylight models VSE, VS & FS with pre-finished wood frames need to be inspected annually. As with any finished surface it is subject to peeling, cracking or fading and will need to be re-finished/re-painted periodically. To re-finish/re-paint the skylight interior wood surfaces, prepare the Skylight by removing the factory finish.

9.6 Keep all leaves clear from around Skylights. Ensure all exposed fasteners are secure. Inspect roofing and flashing for excessive wear or scratches on the roofing finish. Scratches in the cladding finish may be fixed with touch up paint available through Velux. Damaged claddings or flashings should be replaced as soon as they are detected.

9.7 The internal workings of the manual and the Integra electric operators are considered maintenance free over the lifetime of the Skylight. Mechanisms are pre-lubricated and need no additional lubrication. The chains and hinges should be checked and lubricated as required.

Prevention of Fire Occurring

10.1 Separation or protection must be provided to Velux Skylights from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1, C/AS2 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

11.1 Velux Skylights when installed in accordance with this Appraisal and the Technical Literature will prevent the penetration of moisture that could cause undue dampness or damage to building elements.

Internal Moisture

12.1 Experience with double-glazed skylights has shown that in normal domestic or similar applications, the windows do not pose a significant risk of condensation when correctly installed.

Ventilation

- 13.1 Velux Skylights that contain an openable aperture will contribute to the compliance of a building with NZBC Clause G4. Consideration must be given to the 'net openable area' required for a particular space by the designer. NZBC Acceptable Solution G4/AS1 provides guidance on required ventilation.

Natural Light

- 14.1 Velux Skylights all contain transparent apertures which can contribute to the compliance of a building with NZBC Clause G7. Consideration of the amount of illuminance provided by the Skylight for a particular space will depend on a wide range of factors unique to each installation – e.g. room size, position, sun orientation, angle, etc. The use of Velux Skylights to supplement natural light from other sources is an Alternative Solution to G7.

Electricity

- 15.1 Where a new electrical supply is required for Velux opening skylights, the installation must be completed by a Registered Electrician in accordance with New Zealand Electrical Code of Practice NZECP 51.
- 15.2 Electrical safety of the electric skylight operator complies with IEC 60335.

Energy Efficiency

- 16.1 Velux Skylights have R-values that satisfy the minimum requirements for skylights, all exceeding R 0.31 m²K/W as specified in NZBC Verification Method H1/VM1 and NZBC Acceptable Solution H1/AS1. Where the total area of skylights exceeds 1.5 m² or 1.5% of the total roof area [whichever is the greater] the calculation or modelling methods of NZS 4218 must be used for building designs.

Installation Information

Installation Skill Level Requirements

- 17.1 The installation of Velux Skylights must be completed by installers trained by Velux New Zealand Ltd or by competent, experienced tradespersons with an understanding of roof window installation and weathertightness details.

System Installation

- 18.1 Installation must be completed in accordance with instructions given in the Velux Skylights Technical Literature and this Appraisal.

Health and Safety

- 19.1 There are no particular health and safety issues relating to the installation or use of Velux Skylights. Installers must however observe safe working practices for working on roofs and at heights.

Basis of Appraisal

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

Tests

- 20.1 Velux Skylights have been subjected to dynamic weather resistance testing by a NATA [National Association of Testing Authorities] registered laboratory in Australia. Velux Skylights have also been subjected to dynamic weather resistance testing by BRANZ.

Investigations

- 21.1 Velux Skylights have been assessed for resistance to impact loads, snow loads and resistance to wind pressures [non-cyclonic regions]. These assessments have been reviewed by BRANZ and were found to be satisfactory.
- 21.2 An assessment was made of the durability of Velux Skylights by BRANZ.
- 21.3 The window units have been assessed for thermal resistance by BRANZ experts.
- 21.4 Site visits have been carried out by BRANZ to assess fit for purpose and the practicability of installation, and to assess in service performance.
- 21.5 Weathertightness detailing of the Velux Skylights has been assessed by BRANZ and found to be satisfactory. Instructions for installation of units and associated flashing components for different roof types have also been reviewed and found to be satisfactory.
- 21.6 The Technical Literature for Velux Skylights has been examined by BRANZ and found to be satisfactory.

Quality

- 22.1 The manufacture of Velux Skylights has 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. BRANZ has taken note of UES [Uniform Evaluation Service] Evaluation Report Number 199 which covers quality aspects associated with Velux Skylights. BRANZ has also taken note of ETA Denmark European Technical Assessment ETA-13/0764 of 14/10/2015 which covers Velux Flashings.
- 22.2 The quality of materials, components and accessories supplied to the market is the responsibility of Velux New Zealand Ltd.
- 22.3 Quality of installation on site of Velux Skylight components and accessories is the responsibility of the installer.
- 22.4 Designers are responsible for building design, and specification of natural lighting and ventilation systems.
- 22.5 Building owners are responsible for any required maintenance of Velux Skylights in accordance with the advice of Velux New Zealand Ltd.

Sources of Information

- AS 4285: 1995 Skylights.
- AS/NZS 1170.0: 2002 Structural design actions - Permanent, imposed and other actions.
- ANSI Z97.1: 2015 For safety glazing materials used in buildings - safety performance specifications and methods of test.
- IEC 60335 Household and similar electrical appliances - safety.
- NZECP 51: 2004 New Zealand Electrical Code Of Practice For Homeowner/Occupier's Electrical Wiring Work in Domestic Installations, Ministry of Economic Development, 2004.
- NZS 3604: 2011 Timber Framed Buildings.
- NZS 4218: 2009 Thermal Insulation - Housing and small buildings.
- NZS 4223.4: 2016 Code of practice for glazing in buildings - Dead, wind and snow loading.
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.



Amendments

Amendment No. 1, dated 2 May 2019.

This Appraisal has been amended to include new sizes to existing range.

Amendment No. 2, dated 06 August 2019.

This Appraisal has been amended to include Velux custom flashing details and to update that Velux Low Pitch Skylights are manufactured with white maintenance-free PVC interior frames



BRANZ Appraised
Appraisal No. 968 [2017]

BRANZ Appraisal
Appraisal No. 968 [2017]
23 June 2017

VELUX SKYLIGHTS



In the opinion of BRANZ, **Velux Skylights** 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 **Velux New Zealand Ltd**, 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. **Velux New Zealand Ltd:**
 - 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 **Velux New Zealand Ltd**.
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 **Velux New Zealand Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

23 June 2017

VELUX FCM low pitch fixed skylights

Product Technical Statement: 102268

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Low pitch fixed skylights

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Level of assurance needed to demonstrate NZ Building Code Compliance

Supporting documentation should include self-assessment and technical information by manufacturer



VELUX confirms that this minimum level of assurance has been met or exceeded by the following:

VELUX New Zealand Limited

[Product Technical Statement](#)



masterspec partner

Technical Statement

Product Description

FCM low pitch skylights are available in 7 sizes. FCM low pitch skylights consist of five integrated components - an interior condensation drainage gasket, an insulating glass unit, exterior structural sealant, roll-formed aluminum frame counter flashing with ASA corner keys. Exterior of maintenance-free aluminum frame and covers of roll-formed 15 gauge, 1.5mm thick lacquered aluminium, finished in Kynar® 500 polyvinylidene fluoride resin in dark grey, NCS standard colour: S 7500-N. Insulating glass unit constructed of stainless steel spacer with "warm edge" technology with glazing of internal toughened glass, Argon filled cavity, low E3 coating and external toughened glass. Suitable for installation within the range from 0° to 60°.

Scope of use

For use on roof pitches 0-60 degrees.

New Zealand Building Code (NZBC)

The product will, if employed in accordance with the supplier's installation and maintenance requirements, assist with meeting the following provisions of the building code:

- **Clause B2 Durability:** Performance B2.3.1, B2.3.2
- **Clause E2 External moisture:** Performance E2.3.1, E2.3.2, E2.3.7
- **Clause G4 Ventilation:** Performance G4.3.1, G4.3.3
- **Clause G7 Natural light:** Performance G7.3.1, G7.3.2
- **Clause H1 Energy efficiency :** Performance H1.3.1, H1.3.2E, H1.3.3

Notes

B2.3.1(b) - 15 years, 10 year warranty on all VELUX skylights

[Product Technical Statement](#)

Evidence

The product meets the requirements set out in the following documents, or relevant parts of cited standards within the documents:

- B2/AS1 Durability - AS 4285 - VELUX Skylights satisfy the durability requirements specified for Non-structural Roof Cladding elements and External Window/Door Joinery. VELUX Skylights have passed tests for weather tightness, concentrated load, non-cyclonic and cyclonic wind pressures according to Australian Skylight Standard AS4285 test methods.
- C3 Protection from Fire - AS 1530 - VELUX Skylights have been classified as "non-combustible" according to AS 1530 test methods.
- E2 External Moisture - AS 4285 - VELUX Skylights have passed tests for weather tightness, concentrated load, non-cyclonic and cyclonic wind pressures according to Australian Skylight Standard AS4285 test methods.
- F2 Hazardous Building Materials - NZS 4233: Part 4, AS/NZS 4666 - VELUX Skylights comply with requirements for sloped Insulating Glass Units.
- G4/AS1 Natural Ventilation (1.2, 2.1) - VELUX Opening Skylights can be used to meet the G4 Natural Ventilation requirements.
- G7 Natural Light - VELUX Skylights can be used to meet the G7 Natural Light requirements.
- H1 Energy Efficiency - NZS 4218 - VELUX Skylights exceed the minimum R-value requirements for skylights in all climate zones.
- Evidence: 30+ years of historical use in New Zealand

Supporting Evidence

Company Contact Details



Skylights

Company: VELUX New Zealand Limited

Physical Address: 62b Princes Street, Onehunga, AUCKLAND

Postal Address: 62b Princes Street, Onehunga, AUCKLAND

Email: info@velux.co.nz

Website: <http://www.velux.co.nz>

VELUX FCM low pitch fixed skylights

Product Technical Statement: 102268



The product has and can make available the following additional evidence to support the above statements:

VELUX New Zealand Limited
[Product Technical Statement](#)

Product Criteria

Installation requirements

Install FCM skylight in accordance with manufacturer's installation instructions, supplied with FCM, and with local building code requirements.

Align skylight with curb, free of warp or twist, maintaining dimensional tolerances. Attach skylight to curb with screws furnished by manufacturer. Coordinate attachment and seal of perimeter air and vapor barrier material. Provide insulation of the curb for maximum energy efficiency. Install site made flashing in accordance to achieve weather- tight installation. Download additional copies of installation instructions on the link shown below: http://www.velux.co.nz/en-NZ/Documents/Professional/Installation%20Instructions/FCM_452195_0109.pdf



Date last validated: **23 December 2015**



Date last updated: **23 December 2015**

Disclaimer: The Product Technical Statement (PTS) template is copyright to Construction Information Limited. However the content of this PTS is the responsibility of the product manufacturer/supplier. Refer to the miproducts Terms and Conditions

4710P Pink Batts & Pink Batts Silencer Insulation



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SUPPORTING DOCUMENTS

BRANZ Appraisal 238 - Pink® Batts® Insulation

Ref 66965. Uploaded 2 May 2023

Purpose: Performance

Pink® Batts® Classic and Ultra® Ceiling Insulation 102181

Ref 10234. Uploaded 26 Jun 2020

Purpose: Performance, Installation, Environmental

Pink® Batts® Insulation Wall 101155

Ref 10235. Uploaded 26 Jun 2020

Purpose: Performance, Installation, Maintenance, Environmental

Pink® Batts® SnugFloor® Underfloor Insulation 101465

Ref 10236. Uploaded 26 Jun 2020

Purpose: Performance, Installation, Maintenance, Environmental



BRANZ Appraised
Appraisal No. 238 [2018]

PINK® BATTS® INSULATION

Appraisal No. 238 [2018]

This Appraisal replaces BRANZ
Appraisal No. 238 [2012]

Amended 02 March 2023



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 Pink® Batts® Insulation is a range of resin-bonded, fibrous glasswool thermal insulating material for use in walls, ceilings and roofs of buildings. Pink® Batts® Insulation is pre-cut to suit a range of framing spacings.

Scope

- 2.1 Pink® Batts® Insulation has been appraised as a thermal insulation material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Pink® Batts® Insulation, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 [a] not less than 50 years and B2.3.1 [b] 15 years. Pink® Batts® Insulation meets these requirements. See Paragraph 8.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.1. Pink® Batts® Insulation will contribute to meeting this requirement. See Paragraphs 13.1 and 13.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Pink® Batts® Insulation meets this requirement.

Clause H1 ENERGY EFFICIENCY: Performance H1.3.1 [a] and H1.3.2 E. Pink® Batts® Insulation will contribute to meeting these requirements. See Paragraphs 14.1 and 14.2.

Technical Specification

- 4.1 Pink® Batts® Insulation is a resin-bonded, fibrous, glasswool insulation, manufactured from recycled and/or virgin glass and cured urea extended phenolic resin.
- 4.2 Pink® Batts® Insulation is manufactured in a range of sizes to suit framing centres and cavity depths. Building Insulation Blanket (BIB) is supplied in rolls for commercial applications. Pink® Batts® Insulation is available as set out in Table 1.

Table 1: Pink® Batts® Insulation Product Table.

R-value	Length [mm]	Width [mm]	Nominal Thickness [mm]	Density [kg/m ³]
Roof - Thermal Insulation				
1.8 ¹	1,220	432	95	8.3
2.2 ¹	1,220	432	115	8.2
2.6 ¹	1,220	432	140	7.0
2.6	1,220	432	110	10.5
3.0	1,220	432	160	8.2
3.2 ¹	1,220	432	170	6.9
3.6 ¹	1,220	432	180	7.2
4.0 ¹	1,220	432	195	8.1
4.5	1,220	460	210	8.5
5.0 ¹	1,220	432	220	9.5
5.0	1,220	460	225	9.5
6.0 ¹	1,220	432	235	13
6.0	1,220	460	245	11.7
7.0 ¹	1,220	432	260	15.8
7.0	1,220	460	275	12.6
Roof - Building Insulation Blanket				
1.2	24,000	1,200	50	12
1.8	20,000	1,200	75	12
2.4	16,000	1,200	95	12
2.6	14,000	1,200	105	12
3.2	12,000	1,200	125	12
3.6	10,000	1,200	140	12.5
Roof - Pink® Batts® Retrofit Insulation				
2.9 ¹	1,220	432	150	7.7
3.3 ¹	1,220	432	175	7.1
Wall - Masonry Insulation				
1.0 ¹	1,220	580	40	14
1.2 ¹	1,220	580	50	12.8
70 mm Wall Range - Thermal Insulation				
2.2	1,140	560	70	30

90 mm Wall Range - Thermal Insulation				
1.8 ¹	1,140	560	90	9.1
2.2 ¹	1,140	560	90	11.0
2.4 ¹	1,140	560	90	14.2
2.6 ¹	1,140	560	90	18.0
2.6 ²	1,140	560	90	18.0
2.8 ¹	1,140	560	90	25.2
2.8 ²	1,140	560	90	25.5
90 mm Narrow Wall Range - Thermal Insulation				
2.2 ¹	1,140	360	90	11.0
2.6 ¹	1,140	360	90	18.0
2.8 ¹	1,140	360	90	25.21
90 mm Steel Wall Range - Thermal Insulation				
2.2 ¹	1,220	610	90	11.0
2.6 ¹	1,220	610	90	18.0
140 mm Wall Range - Thermal Insulation				
3.2 ¹	1,140	560	140	9.6
3.6 ¹	1,140	560	140	12.4
4.0 ¹	1,140	560	140	17.6
4.3	1,140	560	140	28
140 mm Narrow Wall Range - Thermal Insulation				
3.2 ¹	1,140	360	140	9.6
4.0 ¹	1,140	360	140	17.6
4.3	1,140	360	140	28

1 Pink® Batts® Insulation products with the Environmental Choice licence.

2 Pink® Batts® Wall range R2.6 and R2.8 manufactured by Owens Corning Canada have not been assigned a Group Number, specific instruction regarding separation from fire are contained in sections 10 and 11.

- 4.3 Pink® Batts® Insulation is pink in colour and is baled in polythene bags with labelling in compliance with AS/NZS 4859.1.
- 4.4 Pink® Batts® Retrofit Ceiling Insulation is pink in colour and is baled in teal polythene bags with labelling in compliance with AS/NZS 4859.1.
- 4.5 Accessories used with Pink® Batts® Insulation, which are supplied by the insulation installer, are wire netting, plastic strapping and fixings.

Handling and Storage

- 5.1 Pink® Batts® Insulation must be stored under cover and in dry conditions. Heavy objects must not be stacked on the bales. The bales must be stored in an orientation that avoids excessive compression of the product.
- 5.2 In general, insulation products are sensitive to the length of time they are stored under compression packaging. Product that does not recover to its nominal thickness may not achieve the stated thermal resistance [R-value].

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
- Residential Insulation Product Guide, Feb 2023.
 - Pink® Batts® Ceiling Insulation Product Data Sheet, Feb 2023.
 - Pink® Batts® Ceiling Insulation Installation Instructions, Feb 2023.
 - Pink® Batts® Wall Insulation – Product data sheet, April22/1075 Rev F, April 2022.
 - Pink® Batts® Wall Insulation – Installation instructions, April22/1076 RevH, April 2022.
 - Pink® Batts® Building Insulation Blanket [BIB] – Product data sheet, Feb22/1080RevD, February 2022.
 - Pink® Batts® Building Insulation Blanket [BIB] – Installation instructions, Feb22/1081/RevD, February 2022.
 - Pink® Batts® Retrofit Ceiling Insulation – Installation instructions, Aug16/1093/RevA, August 2016.
- 6.2 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

General

- 7.1 Pink® Batts® Insulation is intended for use as thermal insulation to meet the requirements of the NZBC. Pink® Batts® Insulation can be used to meet the minimum schedule method R-values of the NZBC Verification Methods H1/VM1, H1/VM2, NZBC Acceptable Solutions H1/AS1 or H1/AS2. Greater construction R-values can be achieved where specific design is used. For construction R-values, refer to the BRANZ House Insulation Guide. Product R-values and dimensions are given in Table 1.
- 7.2 The R-value of Pink® Batts® Insulation has been determined by testing to AS/NZS 4859.1, which is an acceptable method in NZBC Acceptable Solution H1/AS1.
- 7.3 Pink® Batts® Insulation is designed to be friction-fitted between wall, ceiling or roof framing. They can also be laid directly on a ceiling lining, over ceiling battens or joists/truss chords. In other horizontal situations, the insulation must be adequately supported by galvanised wire netting or some other suitable durable material.
- 7.4 When insulation is installed in a double layer over new or existing insulation, the possibility of compression of the bottom layer must be avoided or reduction of R-values for the bottom layer of the formed system must be taken into account.
- 7.5 Where the insulation is installed in exterior walls, the nominal thickness of the insulation material must be selected to provide a snug close fit which touches all sides of the insulation cavity between the wall underlay and the interior wall lining.
- 7.6 Where the insulation is retrofitted in external walls without a wall underlay, and with direct-fixed claddings, the insulation must be at least 20 mm thinner than the framing to allow a gap of at least 20 mm between the insulation and the wall cladding. Horizontal straps must be stapled into the sides of the wall studs at 300 mm centres maximum as support before the insulation is installed. Refer also to NZS 4246, Section 5.4.2.
- 7.7 When the insulation is installed in a wall with a drained cavity, it is recommended that specific wall products with a controlled nominal thickness be used. Where the stud spacings are greater than 450 mm, an intermediate means of restraining the insulation from bulging into the cavity must be installed in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5.
- 7.8 Building Insulation Blanket is designed specifically for commercial roof and commercial wall applications. In residential applications, installation must be completed in line with NZS 4246.

- 7.9 The building envelope must be constructed to ensure the insulation remains dry during installation and throughout the life of the building.
- 7.10 The clearance requirements for heating appliances and downlights must be met, and reference made to the manufacturer's instructions and NZS 4246. See Paragraphs 10.1-10.3.

Durability

Serviceable Life

- 8.1 Where the building is maintained so that provisions of NZBC Clauses E2 and E3 are met, and where the insulation is not crushed or exposed to conditions that will diminish its thermal performance [e.g. moisture], Pink® Batts® Insulation can be expected to have a serviceable life of at least 50 years.

Maintenance

- 9.1 Insulation that has become damp must be removed and the cause of dampness repaired. Cavities must be clean and dry before fitting new insulation of an equivalent thermal rating. NZS 4246 gives guidance on thermal insulation maintenance due to water damage.

Prevention of Fire Occurring

- 10.1 Separation or protection must be provided to Pink® Batts® Wall R2.6 and R2.8 Insulation (as indicated in Table 1 with "2") from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Verification Method C/VM1 and Acceptable Solution C/AS1, and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.
- 10.2 Pink® Batts® Insulation is considered a non-combustible material and need not be separated from heat sources such as fireplaces, flues and chimneys. However, when used in conjunction with, or attached to heat sensitive materials, the heat sensitive material must be separated or protected from heat sources. Part 7 of NZBC Verification Method C/VM1 and Acceptable Solution C/AS1, and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

Downlights

- 10.3 Recessed luminaires shall be of the specified luminaire types and installed in accordance with NZBC Verification Method C/VM1 and NZBC Acceptable Solution C/AS1, Section 7.4.
- 10.4 Insulation materials must maintain a clearance of 100 mm to undefined recessed luminaires in existing buildings.

Fire Affecting Areas Beyond the Fire Source

- 11.1 The completed wall and ceiling system, including the surface lining product enclosing the Pink® Batts® Wall R2.6 and R2.8 insulation (as indicated in Table 1 with "2") from the adjacent space, must achieve a Group Number of internal surface finish requirements as specified in the relevant NZBC Acceptable Solution C/AS1 or C/AS2.
- 11.2 All other Pink® Batts® Insulation products have a Group Number of 1-S. When used in an occupied space, Pink® Batts® Insulation may or may not need to be enclosed by an internal lining, depending on the Risk Group. Refer to the relevant NZBC Acceptable Solution C/AS1 or C/AS2 for specific internal surface finish requirements.

External Moisture

- 12.1 The total building envelope must be weathertight and comply with the requirements of NZBC Clause E2 to ensure that the insulation remains dry in use.
- 12.2 The moisture content of the construction materials at the time of installing and enclosing the insulation must meet the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 10.2 a), or a lower moisture content if required by the lining manufacturer.

Internal Moisture

- 13.1 Buildings must provide an adequate combination of thermal resistance, ventilation and space temperature to all habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or may accumulate. This does not apply to Communal Non-residential, Commercial, Industrial, Outbuildings or Ancillary buildings.
- 13.2 Roofs and walls of housing complying with the Schedule Method for Compliance with NZBC Clause H1.3.2 E will have adequate thermal resistance. Other buildings may require more thermal insulation to satisfy the requirements of NZBC Acceptable Solution E3/AS1 than that to satisfy the energy efficiency provisions alone.

Energy Efficiency

- 14.1 Pink® Batts® Insulation will contribute to meeting the requirements of NZBC Clause H1, Performance H1.3.1 [a] and H1.3.2 E, by compliance with NZBC Verification Methods H1/VM1, H1/VM2, NZBC Acceptable Solutions H1/AS1 or H1/AS2. Refer to Paragraphs 7.1–7.8.
- 14.2 Pink® Batts® Insulation R-values have been determined by testing to AS/NZS 4859.1 and are given in Table 1.

Installation Information

Installation Skill Level Requirement

- 15.1 All design and building work must be carried out in accordance with the Pink® Batts® Insulation Technical Literature and this Appraisal. All building work must be undertaken by competent and experienced tradespersons conversant with Pink® Batts® Insulation.

General

- 16.1 Installation of Pink® Batts® Insulation must be in accordance with the Technical Literature and this Appraisal. NZS 4246 should be used as a guide for installing insulation in residential buildings.
- 16.2 The product must be installed only when the building is enclosed and when the construction materials have achieved the required maximum moisture content or less.
- 16.3 Pink® Batts® Insulation must be released from the packaging and allowed to re-loft prior to installation. The time to loft will depend upon the length of time the product has been packaged and stored.
- 16.4 Pink® Batts® Insulation is supplied in segment and blanket form [see Table 1] to suit framing layouts. The product is able to be cut to suit wall cavities and when fitted between roof or ceiling framing. The insulation must be neatly friction-fitted between framing members so that the potential for gaps and convective heat loss is reduced. In wall cavities the insulation must be neatly friction-fitted between framing members to prevent sagging. In ceiling or roofs, the insulation may be fitted between framing members or fitted over framing members and butted tightly. The insulation must extend to the external wall top plate. The insulation must not be folded or compressed. A close even fit provides the most efficient thermal performance. Whenever possible, the insulation should be fitted beneath wiring or plumbing.
- 16.5 The clearance requirements for heating appliances and downlights must be followed. Refer also to NZS 4246.

Inspections

- 16.6 The Technical Literature, this Appraisal and NZS 4246 must be referred to during the inspection of Pink® Batts® Insulation installations.

Health and Safety

- 17.1 Refer to the Technical Literature and NZS 4246 for guidance on health and safety requirements such as personal protective clothing and installation hazard assessment to AS/NZS 4859.1:2018.

Basis of Appraisal

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

Tests

- 18.1 Thermal resistance testing of Pink® Batts Insulation in accordance with AS/NZS 4859.1 has been completed. The results have been reviewed by BRANZ technical experts.
- 18.2 Tests have been carried out in accordance with AS 1530.1. Pink® Batts® Insulation is not deemed combustible according to the test criteria. The results have been reviewed by BRANZ technical experts.

Other Investigations

- 19.1 An assessment of the durability of Pink® Batts® Insulation has been made by BRANZ technical experts.
- 19.2 The manufacturer's Technical Literature has been reviewed by BRANZ and found to be satisfactory.

Quality

- 20.1 The manufacture of Pink® Batts® Insulation has been examined by BRANZ, including methods adopted for quality control. Details of the manufacturing processes, and quality and composition of the raw materials used were obtained and found to be satisfactory.
- 20.2 The range of Pink® Batts® Insulation products have been assessed for their environmental impact by the New Zealand Ecolabelling Trust and comply with the requirements of the Environmental Choice Specification, Licence No. 2504017 - Thermal [resistive type] Building Insulants. The products that have the Environmental Choice licence are noted in Table 1.
- 20.3 Tasman Insulation New Zealand Ltd [t/a Comfortech Building Solutions] is responsible for the quality of the product supplied.
- 20.4 Quality of installation of the product on-site is the responsibility of the installer.
- 20.5 Quality of maintenance of the building to ensure the insulation material remains dry is the responsibility of the building owner.

Sources of Information

- AS 1530.1:1994 Combustibility test for materials.
- AS/NZS 4859.1:2018 Thermal insulation materials for buildings.
- BRANZ House Insulation Guide [Sixth Edition], 2022.
- NZS 4246:2016 Energy efficiency - Installing bulk thermal insulation in residential buildings.
- Ministry of Business, Innovation and Employment Record of Amendments - Acceptable Solutions, Verification Methods and Handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 05 September 2018.

This Appraisal has been amended to include the use of Pink® Batts® Insulation when retrofitting external walls without wall underlay with direct-fixed claddings.

Amendment No. 2, dated 26 November 2018.

This Appraisal has been amended to update Table 1 to include the Roof - Building Insulation Blanket product range.

Amendment No. 3, dated 06 August 2021.

This Appraisal has been amended to update Table 1 and sections 11 and 12.

Amendment No. 4, dated 10 March 2022.

This Appraisal has been amended to update Table 1 and the assessment of thermal test data conducted.

Amendment No. 5, dated 18 May 2022.

This Appraisal has been amended to update Table 1.

Amendment No. 6, dated 21 December 2022.

This Appraisal has been amended to update the Appraisal holder and to reflect building code updates relating to H1 Energy Efficiency.

Amendment No. 7, dated 02 March 2023.

This Appraisal has been amended to update Table 1, and sections 10 and 11.



BRANZ Appraised
Appraisal No. 238 [2018]

BRANZ Appraisal
Appraisal No. 238 [2018]
03 August 2018

PINK® BATTS® INSULATION



In the opinion of BRANZ, **Pink® Batts® Insulation** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Tasman Insulation New Zealand Ltd [T/A Comfortech Building Solutions]**, 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. **Tasman Insulation New Zealand Ltd [T/A Comfortech Building Solutions]**:
 - 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 **Tasman Insulation New Zealand Ltd [T/A Comfortech Building Solutions]**.
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 **Tasman Insulation New Zealand Ltd [T/A Comfortech Building Solutions]** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

03 August 2018

Pink® Batts® Classic and Ultra® Ceiling Insulation

Product Technical Statement: 102181

miproducts
THE NATIONAL PRODUCT DATABASE

Glasswool thermal insulation for ceilings and roofs

[View miproducts listing](#)



Level of assurance needed to demonstrate NZ Building Code Compliance

Supporting documentation should include self-assessment and technical information by manufacturer



Pink® Batts® confirms that this minimum level of assurance has been met or exceeded by the following:

BRANZ Appraisal

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Technical Statement

Product Description

Pink® Batts® insulation is a lightweight, flexible glass wool insulation product designed to:

- Thermally insulate ceilings in new homes, can be fitted into existing homes with no insulation or laid over existing insulation.
- Fit easily in standard ceiling constructions, or be easily cut to fit in non standard constructions
- Meet the requirements of the New Zealand Building Code (NZBC) for different designs and environments,

Features:

- Non-combustible
- Very high heat-resistant levels (R-values up to R5.0), to help keep homes above the recommended 18°C.

Scope of use

Pink® Batts® insulation is suitable for use as thermal insulation in ceilings where:

- Installed and maintained in a dry protected environment
- Installed in a building where the provisions of NZBC E2 and E3 are met
- Installed to the requirements of NZS 4246:2006: Energy Efficiency-Installing Insulation in Residential Buildings

Pink® Batts® should NOT be crushed or folded.

New Zealand Building Code (NZBC)

The product will, if employed in accordance with the supplier's installation and maintenance requirements, assist with meeting the following provisions of the building code:

- **Clause B2 Durability:** Performance B2.3.1(a), B2.3.1(b)
- **Clause E3 Internal moisture:** Performance E3.3.1
- **Clause F2 Hazardous building materials:** Performance F2.3.1
- **Clause H1 Energy efficiency :** Performance H1.3.1, H1.3.2E

Notes

E3.3.1 and H1.3.1(a) Pink® Batts® insulation will contribute to meeting these requirements

Evidence

The product meets the requirements set out in the following documents, or relevant parts of cited standards within the documents:

NZS/AS 1530.1:1994: Group Number 1S

NZS/AS 1530.3:1993:

- Ignitability (Range 0-20) = 0
- Spread of Flame Index (Range 0-10) = 0
- Heat Evolved Index (Range 0-10) = 0
- Smoke Developed Index (Range 0-10) = 0-1

Supporting Evidence

The product has and can make available the following additional evidence to support the above statements:



BRANZ Appraisal

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Product Criteria

Installation requirements



masterspec partner

Company Contact Details



Brand: Pink® Batts®

Company: Tasman Insulation New Zealand

Physical Address: 9-15 Holloway Place
Penrose
AUCKLAND

Postal Address: PO Box 12069
Penrose
AUCKLAND

Telephone: 64 09 5792139

Fax: 64 09 5713482

Email: customer@pinkbatts.co.nz

Website: <http://www.pinkbatts.co.nz>

Pink® Batts® Classic and Ultra® Ceiling Insulation

Product Technical Statement: 102181



[Installation Instructions](#)

Company Product Information

Environmental

Pink® Batts® insulation is a sustainable and energy efficient product.

- Manufactured using over 80% recycled glass, making sustainable use of waste glass
- Energy used during the manufacture of Pink® Batts® products is offset by the energy saved by a home fully insulated with Pink® Batts® products within 3-15 months
- Manufactured in New Zealand and Australia, reducing shipping distances
- Recyclable packaging

Potential Green Star NZ Credits

Green Star NZ is a comprehensive environmental rating system for buildings. Pink® Batts® insulation may contribute to points under Green Star. Further information is available at www.nzgbc.org.nz

Quality Assurance



ISO 9001 (Quality Management)

Relationships



Environmental Choice New Zealand



New Zealand Made



Date last validated: **02 March 2017**



Date last updated: **02 March 2017**

Disclaimer: The Product Technical Statement (PTS) template is copyright to Construction Information Limited. However the content of this PTS is the responsibility of the product manufacturer/supplier. Refer to the miproducts Terms and Conditions

Light weight insulation - flexible glass wool for walls.

[View miproducts listing](#)



Level of assurance needed to demonstrate NZ Building Code Compliance

Supporting documentation should include self-assessment and technical information by manufacturer



Pink® Batts® Insulation confirms that this minimum level of assurance has been met or exceeded by the following:

BRANZ Appraisal

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Technical Statement

Product Description

Pink® Batts® is a competitively priced lightweight, flexible glass wool insulation product designed to:

- Thermally insulate timber and steel framed walls
- Fit easily in standard wall constructions, or be easily cut to fit in non standard constructions

Pink® Batts® is non combustible - will not easily burn in the event of a fire - and is made from over 80% recycled glass.

Several improvements have been achieved:

- Ultra-low formaldehyde binder; helping to gain international certifications for Indoor Air Quality: GreenGuard Indoor Air Quality Certified
- Additives to reduce dust; making it easier to handle.
- No slump; products became more rigid due to the change in the binder.

Pink® Batts® insulation product range has been extended to fit with specific requirements of the New Zealand Building Code

- Steel framed walls - Segments are cut to 610mm to friction fit inside framing at 600mm centres
- Narrow walls - Segments are cut to 380mm to fit between studs at 400mm centres. Minimize wastage during installation
- 140mm walls - Extra thickness provides high thermal performance. Max R-value is R4.0

Pink® Batts® BRANZ appraised wall products carry a Lifetime Warranty, valid for the life of the building it is installed in - Tasman Insulation has been manufacturing Pink® Batts® products for New Zealand conditions for over 50 years.

Acoustic Properties

Pink® Batts® will assist with noise control; however penetrations in walls will transmit sound readily. Superior noise control can be achieved by using Pink® Batts® insulation products in conjunction with good acoustic design.

View our [Product Guide](#) for available R-values and sizes

Scope of use

Pink® Batts® insulation is suitable for use as thermal insulation in walls and ceilings where:

- Installed and maintained in a dry protected environment
- Installed in a building where the provisions of NZBC E2 and E3 are met
- Installed to the requirements of NZS 4246:2006: Energy Efficiency-Installing Insulation in Residential Buildings

Pink® Batts® wall insulation should NOT be crushed or folded.

New Zealand Building Code (NZBC)

The product will, if employed in accordance with the supplier's installation and maintenance requirements, assist with meeting the following provisions of the building code:

- **Clause B2 Durability:** Performance B2.3.1(a)
- **Clause E3 Internal moisture:** Performance E3.3.1
- **Clause F2 Hazardous building materials:** Performance F2.3.1
- **Clause H1 Energy efficiency :** Performance H1.3.1, H1.3.2E

Evidence

The product meets the requirements set out in the following documents, or relevant parts of cited standards within the documents:

Properties	Result	Test/Method/Standard	Test Result
Combustibility	Non-Combustible ✓	NZ/AS 1530.1:1994	Group Number



masterspec partner

Company Contact Details



Brand: Pink® Batts® Insulation
 Company: Tasman Insulation New Zealand
 Physical Address: 9-15 Holloway Place, Penrose, AUCKLAND
 Postal Address: PO Box 12069, Penrose, AUCKLAND
 Telephone: 64 09 5792139
 Fax: 64 09 5713482
 Email: customer@pinkbatts.co.nz
 Website: <http://www.pinkbatts.co.nz>

			1S
Flammability	Non-Flammable	√	NZ/AS 1530.3:1993 Ignitability (Range 0-20) = 0 Spread of Flame Index (Range 0-10) = 0 Heat Evolved Index (Range 0-10) = 0 Smoke Developed Index (Range 0-10) = 0-1
R-value	Various *	√	AS/NZS 4589.1:2002
Corrosion	Non-Corrosive	N/A	AS/NZS 4859.1: 2002 – Glass wool exempt
Moisture Absorption	Non-Hygroscopic	N/A	AS/NZS 4859.1: 2002 – Glass wool exempt
Vermin Resistance	No Food Source	√	AS/NZS 4859.1: 2002 – Glass wool exempt

Supporting Evidence

The product has and can make available the following additional evidence to support the above statements:



BRANZ Appraisal
[238](#)

Product Criteria

Design requirements

Pink® Batts® Insulation is intended to be friction-fitted between wall, ceiling or roof framing

Installation requirements

Correct installation with no compression, gaps or folds is critical to ensure wall insulation performance is not compromised.

Please refer to the [Pink® Batts® wall installation instruction](#) sheet

We can recommend PinkFit® professional installers throughout New Zealand who guarantee that their completed installation will meet the requirements of NZS 4246:2006

Visit www.pinkbatts.co.nz or call 0800 PINK BATTES (746 522) to locate an installer in your region.

Maintenance requirements

Pink® Batts® insulation must be protected from damage and weather. Store under cover in clean dry conditions. The installed product must remain dry at all times. If the product has become wet or damp, the source of the dampness (e.g leak in plumbing) must be repaired immediately and insulation replaced with the new product of an equivalent R-value.

Company Product Information

Environmental

Pink® Batts® insulation is a sustainable and energy efficient product.

- Manufactured using over 80% recycled glass, making sustainable use of waste
- Manufactured in Auckland, minimising shipping distances compared to imported products

Potential Green Star NZ Credits

Green Star NZ is a comprehensive environmental rating system for buildings. Pink® Batts® insulation may contribute to points under Green Star. Further information is available at www.nzgbc.org.nz

Environmental Choice

Higher R-value Pink® Batts® Wall insulation products have Environmental Choice New Zealand Accreditation (refer to product specification)

Independently assessed for:

- Waste Minimisation
- Energy Management
- Manufacturing Process
- Product Characteristics

Indoor Air Quality

Pink® Batts® insulation is certified by North American GREENGUARD Indoor Air Quality Certified®. Being certified for indoor air quality gives an assurance that products meet strict chemical emissions limits (including minimal levels of VOCs and Formaldehyde), to help create healthier indoor environments

Quality Assurance

Pink® Batts® Insulation Wall

Product Technical Statement: 101155



ISO 9001 (Quality Management)

Relationships



New Zealand Made



Environmental Choice New Zealand



Date last validated: **02 March 2017**



Date last updated: **02 March 2017**

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Pink® Batts® SnugFloor® Underfloor Insulation

Product Technical Statement: 101465



Glasswool thermal insulation for use under timber framed floors

[View miproducts listing](#)



Level of assurance needed to demonstrate NZ Building Code Compliance

Supporting documentation should include technical information by manufacturer and either an independent assessment or reference to an industry-based scheme



Pink® Batts® confirms that this minimum level of assurance has been met or exceeded by the following:

BRANZ Appraisal

[632](#)



masterspec partner

Technical Statement

Product Description

Pink® Batts® SnugFloor® is a range of glass wool underfloor products designed to:

- Reduce heat loss in new and existing homes with suspended floors
- Eliminate draughts through exposed floorboards

Features:

- Available in R-values of 1.6 or 2.6
- Size (mm): Length 1220 and widths of 480 or 580
- Internationally certified for Indoor Air Quality – Gives assurance that products meet strict chemical emissions limits
- Non-combustible – will not easily burn in the event of a fire
- Lightweight and flexible, ideal for use with joists that are uneven or out of alignment allowing for quick easy installation
- No complicated wire sheathing required as Pink® Batts® glass wool does not react with PVC covered wire

Scope of use

Pink® Batts® SnugFloor® is suitable for use as thermal under floor insulation within the following scope:

- timber framed floors in new and existing domestic and commercial buildings with a closed perimeter; and
- installed in buildings where the insulation remains dry during its serviceable life

New Zealand Building Code (NZBC)

The product will, if employed in accordance with the supplier's installation and maintenance requirements, assist with meeting the following provisions of the building code:

- **Clause B2 Durability:** Performance B2.3.1(a), B2.3.1(b)
- **Clause F2 Hazardous building materials:** Performance F2.3.1
- **Clause H1 Energy efficiency :** Performance H1.3.1, H1.3.2E

Notes

SnugFloor® meets B2.3.1(a) where

- Installed and maintained in a dry protected environment
- Installed in a building where the provisions of NZBC E2 and E3 are met.

H1.3.1(a) SnugFloor® will contribute to meeting this requirement

Supporting Evidence

The product has and can make available the following additional evidence to support the above statements:



BRANZ Appraisal

[632](#)

Product Criteria

Design requirements

Company Contact Details



Brand:	Pink® Batts®
Company:	Tasman Insulation New Zealand
Physical Address:	9-15 Holloway Place Penrose AUCKLAND
Postal Address:	PO Box 12069 Penrose AUCKLAND
Telephone:	64 09 5792139
Fax:	64 09 5713482
Email:	customer@pinkbatts.co.nz
Website:	www.pinkbatts.co.nz

Pink® Batts® SnugFloor® Underfloor Insulation

Product Technical Statement: 101465



SnugFloor® is available in the following:	Size (mm)	Nominal stabilised thickness (mm)	Nominal total area per bale (m ²)
Pink® Batts® Classic R1.6 SnugFloor® Narrow	1220 x 480	70	9.4
Pink® Batts® Classic R1.6 SnugFloor® Wide	1220 x 580	70	11.3
Pink® Batts® Ultra® R2.6 SnugFloor® Narrow	1220 x 480	110	8.8
Pink® Batts® Ultra® R2.6 SnugFloor® Wide	1220 x 580	110	10.6

Installation requirements

Please refer to Pink® Batts® SnugFloor® [Product Data Sheet](#)

Maintenance requirements

Storage and Maintenance

Pink® Batts® SnugFloor® insulation and support wires must be protected from damage and weather, stored under cover in clean and dry conditions. The installed product must remain dry at all times. The underfloor area should be inspected annually for leaks and excessive dampness. If the product has become wet or damp the cause of fault (e.g. leak in plumbing) must be repaired immediately and the insulation replaced with new of an equivalent R-value.

Company Product Information

Environmental

Pink® Batts® insulation is a sustainable and energy efficient product.

- Manufactured using over 80% recycled glass, making sustainable use of waste glass
- Energy used during the manufacture of Pink® Batts® products is offset by the energy saved by a home fully insulated with Pink® Batts® products within 3-15 months
- Locally manufactured in Auckland and Christchurch, minimising shipping distances compared to imported products

Potential Green Star NZ Credits

Green Star NZ is a comprehensive environmental rating system for buildings. Pink® Batts® insulation may contribute to points under Green Star. Further information is available at www.nzgbc.org.nz

Quality Assurance



ISO 9001 (Quality Management)

Relationships



Environmental Choice New Zealand



New Zealand Made



Date last validated: **02 March 2017**



Date last updated: **02 March 2017**

Disclaimer: The Product Technical Statement (PTS) template is copyright to Construction Information Limited. However the content of this PTS is the responsibility of the product manufacturer/supplier. Refer to the miproducts Terms and Conditions

5113G GIB Plasterboard Linings



Winstone Wallboards Ltd

+64 09 6330100

info@gib.co.nz

www.gib.co.nz

SUPPORTING DOCUMENTS

BRANZ Appraisal 427 (2021) GIB® Wet Area Systems

Ref 20082. Uploaded 7 Nov 2022

Purpose: Performance

BRANZ Appraisal 928 (2016) - GIB® EzyBrace Systems

Ref 38564. Uploaded 8 Mar 2023

Purpose: Performance

Declare Certification - GIB Braceline® GIB Noiseline®

Ref 57945. Uploaded 8 Mar 2023

Purpose: Environmental

Declare Certification - GIB® Standard

Ref 57951. Uploaded 8 Mar 2023

Purpose: Environmental

GIB EzyBrace® Systems

Ref 11539. Uploaded 7 Nov 2022

Purpose: Installation, Maintenance

GIB Standard Plasterboard 101955

Ref 10140. Uploaded 26 Jun 2020

Purpose: Installation



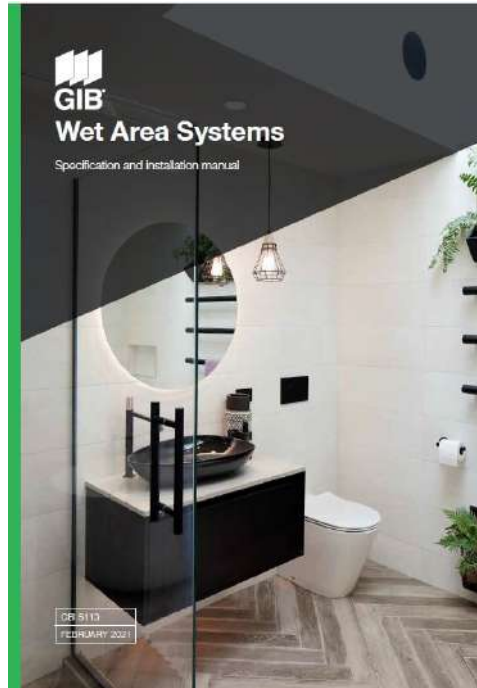
BRANZ Appraised

Appraisal No. 427 [2021]

GIB® WET AREA SYSTEMS

Appraisal No. 427 [2021]

This Appraisal replaces BRANZ Appraisal No. 427 [2007]



BRANZ Appraisals

Technical Assessments of products for building and construction.



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Product

- 1.1 GIB® Wet Area Systems are for the interior lining of timber and steel-framed walls and ceilings in wet areas such as bathrooms, laundries, kitchens and toilets where a water-resistant lining material is desirable.

Scope

- 2.1 GIB® Wet Area Systems have been appraised for use as a wet area wall and ceiling lining in buildings within the following scope:
 - on timber-framed walls and ceilings within the scope limitations on NZS 3604; or,
 - on steel-framed walls and ceilings within the scope limitations of NASH Standard Part 2, or,
 - on timber and light gauge steel-framed walls and ceilings subject to specific design.

Building Regulations

New Zealand Building Code [NZBC]

- 3.1 In the opinion of BRANZ, GIB® Wet Area Systems, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. GIB® Wet Area Systems meet the requirements for loads arising from self-weight and impact [i.e. B1.3.3 (a) and (j)]. See Paragraphs 8.1-8.3.

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years and B2.3.1 (c) 5 years. GIB® Wet Area Systems meet these requirements. See Paragraphs 9.1-9.5.

Clause E3 INTERNAL MOISTURE: Performance E3.3.4 and E3.3.5. GIB® Wet Area Systems meet these requirements. See Paragraphs 12.1-12.3.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. GIB® Wet Area Systems meet this requirement.

Technical Specification

4.1 The GIB® plasterboards and accessories used in GIB® Wet Area Systems, and supplied by Winstone Wallboards Ltd are as follows:

GIB® Plasterboards

- **GIB Aqualine®** is a paper-bound, modified water-resistant gypsum-plaster core sheet lining material. It is available in 10 and 13 mm sheet thicknesses. Sheets are available in various edge profiles and lengths from 2,400 mm to 4,800 mm. Refer to Table 1. The nominal sheet weights are 8 kg/m² and 11 kg/m² for 10 mm and 13 mm thick sheets respectively. GIB Aqualine® face paper is green in colour.
- **GIB Toughline® Aqua** is a paper-bound, modified water-resistant gypsum-plaster core sheet lining material. It is available in a sheet thickness of 13 mm. Sheets are available in various edge profiles and lengths from 2,400 mm to 3,000 mm. Refer to Table 1. The nominal sheet weight is 11.4 kg/m². GIB Toughline® Aqua face paper is mauve in colour.
- **GIB Weatherline®** is an exterior-grade, glass-fibre fleece-wrapped modified-gypsum core sheet material. The product is available in 10 mm and 13 mm thicknesses and a board width of 1,200 mm. Standard sheet lengths are 2,450, 2,700 and 3,000 mm. Custom sheet lengths are also available. The nominal sheet weights are 9 kg/m² and 11.5 kg/m² for 10 mm and 13 mm thick sheets respectively.

Table 1: GIB® Wet Area Plasterboard Available Sheet Sizes

Plasterboard Type	Sheet Thickness [mm]	Sheet Edge Profile	Sheet Width [mm]	Sheet Length [mm]					
				2,400	2,450	2,700	3,000	3,600	4,800
GIB Aqualine®	10	TE/TE	1,200	✓		✓	✓	✓	
		TE/SE	1,200	✓					✓
		TE/SE	1,350	✓				✓	
	13	TE/TE	1,200	✓		✓	✓	✓	
GIB Toughline® Aqua	13	TE/TE	1,200	✓		✓	✓		
GIB Weatherline®	10	SE/SE	1,200		✓	✓	✓		
	13	SE/SE	1,200			✓	✓		

TE = Tapered Edge SE = Square Edge

Fastenings

- GIB® Grabber® High Thread Drywall screws for fixing to timber: 6 g x 25 mm and 32 mm.
- GIB® Grabber® Self Tapping Drywall screws for fixing to light gauge steel: 6 g x 25 mm and 32 mm.

Adhesive and Sealants

- GIBFix® One (Acrylic).
- GIBFix® All-Bond (Solvent).

GIB® Accessories

- Corner Support Angle - GIBFix® Angle or GIB® Rondo® NZ18. Minimum 32 x 32 x 0.55 mm galvanised metal angle.

GIB® Jointing Compounds

- As specified in the GIB® Wet Area Systems and GIB® Site Guide Technical Literature.

4.2 System components and accessories for the GIB® Wet Area Systems, which are supplied by the building contractor are:

Waterproofing

- A waterproofing system complying with AS/NZS 4858.

Finishes

- Finishes such as tiling, flexible sheet vinyl, paints and wallpapers have not been assessed and are outside the scope of this Appraisal.

Handling and Storage

- 5.1 The best results are achieved when GIB® plasterboards are treated as a finishing material and protected from damage. Sheets must be stacked flat and kept dry at all times. For limits on stack heights see the GIB® Site Guide. Sheets must be carried on edge and not dragged.
- 5.2 All accessories must be kept dry.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for GIB® Wet Area Systems. 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

General

- 7.1 GIB® Wet Area Systems provide a water-resistant lining as a base for finishing systems in wet areas such as bathrooms, toilets, laundries and kitchens. The typical finishes are ceramic tiles and flexible sheet vinyl to walls, and paint and wallpaper to walls and ceilings. [Note: GIB Weatherline® is a suitable substrate for ceramic tiles and sheet vinyl. For paint or wallpaper finishes use GIB Aqualine® or GIB Toughline® Aqua.]
- 7.2 GIB® Wet Area Systems must not be used in the following situations:
- For bracing applications in shower areas or adjacent baths [See Paragraphs 7.4 and 8.2].
 - In areas of high humidity [above 90% RH] or continually wet areas such as group showers, steam rooms, or swimming pools.
 - Installed over a vapour barrier.
 - Applied directly to masonry, concrete or solid plaster.
 - Applied over other sheet lining materials.
 - Used externally of the building envelope.
 - Exposed to temperatures of 52°C or greater for prolonged periods. [Refer to appliance and fitting manufacturers for installation details.]
- 7.3 GIB Aqualine® may be substituted for some other GIB® plasterboard products in specific GIB® Bracing Systems, GIB® Fire Rated Systems and GIB® Noise Control Systems. Refer to the relevant systems technical literature for details.

Wet Areas

- 7.4 Wet areas are spaces where sanitary fixtures and sanitary appliances are located such as bathrooms, toilets, laundries and kitchens. There are two general categories of wet areas as follows:
- Water Splash – These are areas subject to intermittent splashing of water such as around baths, vanities, tubs and sinks.
 - Shower Areas – These are areas subject to frequent and heavy water splash such as enclosed showers, unenclosed shower zones and showers over baths.
- 7.5 Both the above wet area categories must be finished with surfaces and joints that are impervious and easily cleaned. In addition, shower areas must be waterproofed. This can be achieved using proprietary rigid shower lining systems, flexible vinyl shower wall finishes, or tiling. Tiled shower areas must include a wet area waterproofing membrane system under the tiles.

Intertenancy Walls – Wet Areas

- 7.6 Intertenancy construction that incorporates fire resistance and noise control must be protected from water splash. In shower areas, GIB® Wet Area plasterboards must not be substituted for other GIB® plasterboards but must be an extra lining layer. Refer to the Technical Literature.

Tiling

- 7.7 GIB® Wet Area Systems are suitable as a substrate for tiling up to the following weights:
- 10 mm GIB Aqualine® and GIB Weatherline® - up to 26 kg/m².
 - 13 mm GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® - up to 40 kg/m².
- [Note: Most ceramic and porcelain wall tiles weigh less than 20 kg/m². For further information on tiling consult the BRANZ Good Practice Guide – Tiling.]*

Framing

- 7.8 Supporting framing must comprise one of the following, subject to the minimum sizes, dwang centres and all other frame requirements of GIB® Wet Area Systems Technical Literature:
- Timber framing must be designed and constructed in accordance with NZS 3604, or to a specific design using NZS 3603 and AS/NZS 1170. Refer to Paragraph 15.2 regarding recommended moisture content of timber framing.
 - Steel framing must be designed and constructed in accordance with NASH Standard Part 2, or to a specific design in accordance with AS/NZS 1170.

Structure

Bracing

- 8.1 GIB Aqualine®, GIB Toughline® Aqua and GIB Weatherline® can be used in GIB EzyBrace® Systems. Refer to BRANZ Appraisals Nos. 928 [2016] and 1048 [2019].
- 8.2 GIB Wet Area Systems must not be used for bracing in shower areas or behind baths.

Impact Resistance

- 8.3 GIB® plasterboards provide adequate resistance to soft body impact, based upon experience of use in domestic and light commercial applications. GIB Toughline® Aqua is recommended by Winstone Wallboards Ltd where higher impact resistance is desired.

Durability

Serviceable Life

- 9.1 GIB® Wet Area Systems have a serviceable life of at least 15 years as a fully protected shower or water splash lining. As a general wall and ceiling lining, GIB® Wet Area Systems will have a serviceable life in excess of 50 years. The ability of GIB® plasterboards to remain durable is dependent on being protected and remaining dry in service, and being maintained in accordance with this Appraisal.

Maintenance

- 9.2 The building must be maintained weathertight and all lining systems protected from internal and external moisture.
- 9.3 Finishes to water splash and shower areas, including tiles, grout, waterproof membranes, sealants and flexible sheet vinyl must be checked to ensure the integrity of the system is maintained. They must be repaired or replaced if necessary. When repairing or replacing finishes, the GIB® plasterboard substrate must be checked for defects and repaired or replaced, as required.
- 9.4 For flexible sheet vinyl, particular attention must be paid to joints, especially at corners. Checks should be made to ensure the vinyl has not been punctured. Where damage has occurred, repairs must be made immediately.
- 9.5 Impact damage to GIB® plasterboard, resulting in small holes and cracks, may be patched, stopped and finished. For larger areas of damage, expert advice on repair must be sought from Winstone Wallboards Ltd.

Prevention of Fire Occurring

- 10.1 Separation or protection must be provided to the GIB® Wet Area Systems from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 and C/AS2, and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

Fire Affecting Areas Beyond the Fire Source

Control of Internal Fire and Smoke Spread

- 11.1 The gypsum plasterboard used in GIB® Wet Area Systems without an applied paint or wallpaper finish has been tested in accordance with ISO 5660 and achieved a Material Group Number of 1-S.
- 11.2 The gypsum plasterboard used in GIB® Wet Area Systems with an untested applied finish of a waterborne or solvent borne paint coating \leq 0.4mm thick achieves a Material Group Number of G2-S in accordance with Table A1 of NZBC Verification Method C/VM2.
- 11.3 A lower Material Group Number may be achieved when used with a tested finishing system. The Material Group Number for the complete lining system must be obtained from the supplier of the finish product or system.

Fire Resistance Ratings (FRRs)

- 11.4 GIB® Wet Area plasterboards, when used as part of GIB® Fire Rated Systems, can be used to provide FRRs as determined by NZBC Acceptable Solutions C/AS1 and C/AS2 and NZBC Verification Method C/VM2. Refer to BRANZ Appraisal No. 289 [2018] and relevant technical literature.

Internal Moisture

- 12.1 When installed in accordance with this Appraisal, GIB® Wet Area Systems will provide wall surfaces adjacent to sanitary fixtures and sanitary appliances that are impervious and easily cleaned.
- 12.2 The construction methods in the Technical Literature meet with the internal moisture requirements of the NZBC Acceptable Solution E3/AS1.
- 12.3 To minimise internal condensation, adequate levels of ventilation and thermal resistance must be provided to all spaces where moisture may be generated.

Airborne and Impact Sound

- 13.1 GIB® Wet Area plasterboards, when used as part of GIB® Noise Control systems, can be used to provide acoustic ratings as required by NZBC Acceptable Solution G6/AS1. Refer to BRANZ Appraisal No. 394 [2017] and relevant technical literature.

Installation Information

Installation Skill Level Requirement

- 14.1 Installation of GIB® Wet Area Systems must be completed by, or under the supervision of, a Licensed Building Practitioner with the relevant Licence Class, in accordance with the Technical Literature and this Appraisal.

General

- 15.1 GIB® Wet Area Systems must be installed in accordance with the Technical Literature. For inspection, reference must be made to the Technical Literature.

Framing

- 15.2 To achieve an acceptable decorative finish, the walls must not be lined unless the moisture content of timber framing is less than 18%. Winstone Wallboards Ltd recommend a moisture content of 8–12% where buildings are to be air conditioned or centrally heated.

Cutting

- 15.3 GIB® Wet Area plasterboards are easily cut by scoring the face paper with a sharp short-bladed trimming knife, and then snapping the plasterboard away from the cut face and cutting the back paper or by sawing. Use of a metal straightedge facilitates clean straight cuts. Cut edges can be tidied up by using a knife. Paper dags should be removed.

Fixing Sheets

Non-Tiled Areas

- 16.1 GIB® Wet Area plasterboards may be installed vertically or horizontally. Sheets are fixed with GIB® Grabber® screws at 300 mm centres around the perimeter of the sheet, and with GIBFix® adhesive on all intermediate studs and dwangs. Adhesive must not be used under fasteners. A 5–10 mm gap must be left between the floor and the bottom of the sheet.

Tiled Areas

- 16.2 Control joints must be provided at maximum 4 m centres.
- 16.3 Internal corners in shower areas must be reinforced with a minimum 32 x 32 x 0.55 mm galvanised metal angle [i.e. GIBFix® Angle or GIB® Rondo® NZ18] prior to lining the walls.
- 16.4 GIB® Wet Area plasterboards may be installed vertically or horizontally. Sheets are fixed with GIB® Grabber® screws at 150 mm centres to the perimeter of wall and to all intermediate studs. Adhesive must not be used in place of screws.

Ceilings

- 16.5 Supports of timber or steel battens or ceiling joists must be 450 mm centres for 10 mm GIB Aqualine®, or 600 mm centres for 13 mm GIB Aqualine® or GIB Toughline® Aqua.
- 16.6 GIB Aqualine® and GIB Toughline® Aqua sheets must be fixed with GIB® Grabber® screws at 600 mm centres around the perimeter of the ceiling and at 200 mm centre along supports. Alternatively, sheets are screw fixed at 600 mm centres along the supports and GIBFix® adhesive placed at 200 mm centres between the screws.

Penetrations and Sealants

- 17.1 All cut-outs for pipe penetrations must be made neatly using a hole saw. Cut-outs should be made approximately 12 mm diameter greater than the pipe.
- 17.2 A bead of sealant must be placed to the full thickness of the plasterboard sheet around all pipe penetrations, at bath rims and preformed shower bases and where an impervious junction is required at the floor/wall line.
- 17.3 In tiled areas, a bead of sealant 6 mm wide must also be placed to the full thickness of the tiles where the above situation occurs. The sealant manufacturer's technical literature must be followed for installation.

Jointing and Finishing

- 18.1 Jointing must be carried out in accordance with GIB® Site Guide Technical Literature.
- 18.2 Tiled shower areas must incorporate a waterproofing membrane over GIB® Wet Area Systems. Waterproofing membranes are outside the scope of this Appraisal and must otherwise be specified and approved.

Health and Safety

- 19.1 Dust resulting from the sanding of stopping and finishing compounds may be a respiratory irritant, and the use of a suitable facemask is recommended.

Basis of Appraisal

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

Tests

- 20.1 Winstone Wallboards Ltd GIB® plasterboards have been assessed for the following properties: MOR, MOE, paper tensile strength, paper shear strength, nail pull resistance, edge hardness, water resistance, hard and soft body impact tests and humidified deflection.
- 20.2 Cone calorimeter tests to ISO 5660 have been carried out by BRANZ.

Other Investigations

- 21.1 An assessment was made of the durability of the systems by BRANZ technical experts and found to be satisfactory.
- 21.2 Site inspections were carried out by BRANZ to assess the practicability of the installation of the systems, and to view completed installations.
- 21.3 The GIB® Wet Area Systems and GIB® Site Guide Technical Literature have been examined by BRANZ and found to be satisfactory.

Quality

- 22.1 Winstone Wallboards Ltd's manufacturing process and details of the quality and composition of the materials, have been examined by BRANZ and found to be satisfactory.
- 22.2 The quality management systems of Winstone Wallboards Ltd have been assessed and registered by TELARC as meeting the requirements of ISO 9001: 2015, Registration No. 581.
- 22.3 Winstone Wallboards Ltd is responsible for the quality of the product supplied.
- 22.4 The quality of the application and finish on site is the responsibility of the installation, stopping and finishing contractors.
- 22.5 Designers are responsible for the design of buildings.
- 22.6 Building owners are responsible for the maintenance in accordance with the instructions of Winstone Wallboards Ltd.



Sources of Information

- AS/NZS 1170: 2002 Structural design actions - General principles.
- AS/NZS 2588: 2018 Gypsum plasterboard.
- BRANZ Good Practice Guide: Tiling (3rd edition), April 2015.
- ISO 5660-1:2002 Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method).
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of Amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



In the opinion of BRANZ, **GIB® Wet Area Systems** 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 **Winstone Wallboards Ltd**, 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. **Winstone Wallboards Ltd**:
 - 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 **Winstone Wallboards Ltd**.
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 **Winstone Wallboards Ltd** or any third party.

For BRANZ



Chelydra Percy

Chief Executive

Date of Issue:

15 February 2021

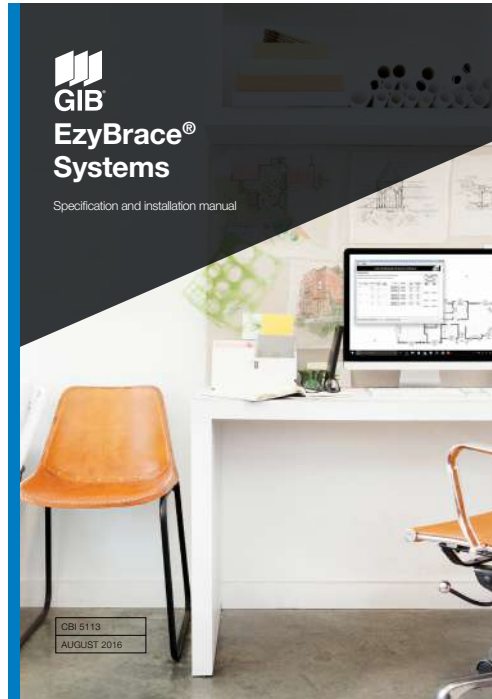


BRANZ Appraised
Appraisal No. 928 [2021]

**GIB EZYBRACE®
SYSTEMS**

Appraisal No. 928 [2021]

This Appraisal replaces BRANZ
Appraisal No. 928 [2016]



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 GIB EzyBrace® Systems are a range of wall and ceiling bracing systems based on the use of GIB® Standard, GIB Braceline® and other GIB® plasterboards. GIB EzyBrace® Systems are used to resist earthquake and wind loads on timber-framed buildings designed and constructed in accordance with NZS 3604 and the GIBFix® Framing System. The GIB EzyBrace® Bracing Software provides an electronic means of calculating bracing demand and resistance.

Scope

- 2.1 GIB EzyBrace® Systems and the GIB EzyBrace® Bracing Software have been appraised for the design and use of interior wall and ceiling bracing systems in buildings within the scope limitations of NZS 3604.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, GIB EzyBrace® Systems, 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 B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. GIB EzyBrace® Systems meet the requirements for loads arising from self-weight, earthquake, wind and impact [i.e. B1.3.3 (a), (f), (h) and (j)]. See Paragraphs 8.1-8.10.

Clause B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years. GIB EzyBrace® Systems meet this requirement. See Paragraphs 9.1-9.4.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. GIB EzyBrace® Systems meet this requirement.

Technical Specification

4.1 The GIB® plasterboards and accessories used with the GIB EzyBrace® Systems, and supplied or specified by Winstone Wallboards Ltd are as follows:

GIB® plasterboards

- **GIB® Standard** - GIB® Standard plasterboard is a paper-bound, fibreglass reinforced gypsum-plaster core sheet lining material. GIB® Standard plasterboard is available in 10 mm and 13 mm thicknesses and a sheet width of 1,200 mm and 1,350 mm [GIB® Wideline]. The sheets have a taper on the two long sheet edges. The 10 mm thick sheets are also available with a square edge. Sheets are available in various lengths from 2,400 mm to 6,000 mm. The nominal sheet weight is 6.5 kg/m² for 10 mm thick sheets and 8.5 kg/m² for 13 mm thick sheets. GIB® Standard plasterboard face paper is a light buff colour.
- **GIB Braceline®** - GIB Braceline® is a high-density fibreglass reinforced, paper-bound gypsum-plaster core sheet lining material. GIB Braceline® is available in 10 mm and 13 mm thicknesses. The sheets have a taper on the two long sheet edges. GIB Braceline® has a sheet width of 1,200 mm and 1,350 mm, and is available in lengths of 2,400 mm, 2,700 mm, 3,000 mm, 3,600 mm and 4,800 mm. The nominal sheet weight is 9 kg/m² for 10 mm thick sheets and 12.5 kg/m² for 13 mm thick sheets. GIB Braceline® face paper is light blue in colour.
- **Alternative GIB® plasterboards** - in certain situations, as specified in the Technical Literature, substitution is permitted with GIB Aqualine®, GIB Fyrelite®, GIB Toughline® and GIB Ultralite®.

Components and Accessories

- **GIB® Accessories and GIB® Jointing Compounds** - as specified in the GIB® Site Guide Technical Literature.
- **Fasteners**
 - GIB Grabber® High Thread Screws for fixing directly to timber - 32 mm x 6 g.
 - GIB Nail - 30 x 2.8 mm.
 - GIB Grabber® screws for fixing to light gauge steel battens - 32 mm x 6 g.
- **Adhesive and Sealants**
 - GIBFix® One - an off-white acrylic adhesive supplied in 375 ml cartridges and 600 ml sausages.
 - GIBFix® All-Bond - a green solvent-based adhesive supplied in 375 ml cartridges and 600 ml sausages.
- **GIBFix® Framing Components**
 - GIBFix® Angle - 45 x 45 x 0.55 mm galvanised steel angle with a knurled surface. Supplied in lengths of 2.4 m and 2.7 m.
 - GIB Grabber® Dual Thread Screws for fixing to timber through GIBFix® Angle - 32 mm x 7 g needle-point screw with coarse thread lower section and fine thread upper section.
- **Fasteners, Anchors and Connections**
 - GIB® HandiBrac® - a one-piece, 2 mm thick, galvanised steel angle bracket approximately 95 mm high, 65 mm long and 54 mm wide. The bracket is supplied with five Type 17 screws, 14 g x 35 mm.
 - BOWMAC® screw bolt - M10 x 140 mm screw anchor, with a blue painted hex head.
 - Coach screws - 12 mm x 150 mm and 50 x 50 x 3 mm washer, hot-dip galvanised for fixing to timber floors.
 - Cast-in bolts - M12 x 150 mm minimum and 50 x 50 x 3 mm washers for fixing to concrete floors.
 - Shot-fired fasteners - minimum 75 mm x 3.8 mm with 16 mm discs for fixing GS1-N, GS2-N and GS2-NOM internal line bracing elements to concrete slabs.
 - Galvanised or stainless steel strap - 25 x 0.9 mm top and bottom plate connections.
 - Strap fixings - 30 x 2.5 mm hot-dip galvanised or stainless steel flat head nails. [Note: For corrosion protection requirements, refer to NZS 3604, Section 4.]

- **Ceiling Diaphragms** - ceiling diaphragms are constructed using timber ceiling battens, or GIB® Rondo® or similar metal ceiling batten systems.
- **Plywood**
 - **Plywood** – minimum of 7 mm thick complying with AS/NZS 2269 D-D Structural Grade.
 - **Plywood fixings** – 50 x 2.5 mm hot-dip galvanised or stainless steel annular-grooved, flathead nails.

Handling and Storage

- 5.1 The best results are achieved when GIB® plasterboards are treated as a finishing material and protected from damage. Sheets must be stacked flat and kept dry at all times. For limits on stack heights see the GIB® Site Guide. Sheets must be carried on edge and not dragged.
- 5.2 All accessories must be kept dry.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for GIB EzyBrace® Systems. 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

General

- 7.1 NZS 3604 provides methods to distribute the bracing elements in walls to resist forces. The use of ceiling diaphragms is defined in the Technical Literature.
- 7.2 GIB EzyBrace® Systems are for use in dry, internal situations only.
- 7.3 GIB EzyBrace® Systems must not be exposed to temperatures of 52°C or greater for prolonged periods. Refer to appliance and fitting manufacturers for installation details.

GIB EzyBrace® Bracing Software

- 7.4 The GIB EzyBrace® Bracing Software contains design procedures and an electronic calculation method for bracing demand calculated in accordance with NZS 3604, Section 5. Floor loadings can be selected in accordance with either NZS 3604, Bracing Demand Tables 5.5–5.10 for 2 kPa floor loads or less, or Tables 14.1–14.3 for 3 kPa floor loads.
- 7.5 The bracing demand calculations contained in the GIB EzyBrace® Bracing Software are based on first principles engineering and calculate wind and earthquake demand, based on the building parameters entered. Resulting bracing demand calculations are project specific and can differ from values derived using NZS 3604 wind and earthquake demand tables. The GIB EzyBrace® Bracing Software has been assessed as part of this Appraisal.
- 7.6 The bracing ratings for GIB EzyBrace® Systems are embedded in the GIB EzyBrace® Bracing Software.

GIBFix® Framing System

- 7.7 The GIBFix® Framing System utilises GIBFix® Angles fixed at internal corners and at wall/ceiling junctions to reduce the potential for fastener ‘popping’ and joint cracking due to timber framing movement. The GIBFix® Framing System also offers an alternative arrangement of studs at corners and at intersecting walls to improve insulation and to reduce thermal bridging compared to traditional wall framing layouts. Refer to the Technical Literature for full details.
- 7.8 Where walls intersect, noggings are required at maximum 900 mm centres to enable fixing of the end stud of the intersecting wall to the main wall framing.
- 7.9 The GIBFix® Framing System permits the use of a single panel hold-down [e.g. GIB® HandiBrac®] at wall corners and T-intersections for both the across and along bracing directions.

Framing

- 7.10 GIB EzyBrace® Systems can be installed using conventional timber framing layouts or by using the layouts provided in the GIBFix® Framing System. The bracing ratings embedded in the GIB EzyBrace® Bracing Software are equally applicable to both framing options.
- 7.11 Timber framing grade, spacing and construction must comply with NZS 3604. Timber treatment must comply with NZBC Acceptable Solution B2/AS1.
- 7.12 Winstone Wallboards Ltd recommends the use of kiln-dried stress-graded framing timber. The minimum actual framing dimensions are 90 mm x 45 mm for external walls and 75 mm x 45 mm for internal walls.
- 7.13 Joints in the top plates of bracing panels must be tied together with 3 kN and 6 kN top plate connectors using 25 mm x 0.9 mm hot-dip galvanised mild steel strap, three nails each side of joint for 3 kN and six nails each side of joint for 6 kN.

Bracing System GS2-NOM

- 7.14 Most GIB EzyBrace® Systems require additional fasteners at the corners to achieve the published bracing ratings. The GS2-NOM system only requires fixings at 300 mm centres around the sheet perimeter.
- 7.15 Where internal doors penetrate a GS2-NOM bracing element and recessed door jambs are used, the sheets may be adhesive fixed around the door opening with GIBFix® All-Bond, instead of screw fixing. This is designed to reduce fastener 'popping' around internal doors when using grooved door frames. Screw fixing should be used where door frames are to be finished with architraves and the architrave will cover the screws. The adhesive fix option around door openings must not be used with any other GIB EzyBrace® Systems.

Alternative GIB® plasterboards

- 7.16 GIB Ezybrace® Systems have been designed and tested using only the products specified. Occasionally additional properties may be required to be provided by a different GIB® plasterboard product. Table 1 provides acceptable alternative options.

Table 1: Permitted Alternatives in GIB EzyBrace® Systems

Specified	Permitted alternative GIB® plasterboard products								
	GIB® Standard	GIB Ultraline®	GIB Braceline/ Noiseline®	GIB Aqualine®	GIB Toughline®	GIB Fyreline®			
						10 mm	13 mm	16 mm	19 mm
GIB® Standard	N/A	✓	✓	✓	✓	✓ <i>Note 1</i>	✓ <i>Notes 1 and 3</i>		
GIB Braceline®	X	X	N/A	✓ <i>Note 2</i>	✓	X	✓ <i>Notes 1, 2 and 3</i>		

- **Note 1:** The fastener type and length and must be as required for the relevant Fire Resistance Rating (FRR) system but the fixing pattern must be as required for bracing elements.
- **Note 2:** The bracing element must be 900 mm or longer. Fasteners must be at maximum 100 mm centres to the perimeter of the bracing element. The bracing corner fastening pattern applies to all four corners of the element.
- **Note 3:** Specify traditional wall framing layout where a FRR is required. See Paragraph 11.4.

BOWMAC Screw Bolts

- 7.17 When BOWMAC Screw Bolts are used as fixings for external walls with concrete masonry header block foundations, the minimum grout/concrete strength must be as specified in NZS 3604. BOWMAC Screw Bolts may be used in Corrosion Zones B and C as defined in NZS 3604. BOWMAC Screw Bolts may only be used in NZS 3604 Corrosion Zone D where the minimum concrete cover to the bolt is 60 mm. This cannot be achieved with standard 90 mm wide timber framing. An alternative option in this scenario is to use 140 mm wide framing.

Structure

Bracing

- 8.1 The bracing unit [BU] ratings are embedded in the GIB EzyBrace® Bracing Software and vary with the wall length.
- 8.2 The Technical Literature provides comprehensive construction and panel hold-down details. These include bottom plate fixings using anchor screws and cast-in bolts (concrete), coach screws (timber), GIB® HandiBrac® or nailed stud-to-plate straps.
- 8.3 Bracing units derived from the BRANZ P21 test method are based on a wall height of 2.4 m. The GIB EzyBrace® Bracing Software calculates bracing ratings for higher wall heights by multiplying the appropriate bracing rating by 2.4 m and dividing by the actual wall height in metres. For walls less than 2.4 m in height, the GIB EzyBrace® Bracing Software calculates bracing ratings as if they were 2.4 m high.
- 8.4 NZS 3604 limits wall bracing elements to a maximum of 120 BU/m for timber-framed floors and 150 BU/m for concrete floors.

Ceiling Diaphragms

- 8.5 GIB® ceiling diaphragms are used to space bracing lines further apart than 6 m. The basic shape of a ceiling diaphragm must be square or rectangular and the length must not exceed twice the width.
- 8.6 For ceiling diaphragms not steeper than 15° and not exceeding 7.5 m in length, any GIB® plasterboard may be used provided the perimeter fixing are at 150 mm centres.
- 8.7 For ceiling diaphragms not steeper than 45° and not exceeding 7.5 m in length, and for diaphragms not steeper than 25° and not exceeding 12 m in length, any GIB® plasterboard may be used provided the perimeter fixings are at 100 mm centres.

Openings in Bracing Elements

- 8.8 Small openings of 90 x 90 mm or less may be placed anywhere except within 90 mm of the edge of the bracing element.

Shower Areas

- 8.9 GIB EzyBrace® Systems must not be located in shower cubicles or behind baths and the like. GIB EzyBrace® Systems may be used in water-splash areas provided they are protected as required by NZBC Clause E3 Internal Moisture. Refer to BRANZ Appraisal No. 427 GIB® Wet Area Systems.

Impact Resistance

- 8.10 GIB® plasterboards provide adequate resistance to soft body impact, based upon history of use in domestic and light commercial applications.

Durability

- 9.1 GIB EzyBrace® Systems, including linings and their fixings, have a serviceable life of at least 50 years. The ability of the systems to remain durable is dependent on them remaining dry in service, and being maintained in accordance with this Appraisal.

Maintenance

- 9.2 The building must be maintained weatherproof and GIB® plasterboards must be protected from external and internal moisture in accordance with NZBC Clauses E2 and E3.
- 9.3 Holes resulting from damage to the lining, up to 100 x 100 mm square, will have no significant effect on the performance of the bracing panel. Such holes may be repaired by patching, stopping and finishing as appropriate. Independent expert advice must be sought to assess the effect and repair of larger areas of damage.
- 9.4 Bracing elements require no ongoing maintenance, apart from decoration and the repair of any damage.

Prevention of Fire Occurring

- 10.1 Separation or protection must be provided to the GIB EzyBrace® Systems from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Verification Method C/VM1 and NZBC Acceptable Solution C/AS1, and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

Fire Affecting Areas Beyond the Fire Source

- 11.1 For internal surface finish properties and fire resistance ratings, refer to BRANZ Appraisal No. 289 GIB® Fire Rated Systems.

Internal Moisture

- 12.1 GIB® plasterboard must be used in dry internal situations, and must not be used where likely to be exposed to liquid water, or where extended exposure to humidity above 90% RH is expected, e.g., such as may be expected in sauna rooms, commercial kitchens and the like.

Installation Information

Installation Skill Level Requirement

- 13.1 Installation of GIB EzyBrace® Systems must be completed by, or under the supervision of a Licensed Building Practitioner with the relevant Licence Class, in accordance with the Technical Literature and this Appraisal.

General

- 14.1 GIB EzyBrace® Systems must be installed in accordance with the Technical Literature. For inspection, reference must be made to the Technical Literature.

Framing

- 14.2 To achieve an acceptable decorative finish, the GIB® Site Guide specifies that walls must not be lined unless the moisture content of timber framing is less than 18%. Winstone Wallboards Ltd recommends a moisture content of 12% or less where buildings are to be air conditioned, centrally heated or have heat pumps installed.
- 14.3 Where the GIBFix® Framing System is used, GIBFix® Angles are tacked to the framing with flat head clouts prior to installation of the GIB® plasterboard.

Cutting

- 14.4 GIB® plasterboard is easily cut by scoring the face paper with a sharp short-bladed trimming knife, and then snapping the plasterboard away from the cut face and cutting the back paper or by sawing. Use of a metal straightedge facilitates clean straight cuts. Cut edges can be tidied up by using a knife. Paper dags should be removed.

Hold-downs

- 14.5 GIB EzyBrace® Systems which require hold-downs must either have a GIB® HandiBrac® fitted to each end of the bracing element or alternatively a metal stud-to-plate strap and hold-down anchor may be used. Refer to the Technical Literature for full installation details. Where a metal stud-to-plate strap is used, the hold-down anchor must be placed no more than 80 mm from the end of the bracing element.
- 14.6 Where the GIBFix® Framing System is used, a single hold-down located at a wall intersection may be used to provide the hold-down in both the across and along bracing directions.

Plasterboard Sheet Fixing

- 14.7 Corner fixings must be 50 mm away from the sheet corner. Fixings must be no closer than 12 mm from the paper-bound sheet edge, and no closer than 18 mm from a cut edge, and driven at right angles to the sheet until the head is seated in a slight dimple just below the surface of the paper liner. Fixings must not be over-driven.

- 14.8 Wall bracing plasterboards [except for those used with the GS2-NOM system] are fixed at 150 mm centres around the perimeter framing of the bracing element [Note: There is a variation for GIB Aqualine® and GIB Fyrelite®, see Table 1]. At the corners of the wall bracing elements, a special fastening pattern is required with fasteners spaced at 50 mm, 100 mm, 150 mm, 225 mm and 300 mm from the corner and thereafter at 150 mm centres. Fixing to other framing is either mechanical or by using GIBFix® adhesives.
- 14.9 When installing GS2-NOM bracing elements, the GIB® plasterboard is fixed to framing around the bracing element perimeter and at sheet joints with fasteners at maximum 300 mm centres. Where recessed door jambs are used on internal door frames, the GIB® plasterboard may be fixed to the framing around the door opening with GIBFix® All-Bond, see Paragraph 7.15.
- 14.10 Where GIB Aqualine® or GIB Fyrelite® substitutes for GIB Braceline®, bracing elements must be longer than 900 mm and the bracing element perimeter fasteners must be spaced at 100 mm centres and the corner pattern described in Paragraph 14.8 used.
- 14.11 Full sheets must be used wherever possible.

Fire Resistance Rated Bracing Elements

- 14.12 Where a bracing element is also used as a fire-rated element, the method of fixing [including the length of the fixing specified] for the fire-rated element must be used, but the perimeter fixings of the bracing element must be at 150 mm centres and fixings at corners of the bracing element must be fixed as described in Paragraph 14.8. In two-layer systems, the inner layer must be used for bracing.

Plywood Fixing

- 14.13 Plywood is nail fixed at 150 mm centres around the perimeter of each sheet and at 300 mm centres to intermediate framing.

Ceiling Diaphragms

- 14.14 All GIB EzyBrace® System ceiling diaphragms require fixings around the perimeter at 100 mm or 150 mm centres, depending on the ceiling pitch and length. See Paragraphs 8.4-8.6 and refer to the Technical Literature.
- 14.15 The perimeter of the ceiling diaphragm is fixed to GIBFix® Angles, GIB® Rondo® perimeter channels, or alternatively, to an additional ex 150 x 40 mm timber plate fixed to the top plate.

Jointing and Finishing

- 14.16 All bracing element joints must be reinforced with GIB® tape and finished in accordance with the GIB® Site Guide.

Health and Safety

- 15.1 Dust resulting from the sanding of stopping and finishing compounds may be a respiratory irritant, and the use of a suitable facemask is recommended.

Basis of Appraisal

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

Tests

- 16.1 Bracing tests were carried out by Winstone Wallboards Ltd in accordance with BRANZ Technical Paper P21 to determine the performance of GIB EzyBrace® Systems when the building is subjected to lateral wind or earthquake loading. Nail and screw slip tests were carried out by BRANZ and Winstone Wallboards Ltd. Winstone Wallboards Ltd's test facilities, procedures and results have been reviewed by BRANZ and found to be satisfactory.



Other Investigations

- 17.1 The GIB EzyBrace® Bracing Software has been assessed by BRANZ and found to be satisfactory.
- 17.2 The GIB EzyBrace® Systems and GIB® Site Guide Technical Literature have been examined by BRANZ and found to be satisfactory.
- 17.3 Site inspections were carried out by BRANZ to assess the practicability of the installation of the systems, and to view completed installations.
- 17.4 An assessment was made of the durability of the systems by BRANZ technical experts and found to be satisfactory.
- 17.5 The properties of Winstone Wallboards Ltd GIB® plasterboards have been assessed for the following properties: MOR, MOE, paper tensile strength, paper shear strength, nail pull resistance, Hunter hardness, inspection for fungal spores, and hard and soft body impact tests.

Quality

- 18.1 Winstone Wallboards Ltd's manufacturing process and details of the quality and composition of the materials, have been examined by BRANZ and found to be satisfactory.
- 18.2 The quality management systems of Winstone Wallboards Ltd have been assessed and registered by TELARC as meeting the requirements of ISO 9001, Registration No. 581.
- 18.3 Winstone Wallboards Ltd is responsible for the quality of the product supplied.
- 18.4 The quality of the application and finish on-site is the responsibility of the installation and stopping contractors.
- 18.5 Designers are responsible for the design of buildings.
- 18.6 Building owners are responsible for the maintenance in accordance with the instructions of Winstone Wallboards Ltd.

Sources of Information

- AS/NZS 2269.0:2012 Plywood - Structural - Specifications.
- AS/NZS 2588:2018 Gypsum plasterboard.
- BRANZ Technical Paper P21:2010 A wall bracing test and evaluation procedure.
- NZS 3604:2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



BRANZ Appraised
Appraisal No. 928 [2021]

BRANZ Appraisal
Appraisal No. 928 [2021]
01 December 2021

GIB EZYBRACE® SYSTEMS



In the opinion of BRANZ, **GIB EzyBrace® Systems** 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 **Winstone Wallboards Ltd**, 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. **Winstone Wallboards Ltd**:
 - 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 **Winstone Wallboards Ltd**.
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 **Winstone Wallboards Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

01 December 2021

Declare. SM

GIB Braceline[®] GIB Noiseline[®] Plasterboard Winstone Wallboards

Final Assembly: Auckland, New Zealand; Christchurch, New Zealand

Life Expectancy: 50 Year(s)

End of Life Options: Recyclable (100%)

Ingredients:

Gypsum; Cellulose Fibre - Paper; Fibreglass; Starch

Living Building Challenge Criteria: Compliant

I-13 Red List:

- | | |
|---|-----------------------------|
| <input checked="" type="checkbox"/> LBC Red List Free | % Disclosed: 100% at 100ppm |
| <input type="checkbox"/> LBC Red List Approved | VOC Content: Not Applicable |
| <input type="checkbox"/> Declared | |

I-10 Interior Performance: Exception I08-E1: Product Air Quality Testing In Oceania

I-14 Responsible Sourcing: Not Applicable

WWL-0003

EXP. 01 NOV 2023

Original Issue Date: 2015

Declare. SM

GIB® Standard Plasterboard Winstone Wallboards

Final Assembly: Auckland, New Zealand; Christchurch, New Zealand

Life Expectancy: 50 Year(s)

End of Life Options: Recyclable (100%)

Ingredients:

Gypsum; Cellulose Fibre - Paper; Fibreglass; Metaphosphoric acid (H₃P₃O₉), trisodium salt; Starch

Living Building Challenge Criteria: Compliant

I-13 Red List:

- | | |
|---|-----------------------------|
| <input checked="" type="checkbox"/> LBC Red List Free | % Disclosed: 100% at 100ppm |
| <input type="checkbox"/> LBC Red List Approved | VOC Content: Not Applicable |
| <input type="checkbox"/> Declared | |

I-10 Interior Performance: Exception I08-E1: Product Air Quality Testing In Oceania

I-14 Responsible Sourcing: Not Applicable

WWL-0005

EXP. 01 NOV 2023

Original Issue Date: 2015



EzyBrace[®] Systems

Specification and installation manual



CBI 5113

AUGUST 2016

NATIONAL SUPPORT

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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.

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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.

Specified GIB® plasterboard	Acceptable alternative GIB® plasterboards								
	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.

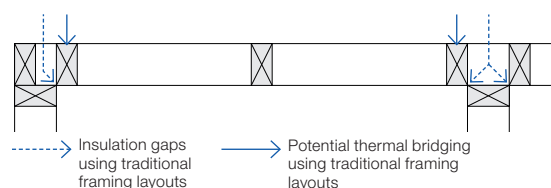
The GIBFix® Framing System offers better thermal efficiencies and minimises potential joint imperfections resulting from interior linings being fixed to multiple timber framing members.

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.

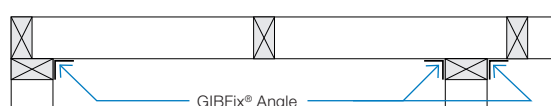
Bracing ratings apply whether fixing is directly into timber or into the metal components, provided correct construction details, fastener types and centres are applied.

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.

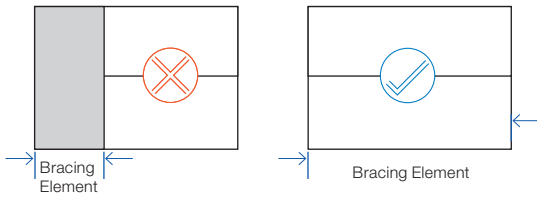
It is of prime importance to comply with the details of design, construction and workmanship in this document.

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:

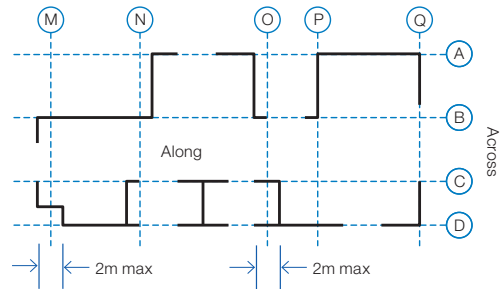
- 6 metres for standard construction with any GIB® plasterboard ceiling, or
- 7.5 metres where dragon ties in accordance with NZS3604:2011 have been installed, or
- 12 metres with a GIB® plasterboard ceiling diaphragm.

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.

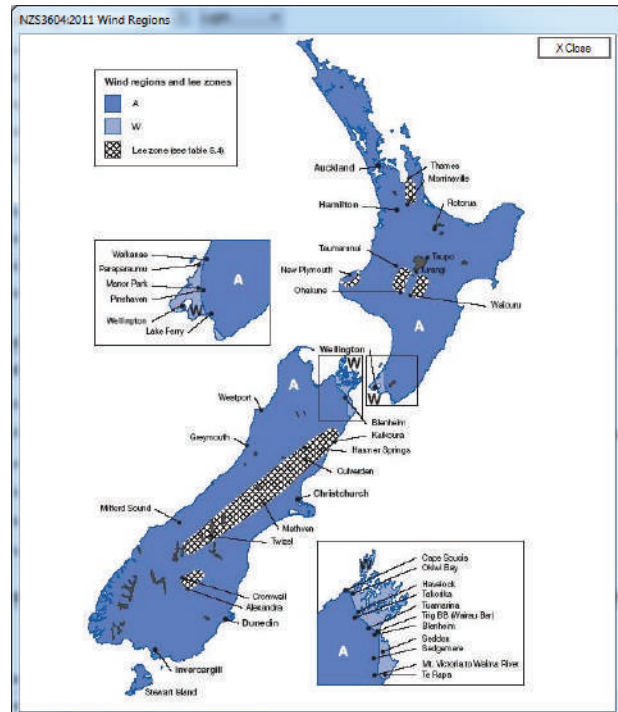
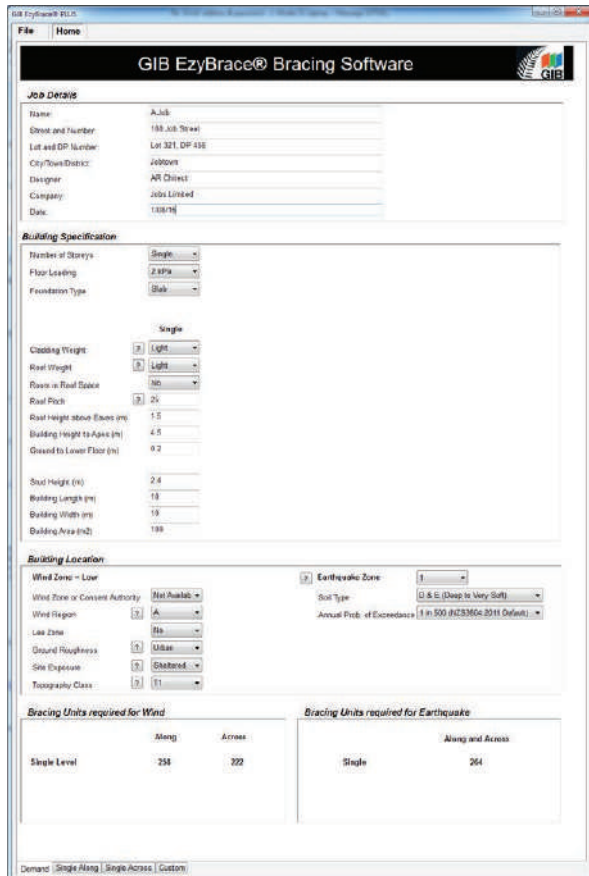
Bracing resistance sheets (‘tabs’) are added depending on the building specification entered. For example, subfloor bracing resistance tabs only show when a ‘subfloor’ foundation type has been selected.

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



[Download GIB EzyBrace® 2016 design software from gib.co.nz/ezybrace](http://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

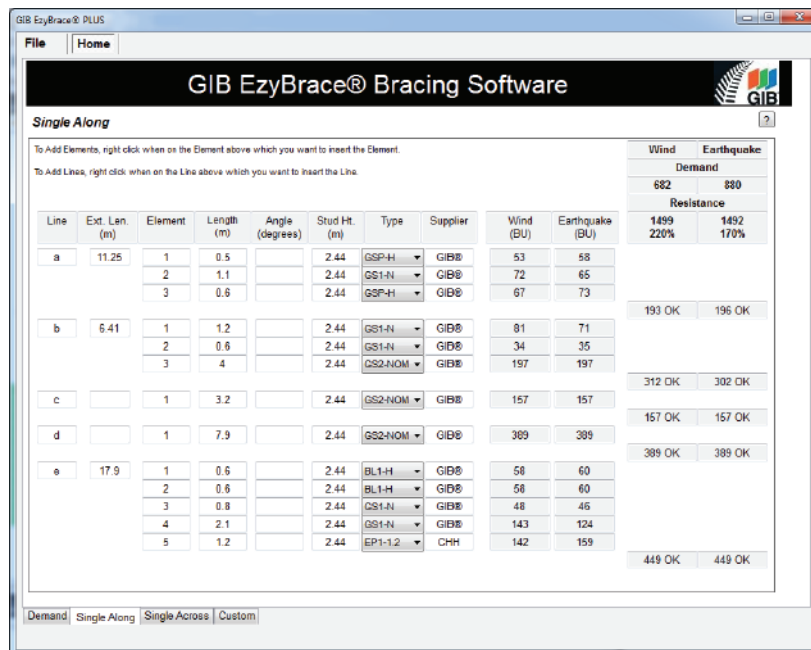
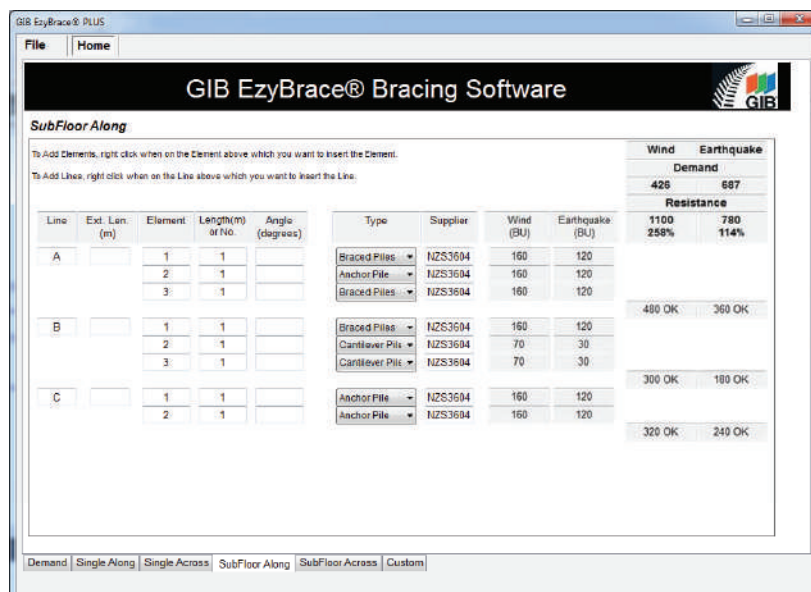


FIGURE 7: GIB EZYBRACE® 2016 — SUBFLOOR BRACING RESISTANCE CALCULATION SHEET

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



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)	Yield (kN/m)	EQ (kN/m)	Element Height (m)	Element Foundation (m)
Custom1	CU1-0.4	0.4	80	95	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Custom1	CU1-0.6	0.6	95	105	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Custom1	CU1-1.2	1.2	120	135	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Custom2	CU2-0.4	0.4	90	98	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Custom2	CU2-0.6	0.6	127	136	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Custom2	CU2-1.2	1.2	164	135	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Engineer	Portal	1	300	300	<input type="checkbox"/>	<input type="checkbox"/>

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

Along	Across
Single Level	682
Along & Across	698

Along	Across
Single Level	177

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

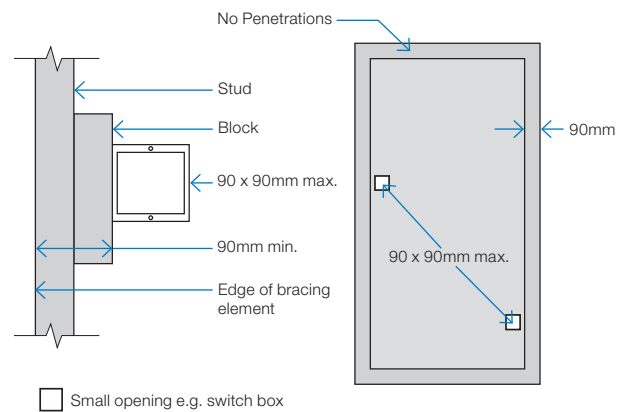
SMALL OPENINGS

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

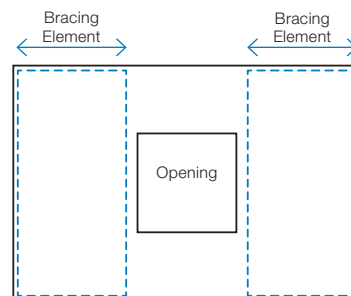
Openings above 90 x 90mm such as switch boards, recessed cabinets and TV's etc. should be placed outside of the bracing element or locate bracing on the other side of the wall framing.

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.

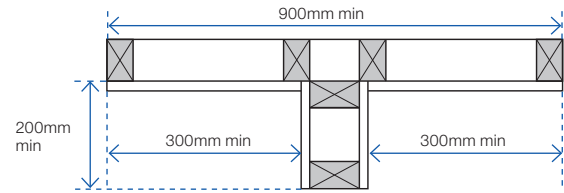
Guidelines for intersection walls

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).

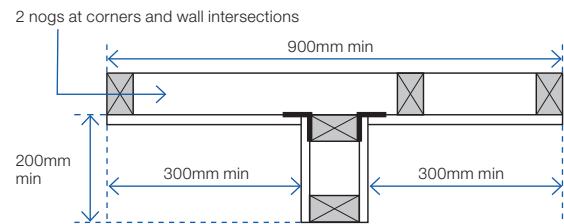
When fixing part sheets of GIB® plasterboard to the side of a T-junction, a minimum width of 300mm applies for bracing elements. See figures 12 and 13.

FIGURE 12: WALL INTERSECTION (TRADITIONAL WALL FRAMING)



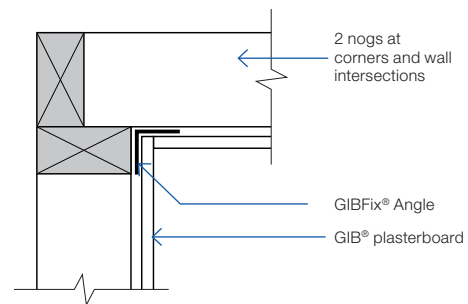
GEB002

FIGURE 13: WALL INTERSECTION (GIBFIX® FRAMING SYSTEM)



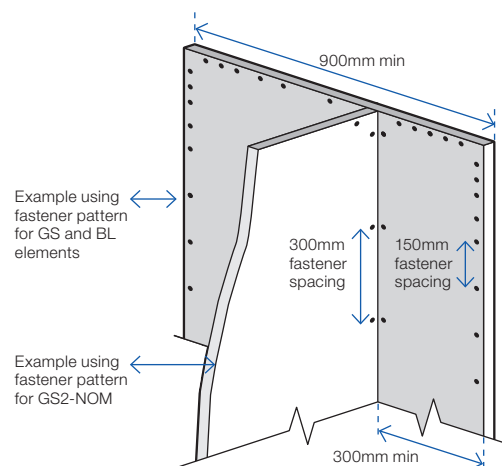
GEB003

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

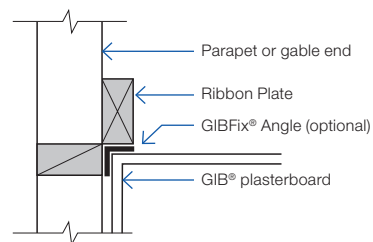
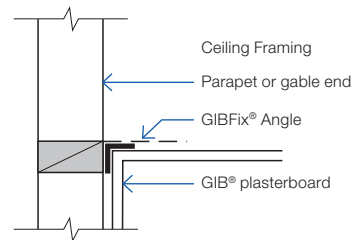


FIGURE 17: PARAPETS AND GABLE ENDS WITH GIBFIX® ANGLE



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.

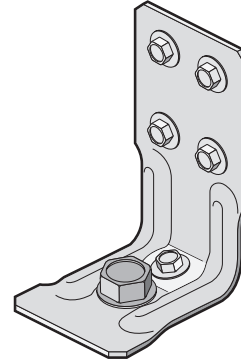
Concrete floor		Timber floor	
<p>400 x 25 x 0.9mm galvanised strap to pass under the plate and up the other side of the stud. Six 30 x 2.5mm flat head galvanised nails to each side of the stud. Three 30 x 2.5mm flat head galvanised nails to each side of the plate. Hold down bolt with 50 x 50 x 3mm washer to be fitted within 80mm of the end of the element.</p>			
Internal wall			
<p>GEB004</p>		<p>GEB005</p>	
External wall			
<p>GEB006</p>		<p>GEB007</p>	
<p>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.</p>		<p>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.</p>	
		<p>GEB008</p>	
Hold-down fastener requirements			
Concrete floor		Timber floor	
<p>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.</p>		<p>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</p>	

GIB HandiBrac® installation

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

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

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



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

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

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

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

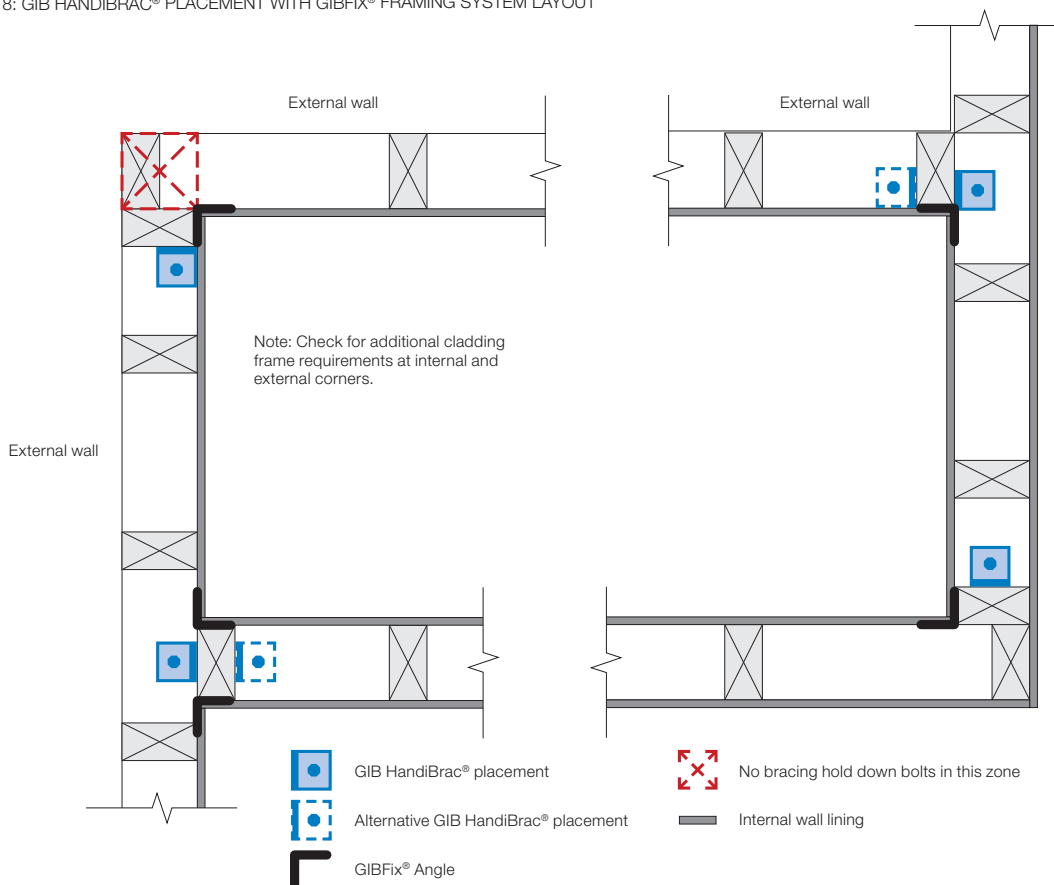
The GIB HandiBrac[®] is fixed to the stud which has the GIBFix[®] Angle.

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

TIMBER FLOORS

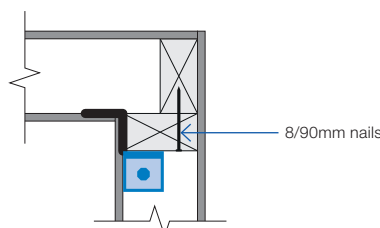
For timber floors bolt fixing in to solid joist or block is required, as shown on p 15.

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



GEB013

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



GEB014

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 EzyBrace® fastener pattern.

FIGURE 20: PROTRUSIONS AND CUTOUTS

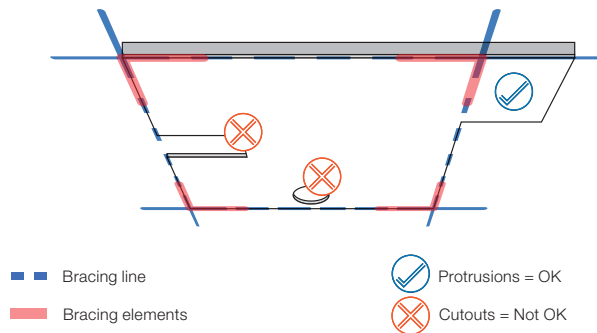


FIGURE 21: DIAPHRAGM BRACING LINING SPACINGS

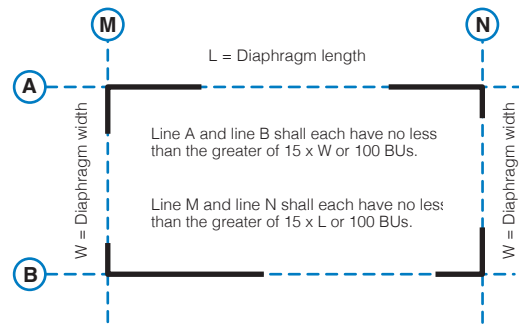
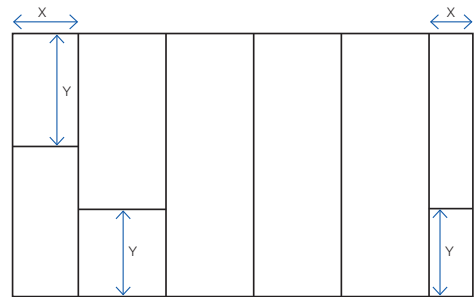
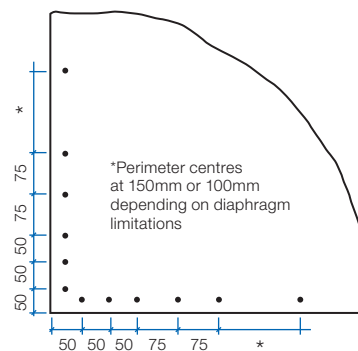


FIGURE 22: GIB® CEILING DIAPHRAGM SHEET WIDTHS AND LENGTHS



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

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.

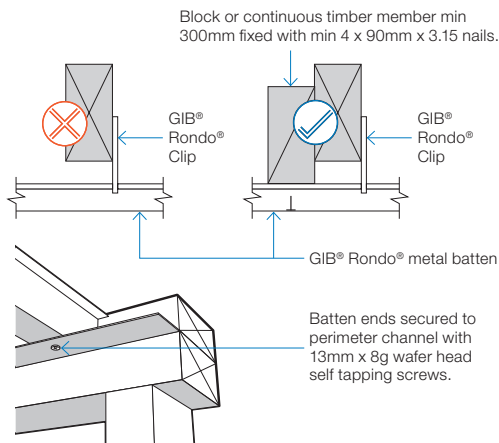
For GIB® Rondo® metal battens, a GIB® Rondo® metal channel or metal angle is required at the perimeter of the diaphragm. The perimeter channel shall be fastened to the top plate with 32mm x 8g GIB® Grabber® Wafer Head Self Tapping screws or 32mm x 7g GIB® Grabber® Dual Thread screw at 300mm centres maximum.

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:

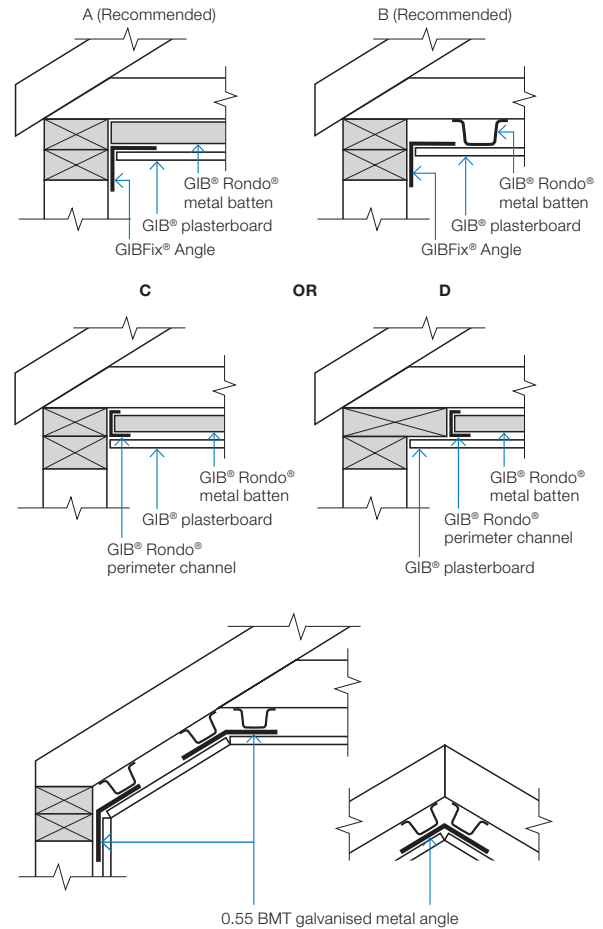
- Fastened at 300mm on each edge to metal battens using 32mm x 8g GIB® Grabber® Wafer Head Self Tapping screws or 32mm x 7g GIB® Grabber® Dual Thread screws.
- Fastened to timber framing using 32mm x 7g GIB® Grabber® Dual Thread screws when linings are installed.

FIGURE 26: GIB® RONDO® METAL CEILING BATTEN INSTALLATION



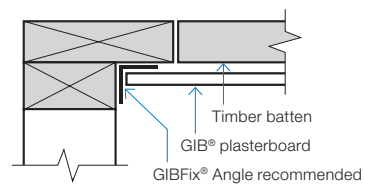
GEB016

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 galvansed 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

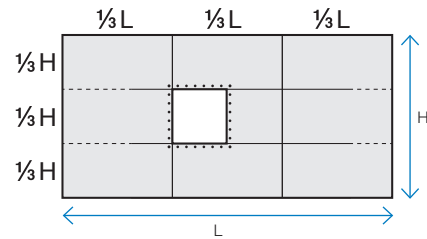
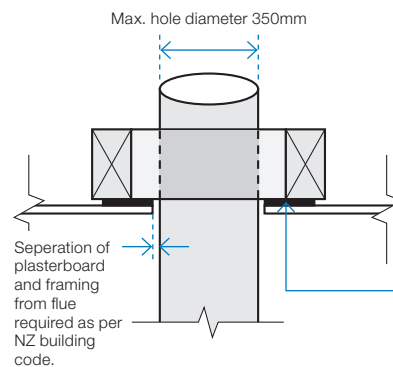
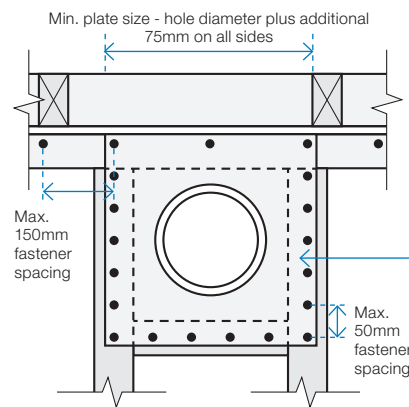


FIGURE 25: FIREPLACE FLUES AND RANGE HOOD OPENINGS

Section view



Plan view



Plasterboard ceiling not shown in plan 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.

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.

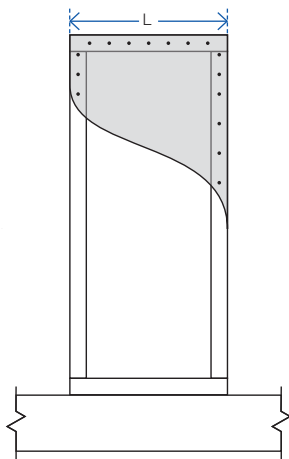
'N' type GIB EzyBrace® elements are identified by GIB® specification numbers GS1-N, GS2-N and GS2-NOM

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.

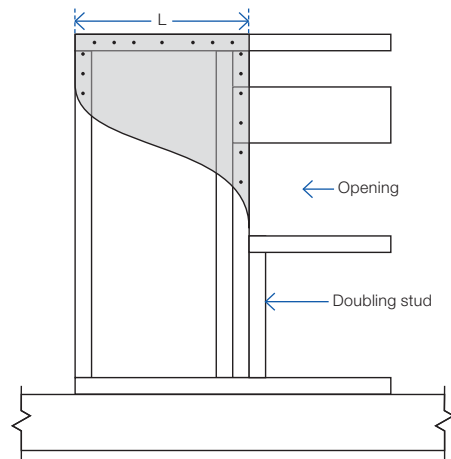
Fastener spacings and diagram scales shown in Figures 29-32 are indicative only. Refer to p.23-30 for construction details.

FIGURE 29: GS BRACING ELEMENTS (OPTION A)



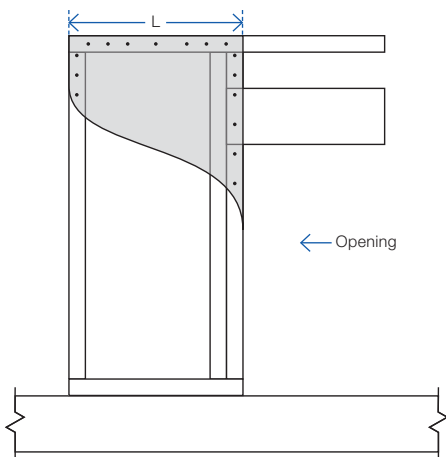
GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 30: GS BRACING ELEMENTS (OPTION B)



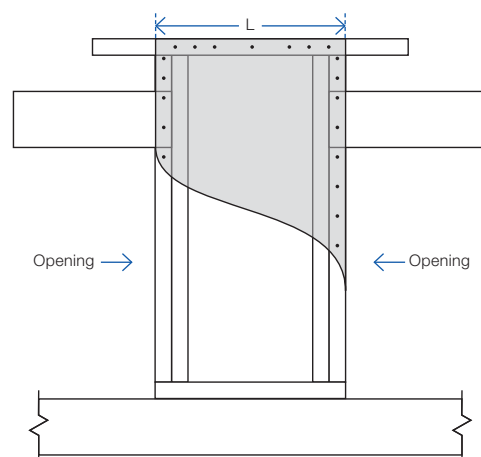
GS1-N, GS2-N elements
'L' indicates the length of the bracing element

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.

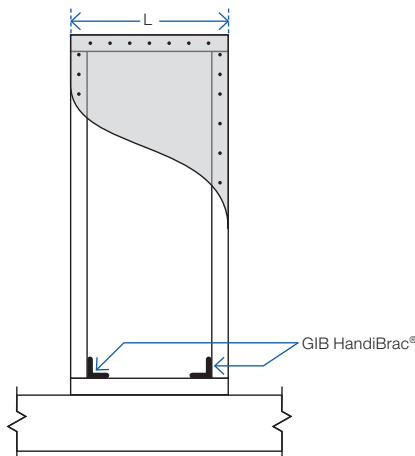
Spike doubling stud to trimming stud using a minimum of 2/90mm gun nails at 600mm centres. Lintel straps (where required for wind uplift) should be checked in and be located away from the bracing element fasteners.

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.

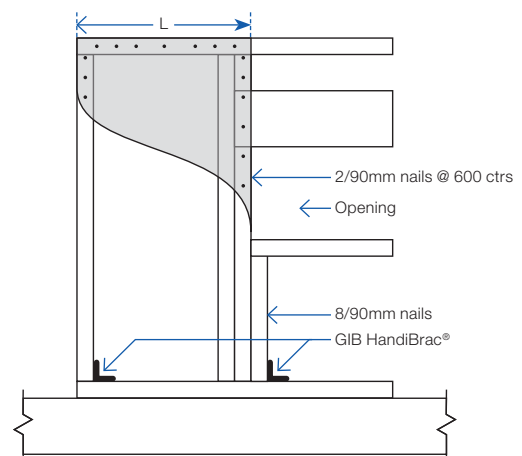
Fastener spacings and diagram scales shown in figures 33–36 are indicative only. Refer to p.23–30 for construction details.

FIGURE 33: BL BRACING ELEMENTS (OPTION A)



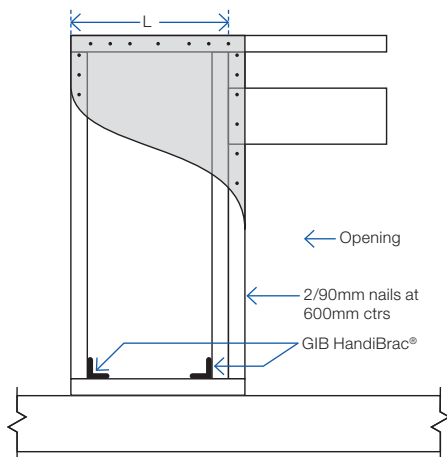
'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 34: BL BRACING ELEMENTS (OPTION B)



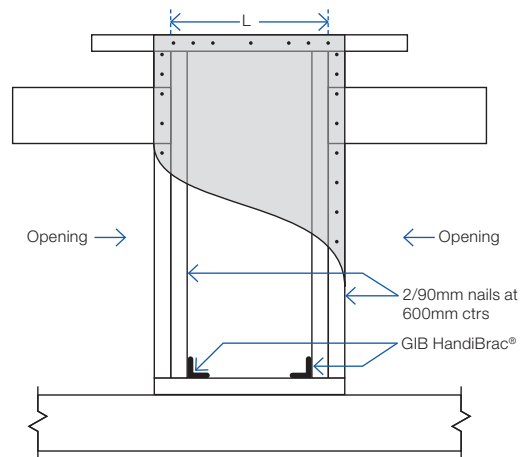
'H' type elements with specific hold downs
'L' indicates the length of the bracing element

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

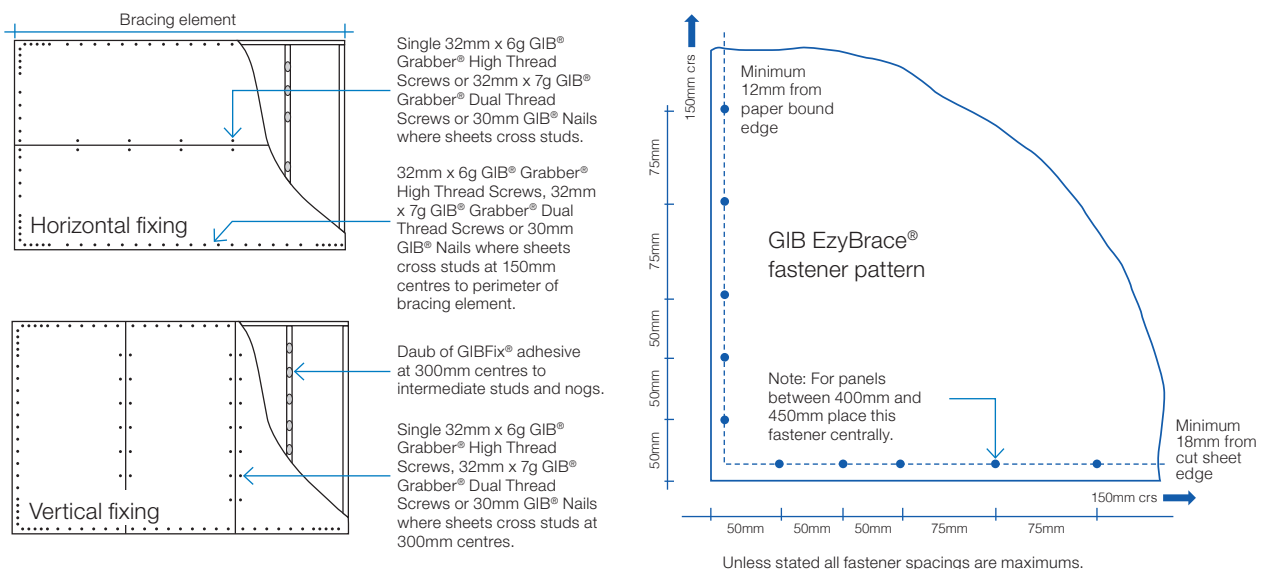
32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

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

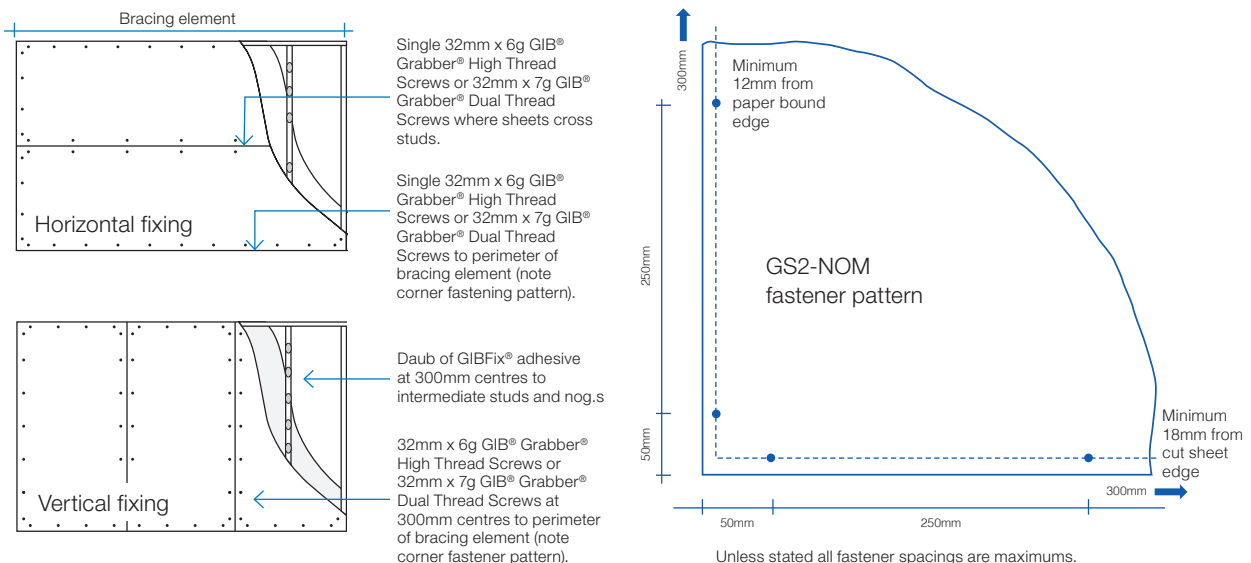
32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. If using the GIBFix® Angle use 32mm x 7g GIB® Grabber® Dual Thread Screws.

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

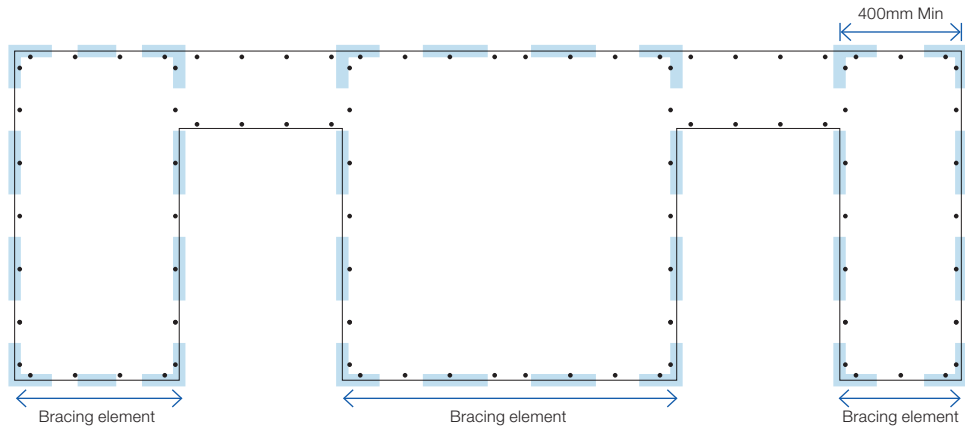
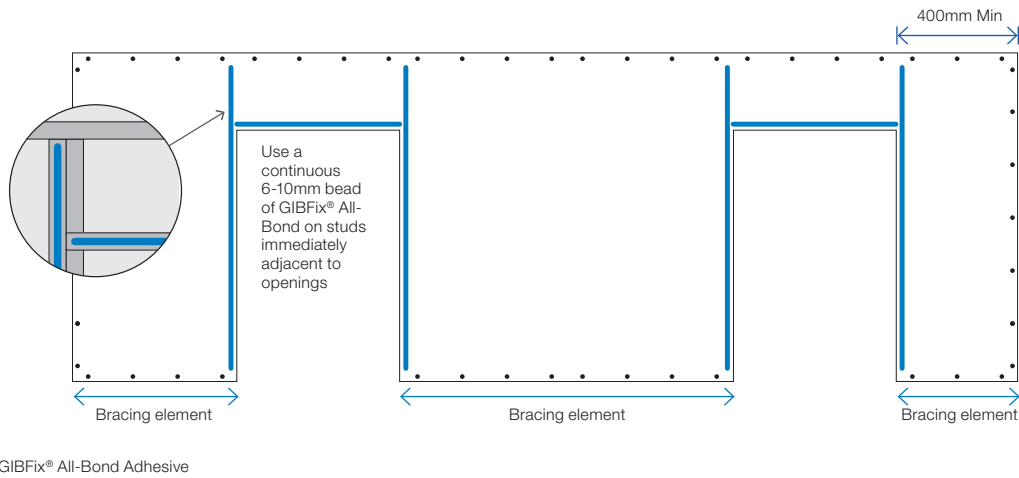
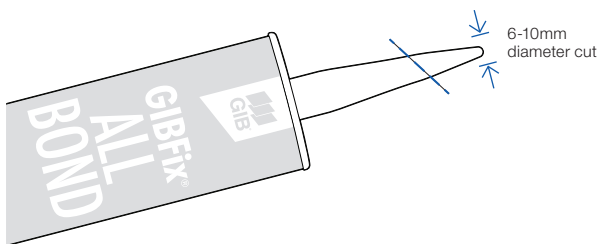


FIGURE 38: SCREW AND ADHESIVE FIX FOR OPENINGS



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

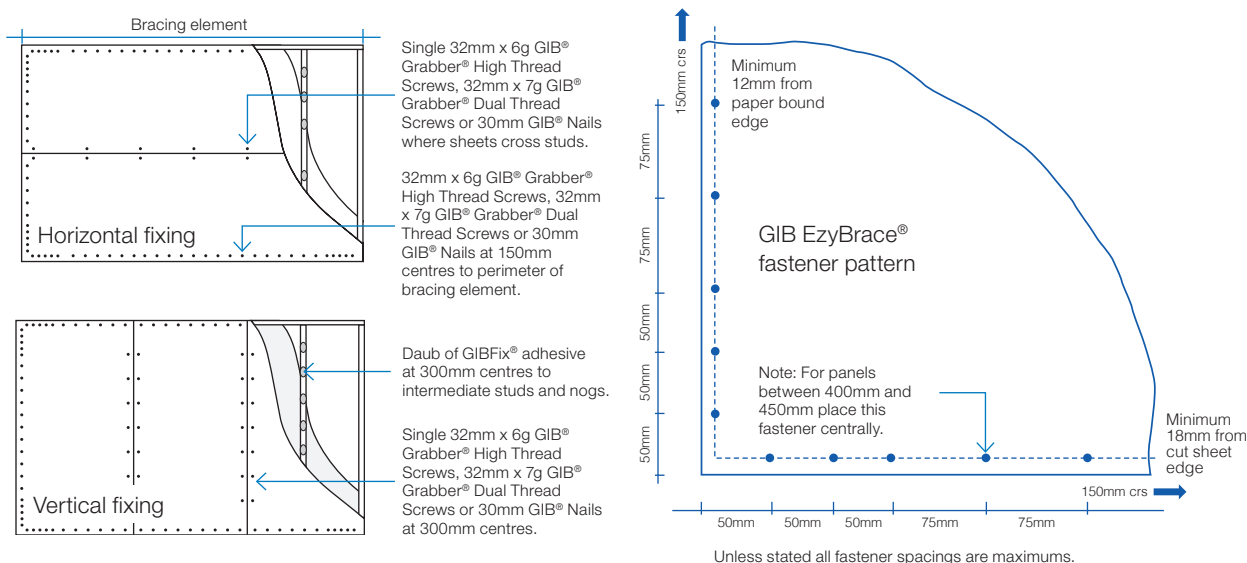
32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

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.

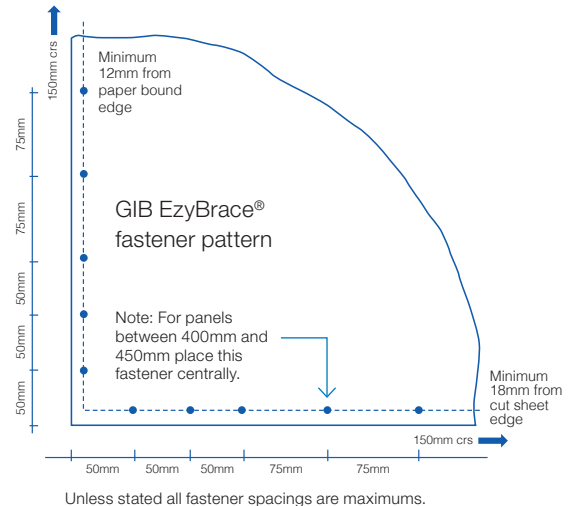
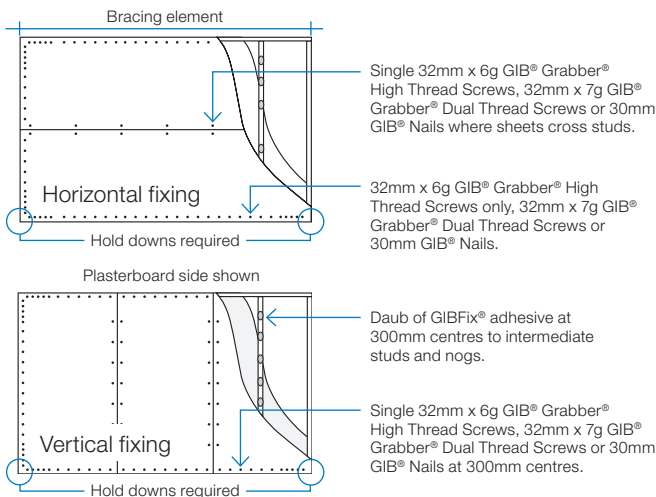
If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws. Plywood: 50 x 2.8mm Galv or Stainless steel annular grooved FH nails.

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

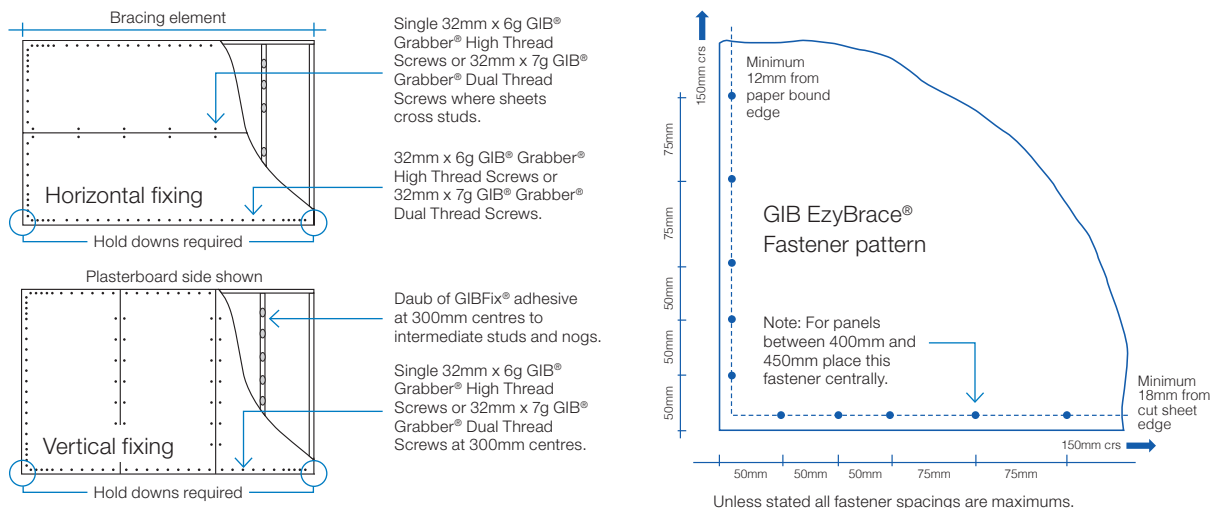
32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

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.

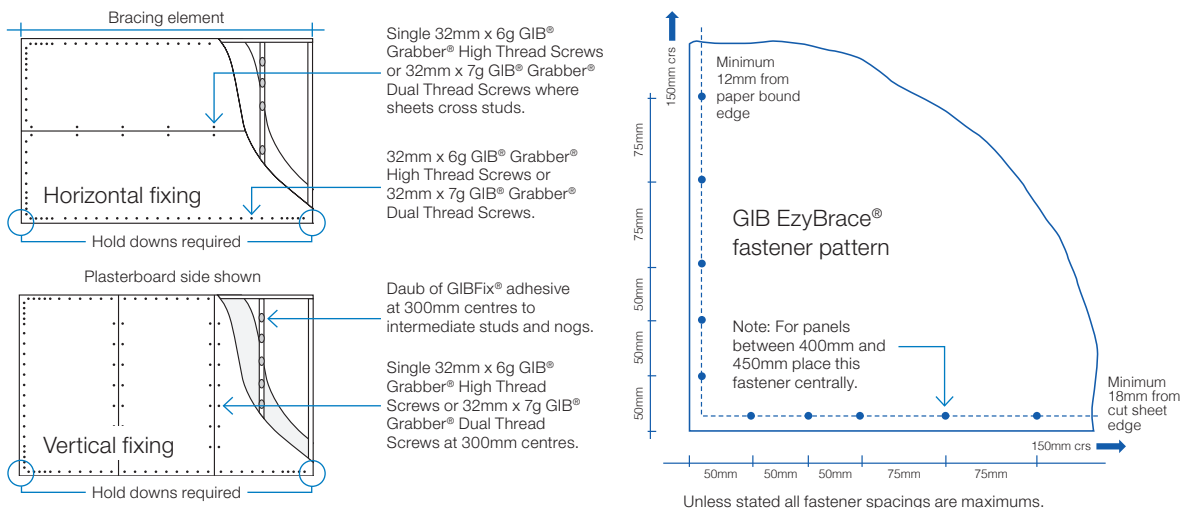
If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

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

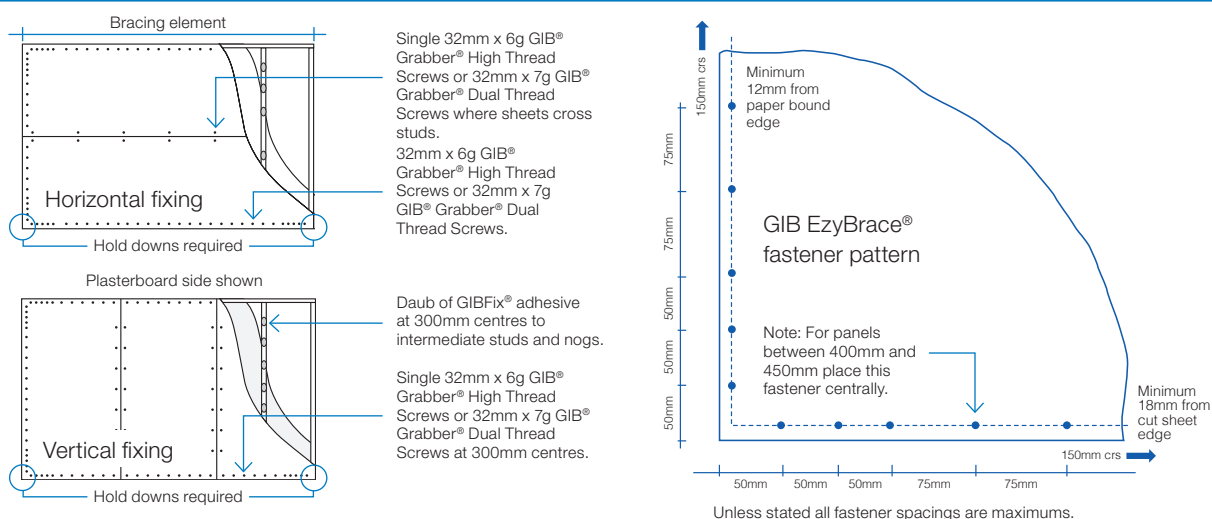
GIB Braceline® side: 32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. Plywood: 50 x 2.8mm Galv or Stainless steel annular grooved FH nails. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread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

GIB® Standard plasterboard is an economical lining material available in 10mm and 13mm thicknesses.

[View miproducts listing](#)

 Appraisal Company

GIB confirms that this minimum level of assurance has been met or exceeded by the following:

GIB

[Technical Data](#)



Technical Statement

Product Description

GIB® Standard plasterboard is an economical lining material available in 10mm and 13mm thicknesses.

13mm GIB® Standard plasterboard is recommended for use on ceilings as it is stronger and more rigid than 10mm GIB® Standard plasterboard.

Sheets have a width of 1200mm and are available in 2400, 2700, 3000, 3300, 3600, 4200, 4800 and 6000mm lengths - see the [selector chart](#) for more information.

GIB Standard plasterboard is available with both edges tapered to allow for flush finishing, or with 1 tapered, 1 square edge to provide a flat surface for finishing trims when fixing horizontally

New Zealand Building Code (NZBC)

The product will, if employed in accordance with the supplier's installation and maintenance requirements, assist with meeting the following provisions of the building code:

Notes

Evidence

The product meets the requirements set out in the following documents, or relevant parts of cited standards within the documents:

Supporting Evidence

The product has and can make available the following additional evidence to support the above statements:



CodeMark



BRANZ Appraisal

Use in Service History

Product Criteria

Installation requirements

GIB® Standard must be installed in accordance with the manufacturer's Technical Literature.

Warrantees

Company Product Information

Relationships

GIB

[Technical Data](#)



Environmental Choice New Zealand

masterspec partner

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